Measurement Protocol

Measurement Object	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 15:36
Responsible Person	audio

Status Overview

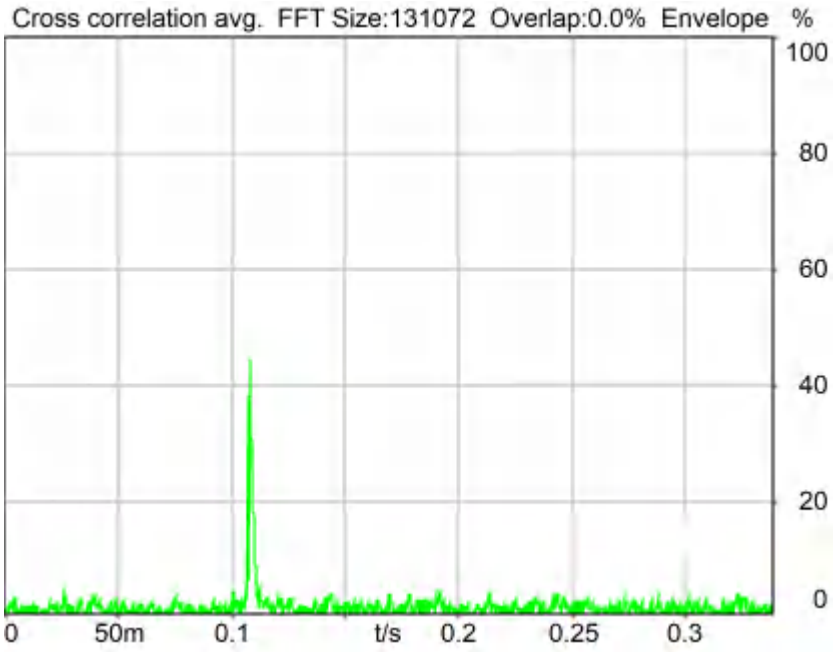
SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay NB	Done	Delay (Cross) [ms]	108.3	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.1a Receive Volume Control Performance 8N NB	Ok	Corrected Speech Level [dB[SPL]]	18.25	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.1b Receive Volume Control Performance 2N NB	Ok	Corrected Speech Level [dB[SPL]]	13.26	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	35.36	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	34.68	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 630 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	34.99	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	30.42	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.84	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.10	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	30.37	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	30.02	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	31.23	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.97	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	24.10	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	32.29	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.63	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise	Ok	Distortion (Noise)	27.46	339D LTE

- 630 Hz NB		[dB], 0.0 dB		Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	26.86	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	26.32	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	21.39	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.57	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.23	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	27.40	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.75	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.39	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.3 Frequency Response 8N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 1547.5 Hz	2.76	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.3 Frequency Response 8N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 873.9 Hz	3.54	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.3 Frequency Response 2N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 873.9 Hz	3.47	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865
5.3 Frequency Response 2N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 3882.4 Hz	1.85	339D LTE Band26_15QPSK_75RB_0_EVS NB9.6kbps_CH26865

Overall Receive Delay NB	5
5.1a Receive Volume Control Performance 8N NB	7
5.1b Receive Volume Control Performance 2N NB	9
5.2 RCV Distortion and Noise - 400 Hz NB	11
5.2 RCV Distortion and Noise - 500 Hz NB	13
5.2 RCV Distortion and Noise - 630 Hz NB	15
5.2 RCV Distortion and Noise - 800 Hz NB	17
5.2 RCV Distortion and Noise - 1000 Hz NB	19
5.2 RCV Distortion and Noise - 1250 Hz NB	22
5.2 RCV Distortion and Noise - 1600 Hz NB	24
5.2 RCV Distortion and Noise - 2000 Hz NB	26
5.2 RCV Distortion and Noise - 2500 Hz NB	28
5.2 RCV Distortion and Noise - 3150 Hz NB	30
Report - Receive Distortion and Noise (Conversational Gain)	32
5.2 RCV Distortion and Noise - 400 Hz NB	33
5.2 RCV Distortion and Noise - 500 Hz NB	35
5.2 RCV Distortion and Noise - 630 Hz NB	37
5.2 RCV Distortion and Noise - 800 Hz NB	39
5.2 RCV Distortion and Noise - 1000 Hz NB	41
5.2 RCV Distortion and Noise - 1250 Hz NB	44
5.2 RCV Distortion and Noise - 1600 Hz NB	46
5.2 RCV Distortion and Noise - 2000 Hz NB	48
5.2 RCV Distortion and Noise - 2500 Hz NB	50
5.2 RCV Distortion and Noise - 3150 Hz NB	52
Report - Receive Distortion and Noise (Conversational Gain)	54
5.3 Frequency Response 8N FF HANB	55
5.3 Frequency Response 8N DF HANB	57
5.3 Frequency Response 2N FF HANB	59
5.3 Frequency Response 2N DF HANB	62

Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 108.3 ms

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Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: cssnb1b_r1s.dat
Level adj. Ch1 -90.0 dB
CSSnb1b_R1s.dat - CS-signal with special 1s random noise
NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2
Pause 0.5 s +
voiced signal + 4000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 4000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.5 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 7.9 N

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_NB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

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labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

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Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

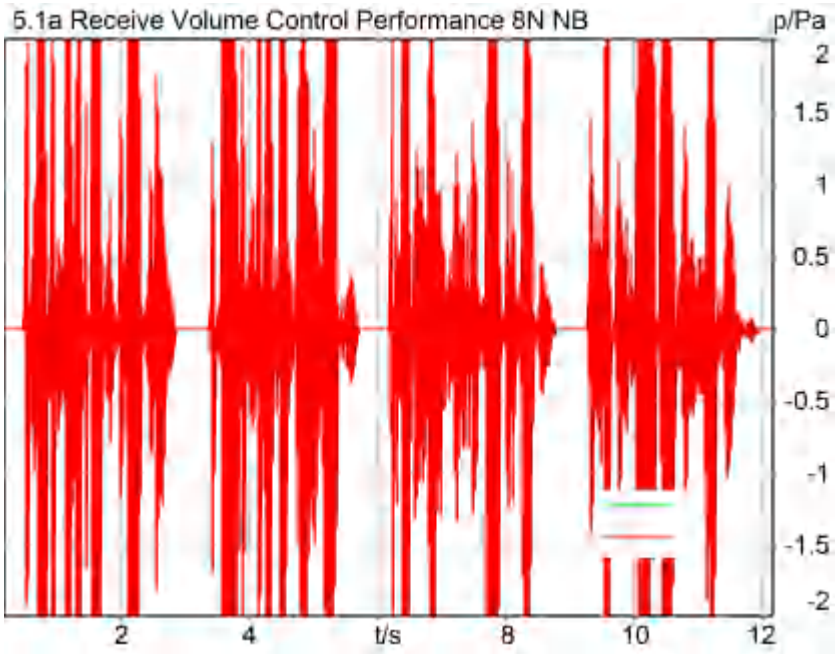
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 88.25 dB[SPL], Act.: 82.24%
Corrected Speech Level: 18.25 dB[SPL] Ok

Ok

2024/1/20 13:09 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

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labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

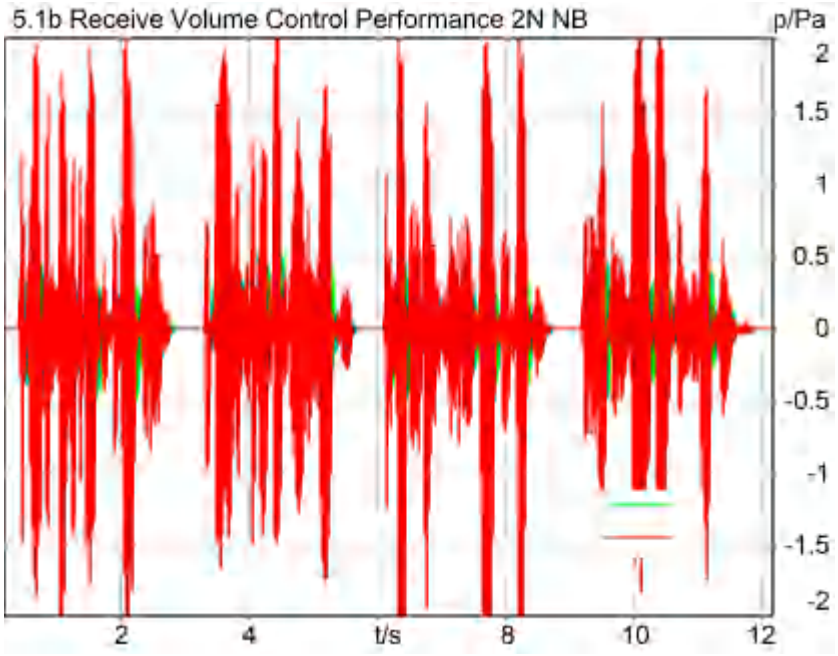
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 83.26 dB[SPL], Act.: 83.12%
Corrected Speech Level: 13.26 dB[SPL] Ok

Ok

2024/1/20 13:02 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features

Show source signal	Source ch.2	Compensate delay	190.0000 ms (D_RCV_NB)

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

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labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

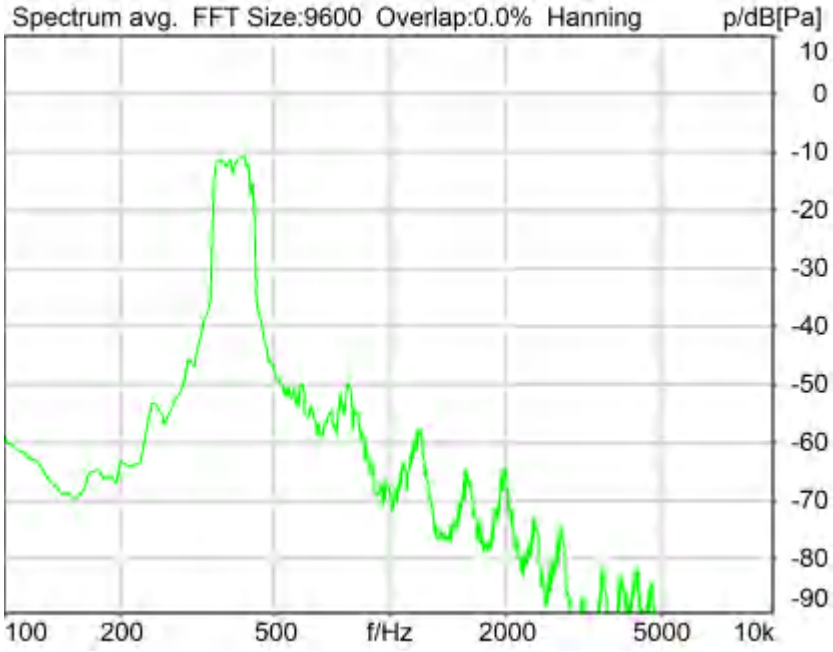
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 35.36 dB (1.71%) Ok

Ok

2024/1/20 13:10 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 7.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

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labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))

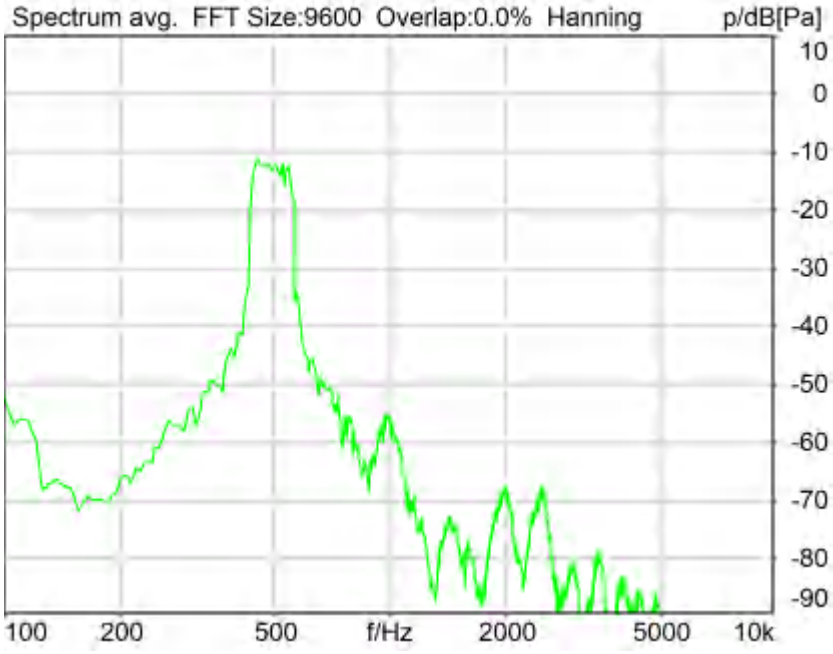
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.68 dB (1.84%) Ok

Ok

2024/1/20 13:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

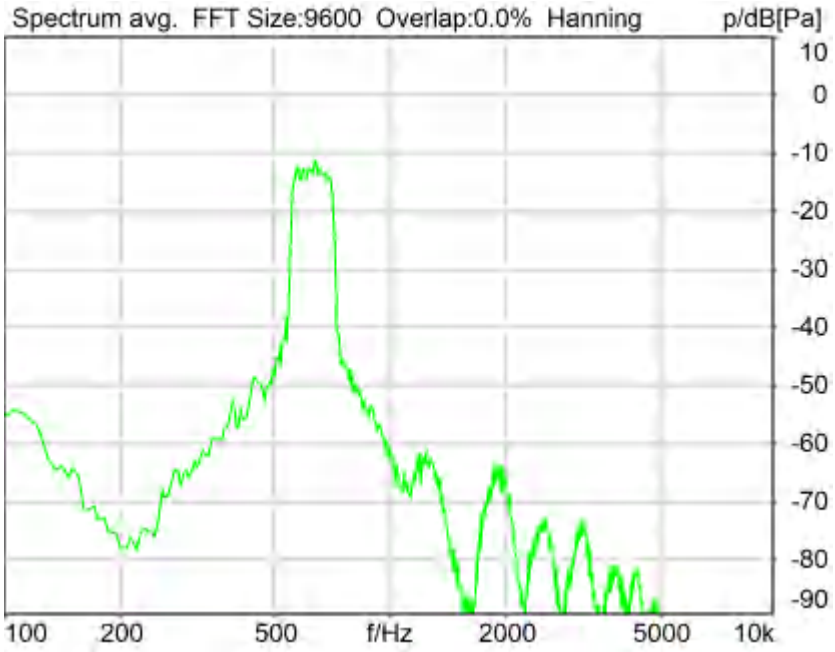
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.99 dB (1.78%) Ok

Ok

2024/1/20 13:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 7.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 30.42 dB (3.01%) Ok

Ok

2024/1/20 13:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 7.9 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

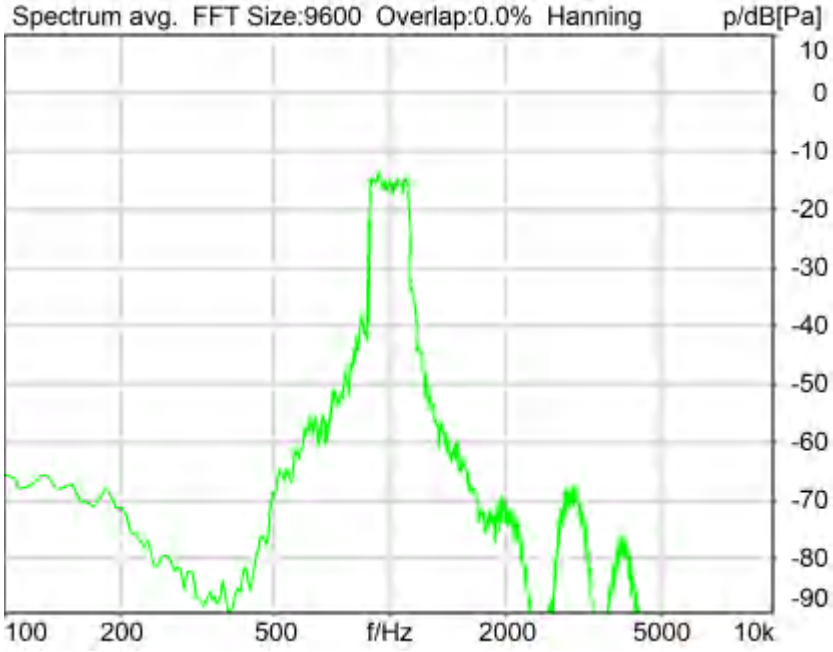
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.84 dB (3.62%) Ok

Ok

2024/1/20 13:12 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

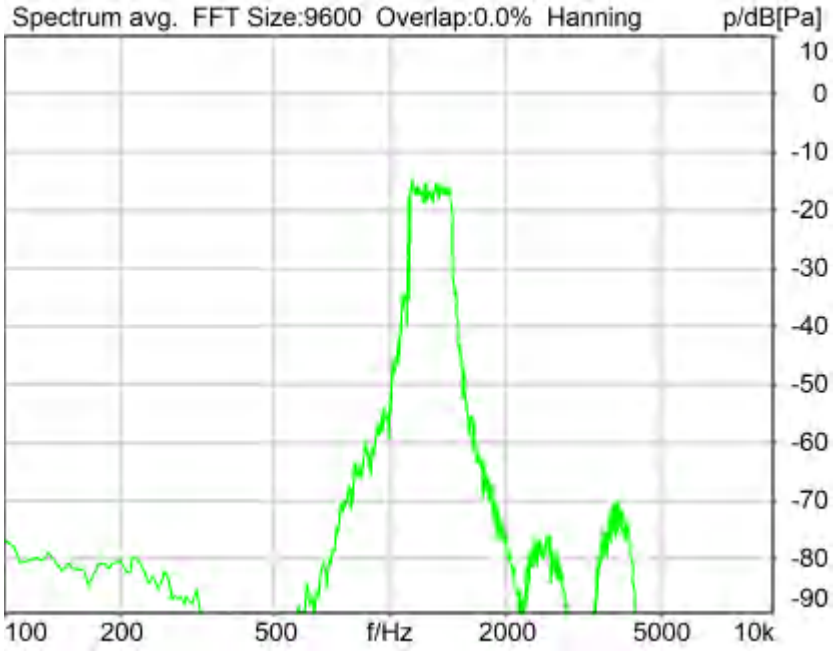
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.10 dB (6.24%) Ok

Ok

2024/1/20 13:12 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

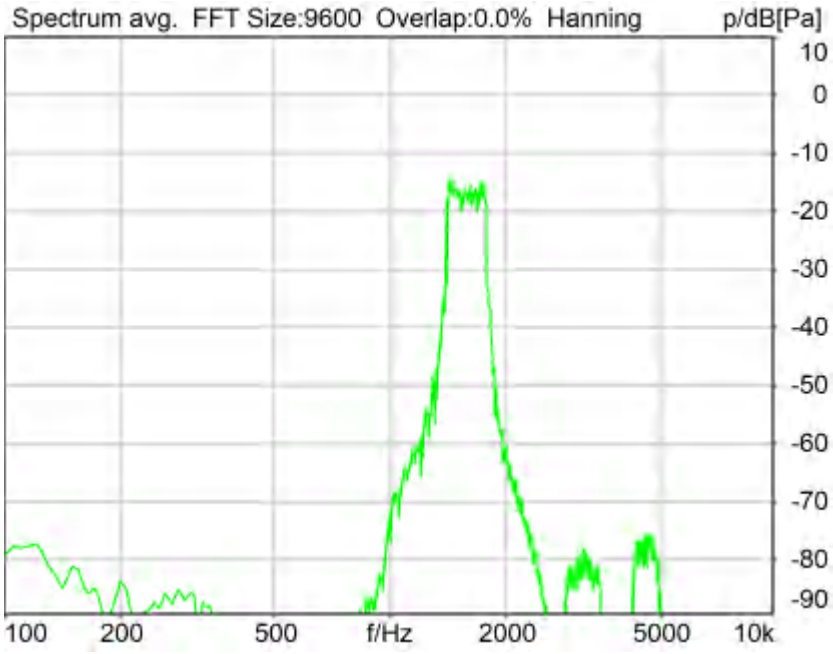
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.37 dB (3.03%) Ok

Ok

2024/1/20 13:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 7.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

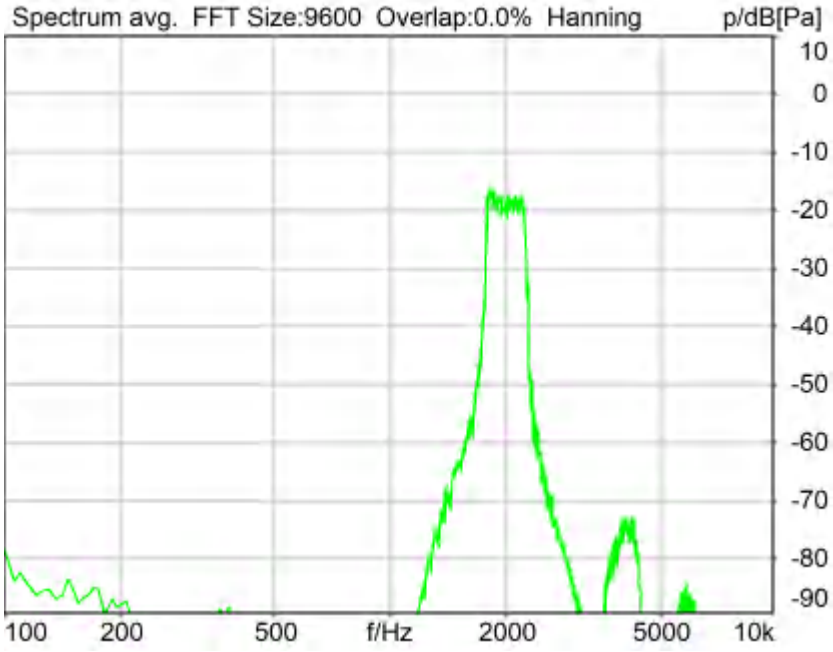
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.02 dB (3.16%) Ok

Ok

2024/1/20 13:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

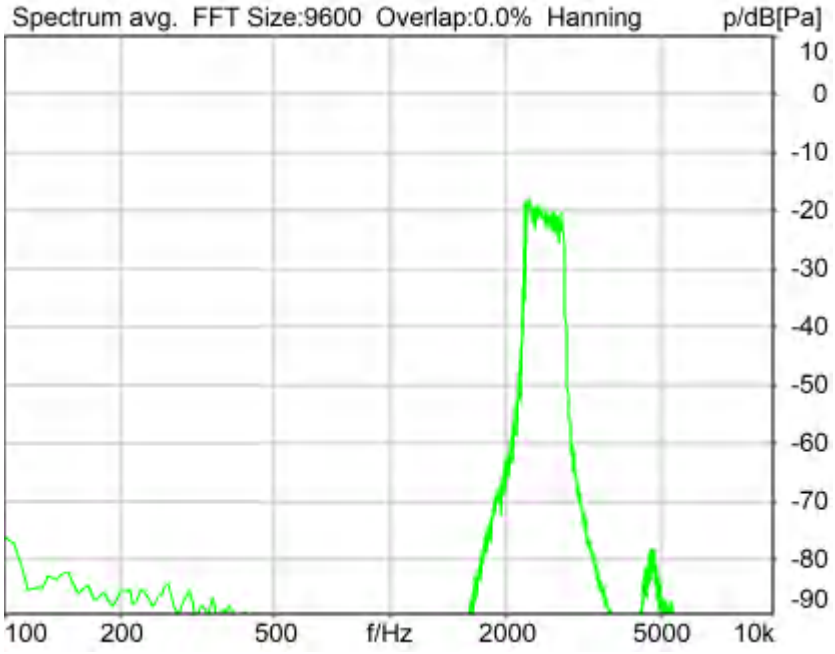
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.23 dB (2.75%) Ok

Ok

2024/1/20 13:14 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

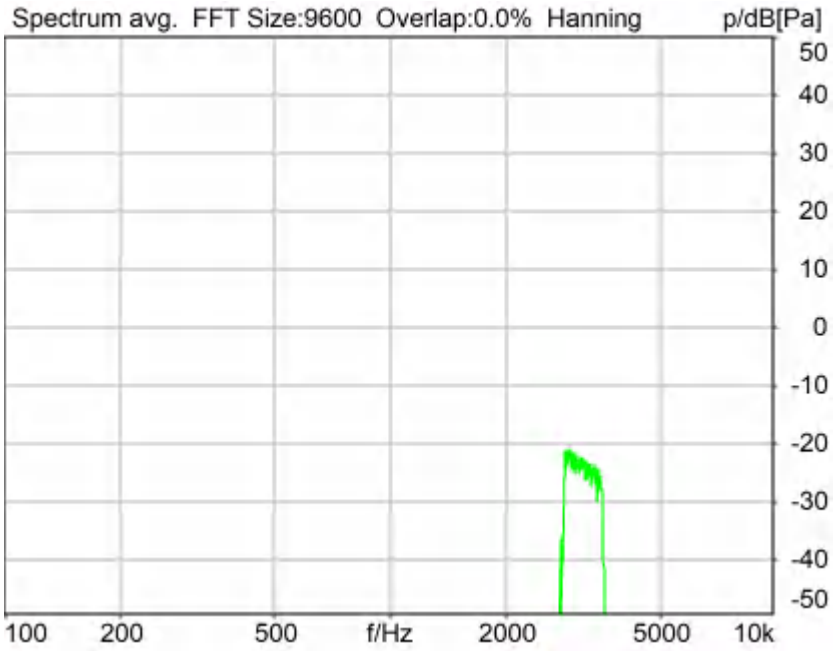
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.97 dB (3.17%) Ok

Ok

2024/1/20 13:14 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	108.3000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

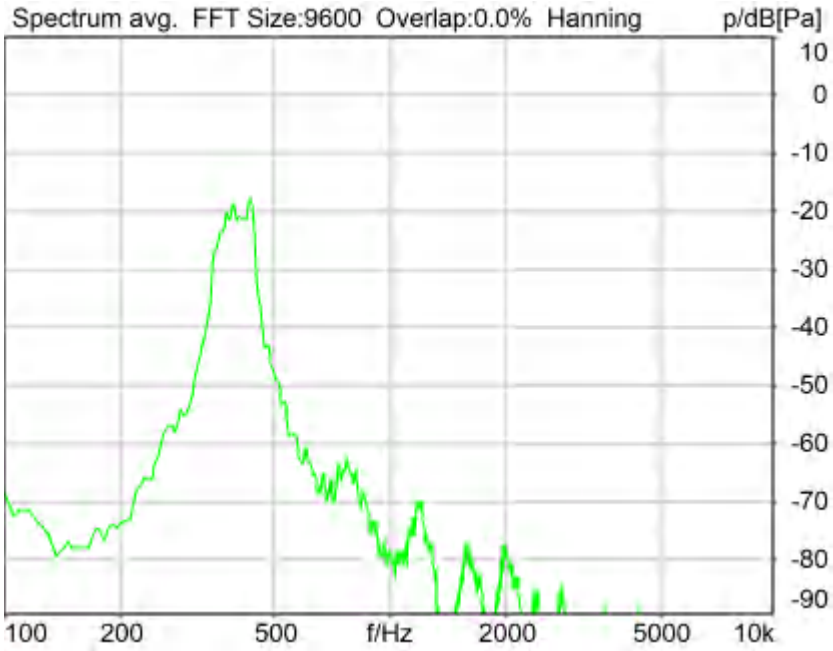
Region	Frequency	SDNR
1	400Hz	35.36 dB
2	500Hz	34.68 dB
3	630Hz	34.99 dB
4	800Hz	30.42 dB
5	1000Hz	28.84 dB
6	1250Hz	24.10 dB
7	1600Hz	30.37 dB
8	2000Hz	30.02 dB
9	2500Hz	31.23 dB
10	3150Hz	29.97 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 24.10dB at 1250Hz.

2024/1/20 13:14 ACQUA

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.29 dB (2.43%) Ok

Ok

2024/1/20 13:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

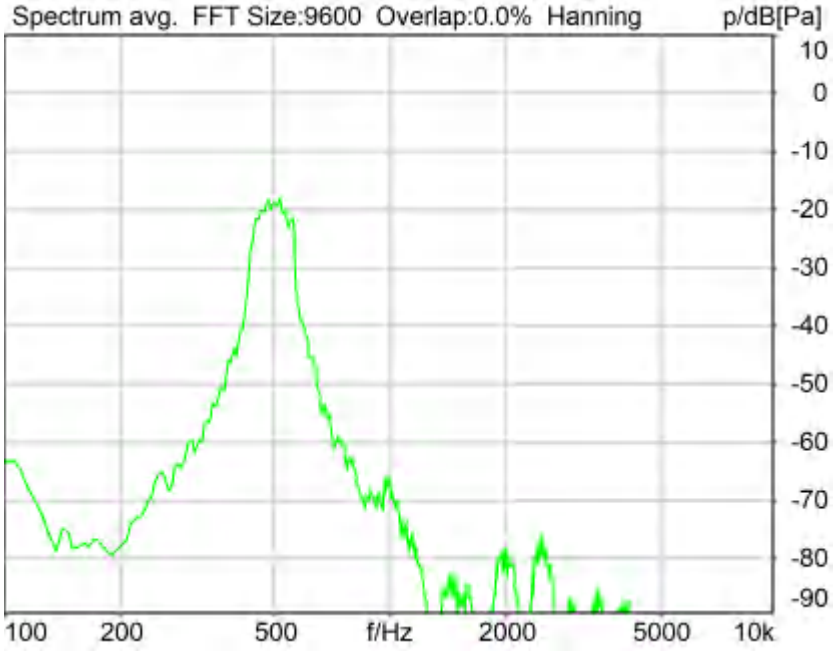
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.63 dB (3.70%) Ok

Ok

2024/1/20 13:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.46 dB (4.24%) Ok

Ok

2024/1/20 13:04 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

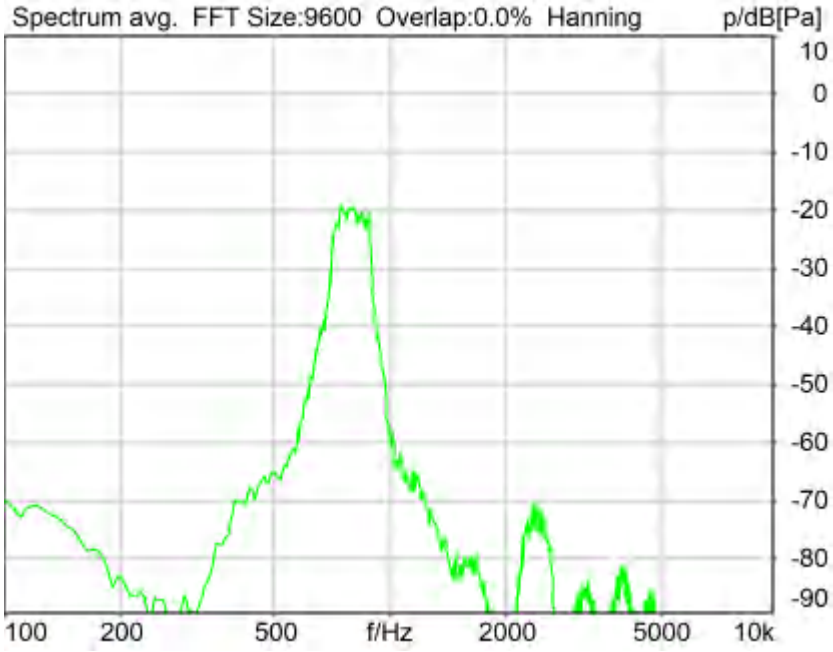
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.86 dB (4.54%) Ok

Ok

2024/1/20 13:04 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

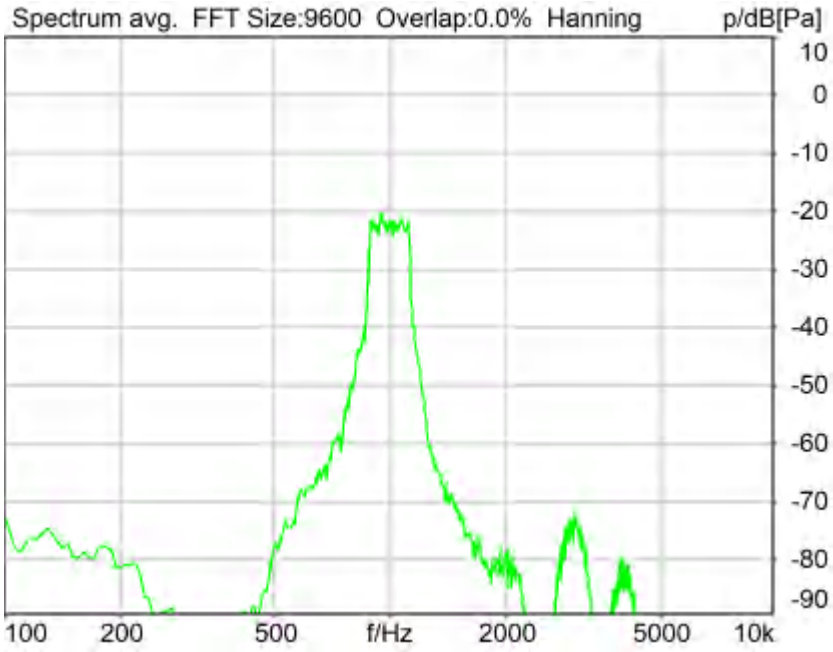
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.32 dB (4.83%) Ok

Ok

2024/1/20 13:05 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

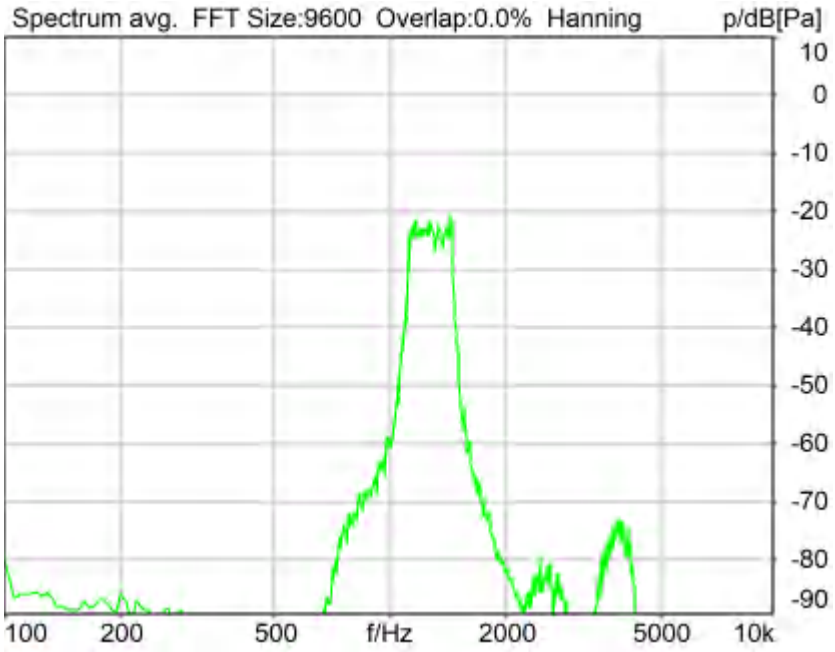
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 21.39 dB (8.52%) Ok

Ok

2024/1/20 13:05 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker

Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

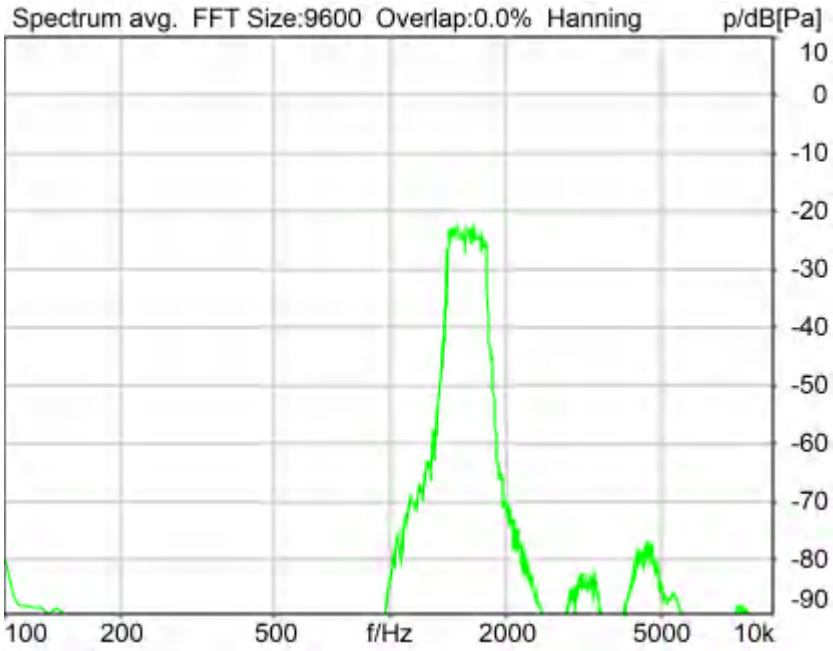
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.57 dB (3.73%) Ok

Ok

2024/1/20 13:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

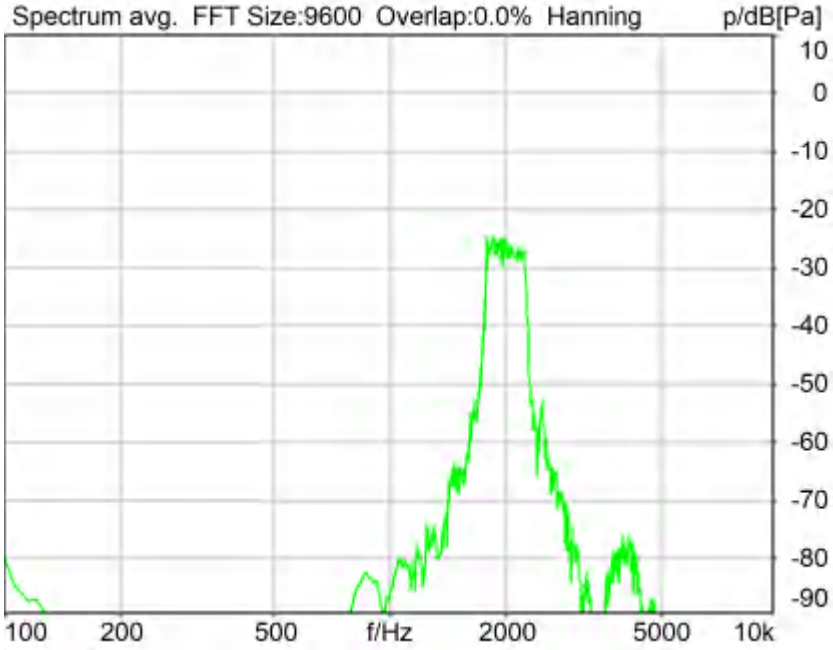
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.23 dB (5.48%) Ok

Ok

2024/1/20 13:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

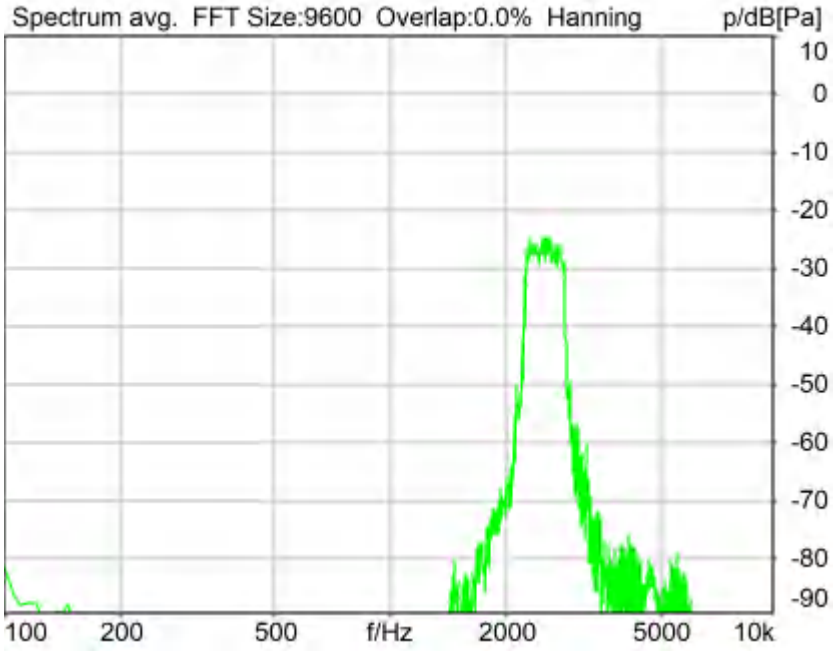
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.40 dB (4.27%) Ok

Ok

2024/1/20 13:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

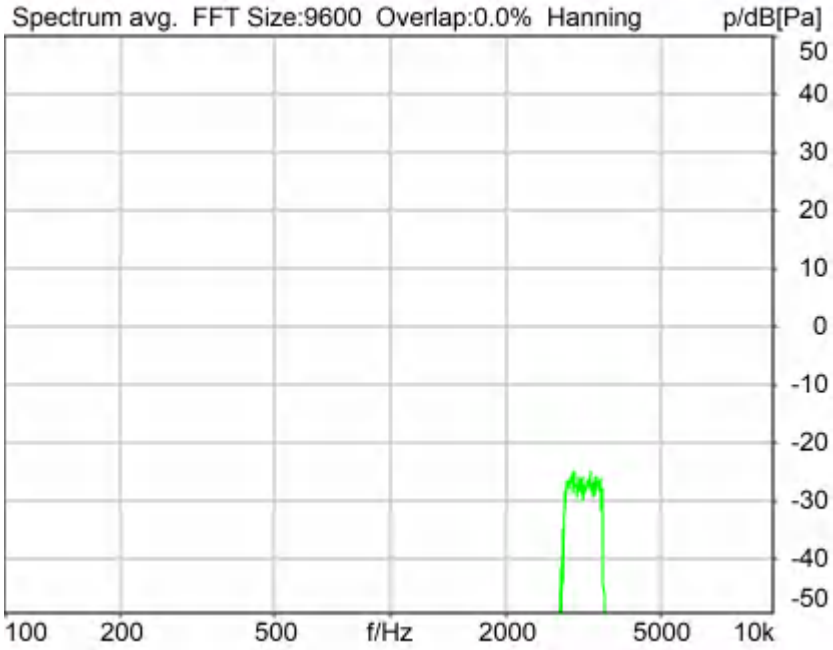
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.75 dB (3.26%) Ok

Ok

2024/1/20 13:07 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)	Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

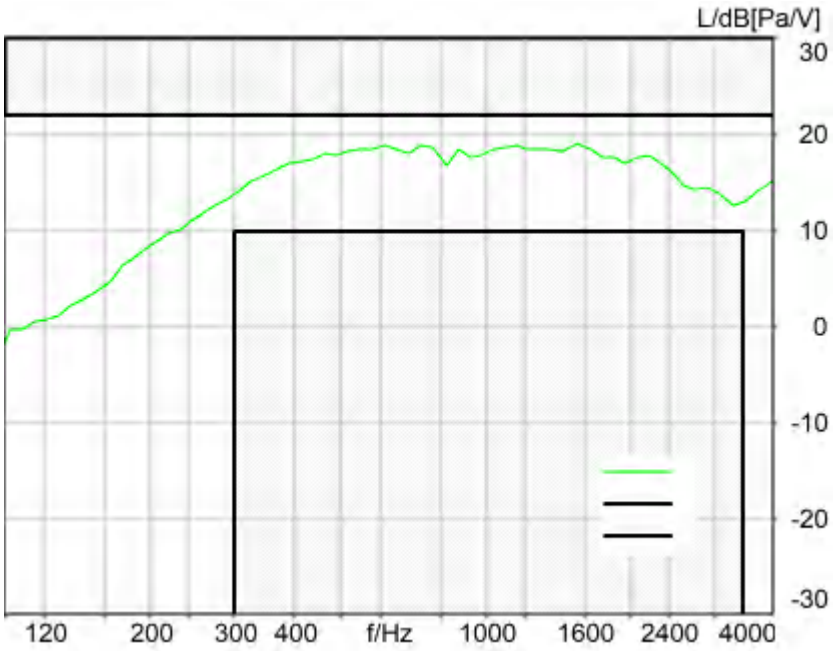
Region	Frequency	SDNR
1	400Hz	32.29 dB
2	500Hz	28.63 dB
3	630Hz	27.46 dB
4	800Hz	26.86 dB
5	1000Hz	26.32 dB
6	1250Hz	21.39 dB
7	1600Hz	28.57 dB
8	2000Hz	25.23 dB
9	2500Hz	27.40 dB
10	3150Hz	29.75 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.39dB at 1250Hz.

2024/1/20 13:07 ACQUA

5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.76 dB at 1547.5 Hz Ok

Ok

2024/1/20 13:15 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	108.3000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

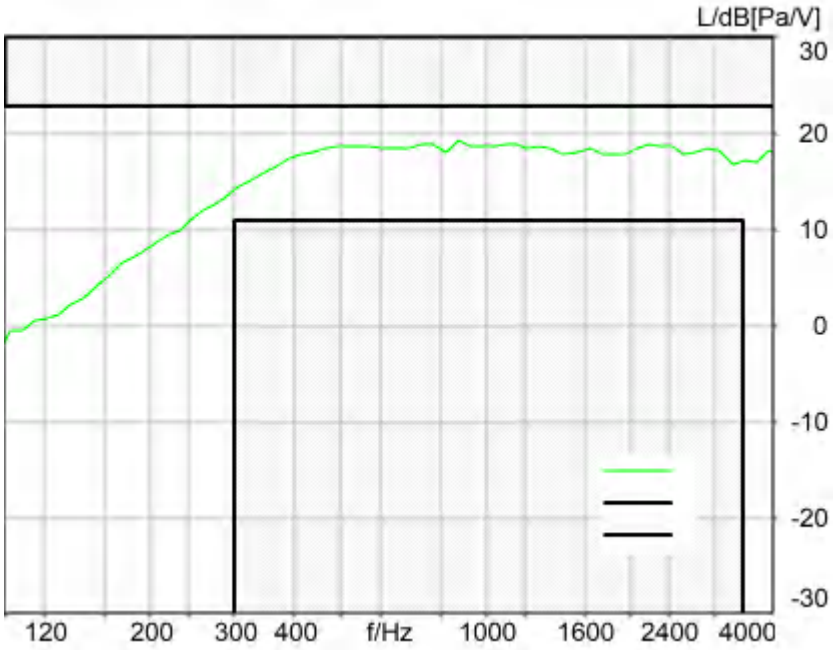
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
3.54 dB at 873.9 Hz Ok

Ok

2024/1/20 13:15 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat

Level adj. Ch1	-90.0 dB	Level adj. Ch2	-4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 108.3000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

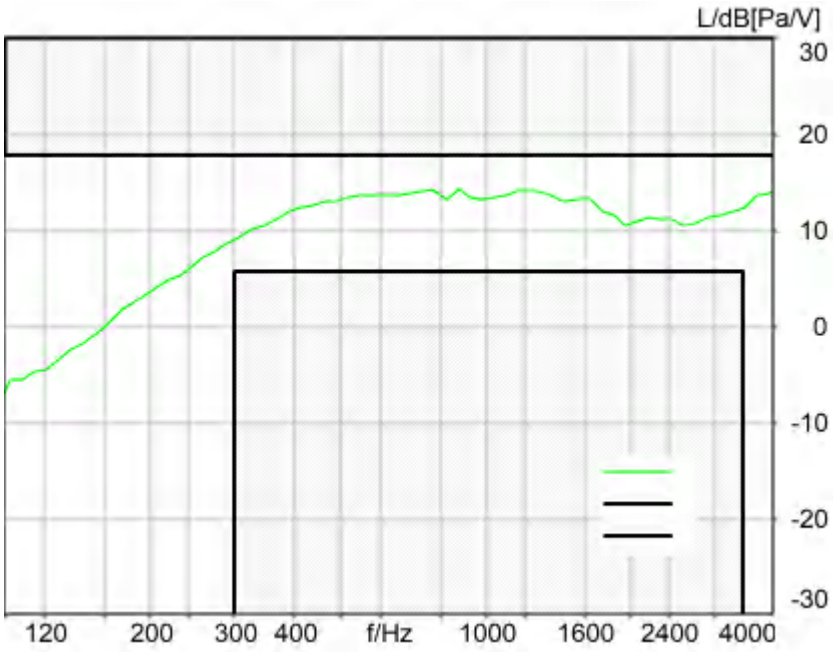
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
3.47 dB at 873.9 Hz Ok

Ok

2024/1/20 13:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		

FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

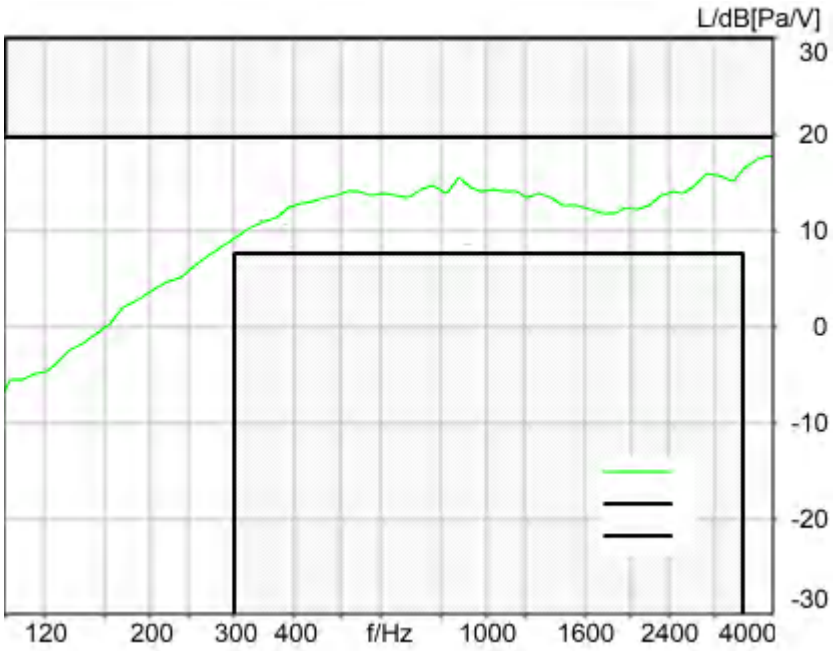
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
1.85 dB at 3882.4 Hz Ok

Ok

2024/1/20 13:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	0.1 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 2.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	190.0000 ms (D_RCV_NB)

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 15:37
Responsible Person	audio

Status Overview

SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay WB	Done	Delay (Cross) [ms]	109.4	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.1a Receive Volume Control Performance 8N WB	Ok	Corrected Speech Level [dB[SPL]]	18.32	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.1b Receive Volume Control Performance 2N WB	Ok	Corrected Speech Level [dB[SPL]]	13.24	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	26.26	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.61	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	35.01	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	34.89	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	34.64	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	32.68	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.08	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.17	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.87	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.61	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	26.38	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.71	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.88	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and	Ok	Distortion (Noise)	22.03	339D LTE

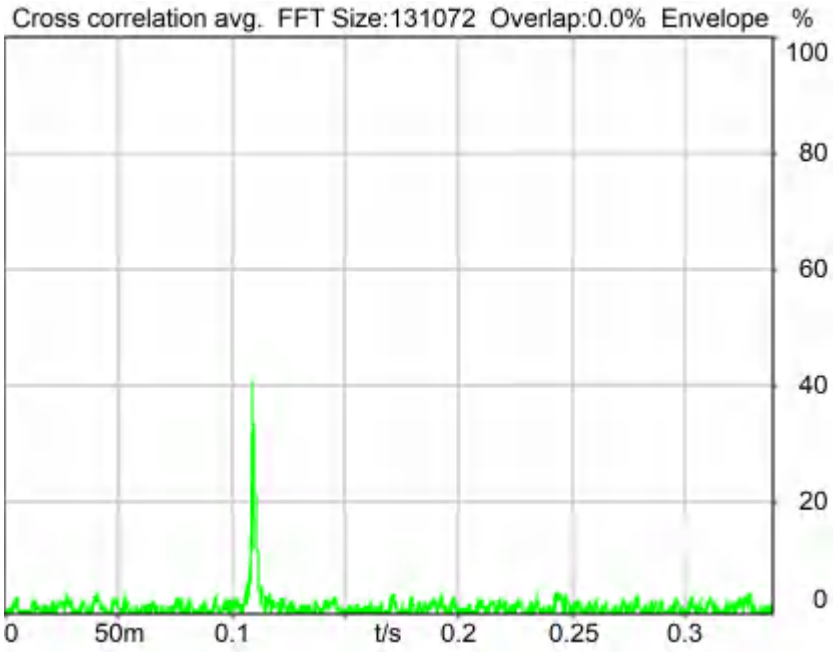
Noise - 5000 Hz WB		[dB], 0.0 dB		Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 5000Hz)	22.03	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.34	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	31.59	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	36.64	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	35.51	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	35.04	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	33.39	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.88	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.04	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	30.03	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.82	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.26	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	30.07	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	30.50	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.2 RCV Distortion and Noise - 5000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	32.34	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	25.04	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.3 Frequency Response 8NFF	Ok	Min. dist. to tolerance scheme [dB], 873.9 Hz	1.95	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.3 Frequency Response 8N	Ok	Min. dist. to tolerance	2.46	339D LTE

DF		scheme [dB], 873.9 Hz		Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.3 Frequency Response 2NFF	Ok	Min. dist. to tolerance scheme [dB], 873.9 Hz	2.89	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865
5.3 Frequency Response 2NDF	Ok	Min. dist. to tolerance scheme [dB], 4369.4 Hz	1.91	339D LTE Band26_15QPSK_75RB_0_EVS WB13.2kpbs_CH26865

Overall Receive Delay WB 6
5.1a Receive Volume Control Performance 8N WB 8
5.1b Receive Volume Control Performance 2N WB 10
5.2 RCV Distortion and Noise - 250 Hz WB 12
5.2 RCV Distortion and Noise - 315 Hz WB 14
5.2 RCV Distortion and Noise - 400 Hz WB 16
5.2 RCV Distortion and Noise - 500 Hz WB 18
5.2 RCV Distortion and Noise - 630 Hz WB 20
5.2 RCV Distortion and Noise - 800 Hz WB 23
5.2 RCV Distortion and Noise - 1000 Hz WB 25
5.2 RCV Distortion and Noise - 1250 Hz WB 27
5.2 RCV Distortion and Noise - 1600 Hz WB 29
5.2 RCV Distortion and Noise - 2000 Hz WB 31
5.2 RCV Distortion and Noise - 2500 Hz WB 33
5.2 RCV Distortion and Noise - 3150 Hz WB 36
5.2 RCV Distortion and Noise - 4000 Hz WB 38
5.2 RCV Distortion and Noise - 5000 Hz WB 40
Report - Receive Distortion and Noise (Conversational Gain) 42
5.2 RCV Distortion and Noise - 250 Hz WB 43
5.2 RCV Distortion and Noise - 315 Hz WB 45
5.2 RCV Distortion and Noise - 400 Hz WB 47
5.2 RCV Distortion and Noise - 500 Hz WB 49
5.2 RCV Distortion and Noise - 630 Hz WB 51
5.2 RCV Distortion and Noise - 800 Hz WB 53
5.2 RCV Distortion and Noise - 1000 Hz WB 56
5.2 RCV Distortion and Noise - 1250 Hz WB 58
5.2 RCV Distortion and Noise - 1600 Hz WB 60
5.2 RCV Distortion and Noise - 2000 Hz WB 62
5.2 RCV Distortion and Noise - 2500 Hz WB 64
5.2 RCV Distortion and Noise - 3150 Hz WB 66
5.2 RCV Distortion and Noise - 4000 Hz WB 69
5.2 RCV Distortion and Noise - 5000 Hz WB 71
Report - Receive Distortion and Noise (Conversational Gain) 73
5.3 Frequency Response 8N FF 73
5.3 Frequency Response 8N DF 76
5.3 Frequency Response 2N FF 78
5.3 Frequency Response 2N DF 80

Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 109.4 ms

2024/1/20 13:19 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: csswb1b_r1s.dat
WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2
Pause 0.5 s +
voiced signal + 8000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 8000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)
Rotation Delta A 0.0 °

MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_WB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

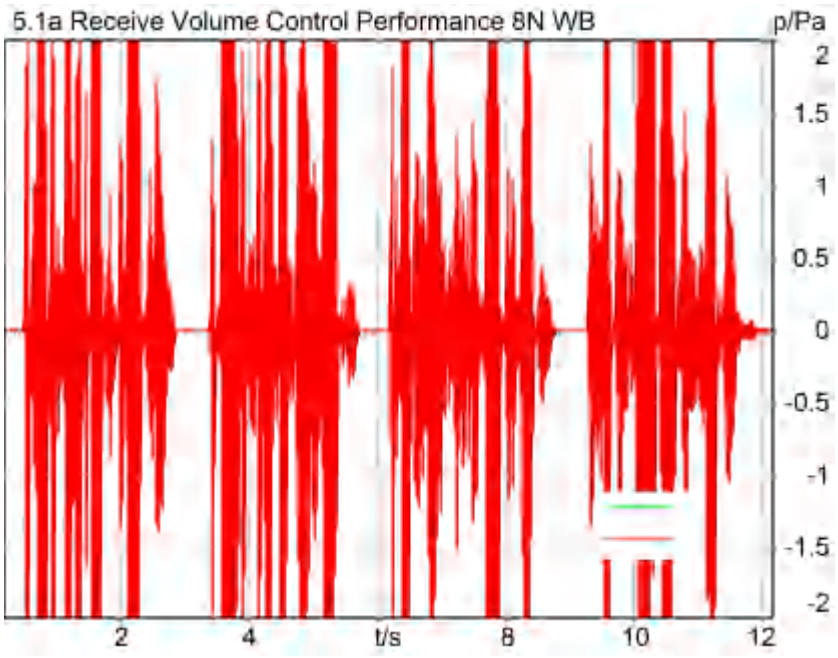
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 88.32 dB[SPL], Act.: 81.59%
Corrected Speech Level: 18.32 dB[SPL] Ok

Ok

2024/1/20 13:19 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

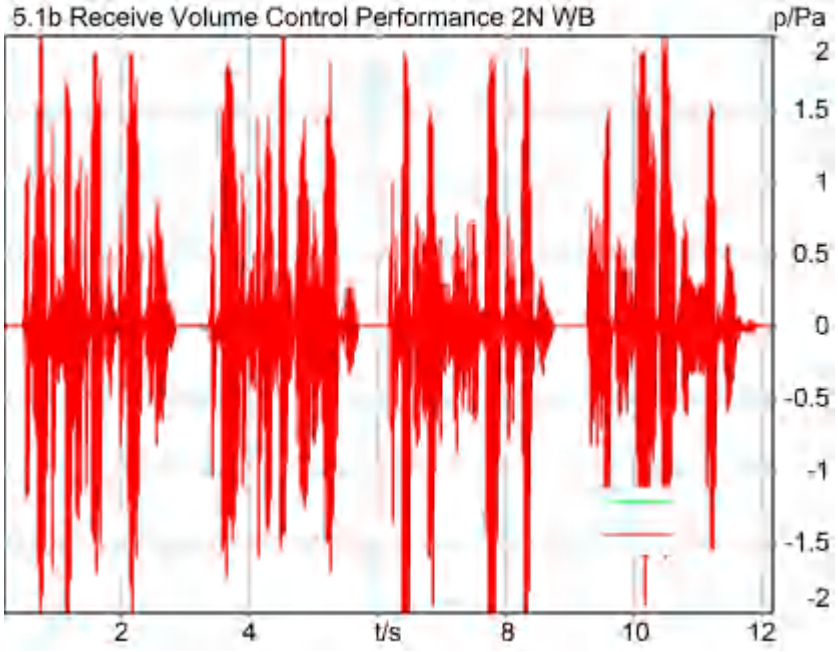
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 83.24 dB[SPL], Act.: 83.39%
Corrected Speech Level: 13.24 dB[SPL] Ok

Ok

2024/1/20 13:28 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.2 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))

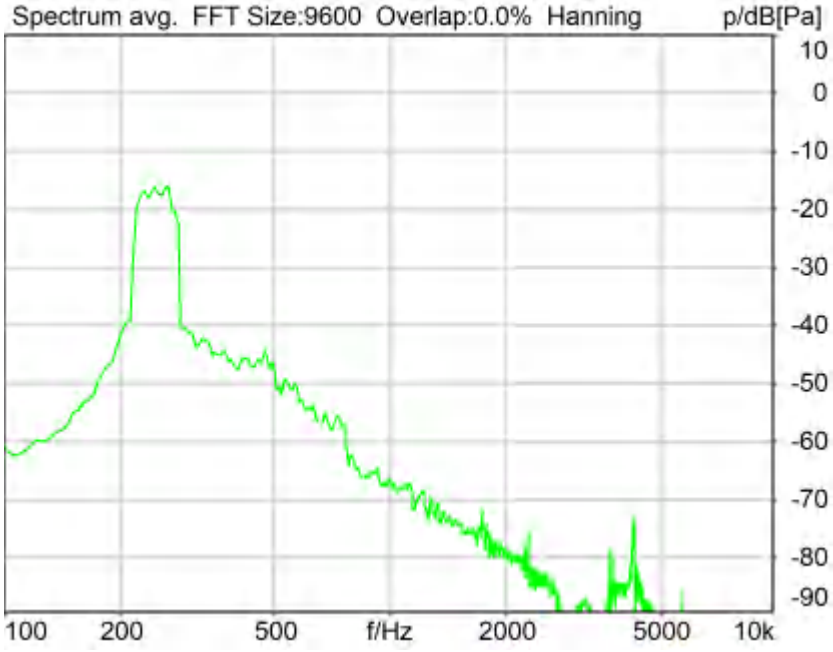
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.26 dB (4.86%) Ok

Ok

2024/1/20 13:20 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))

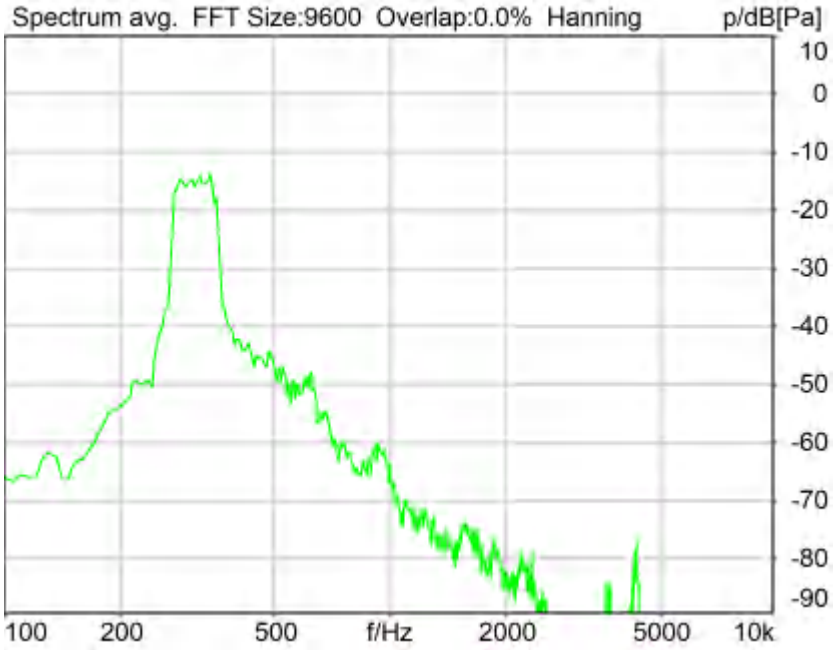
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.61 dB (3.31%) Ok

Ok

2024/1/20 13:20 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

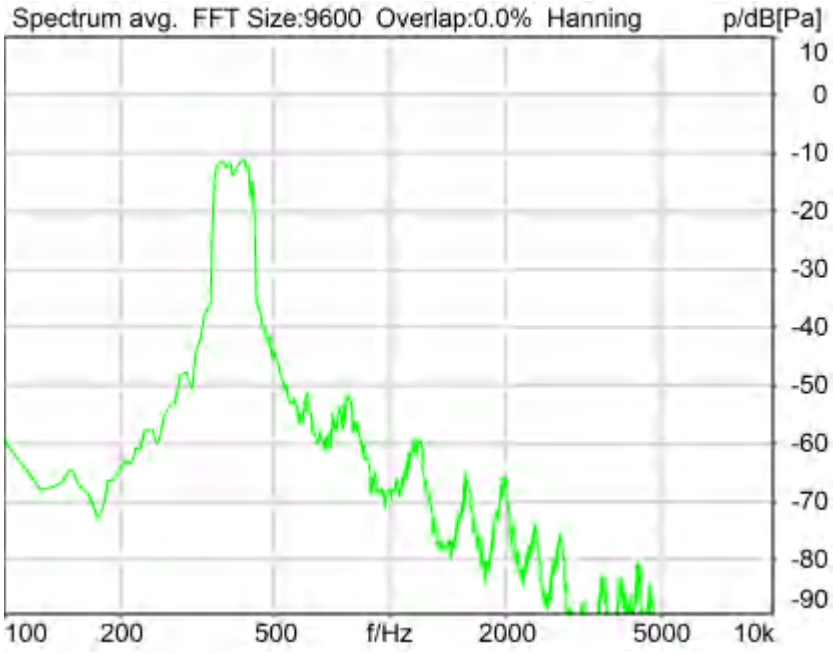
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 35.01 dB (1.78%) Ok

Ok

2024/1/20 13:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out

In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

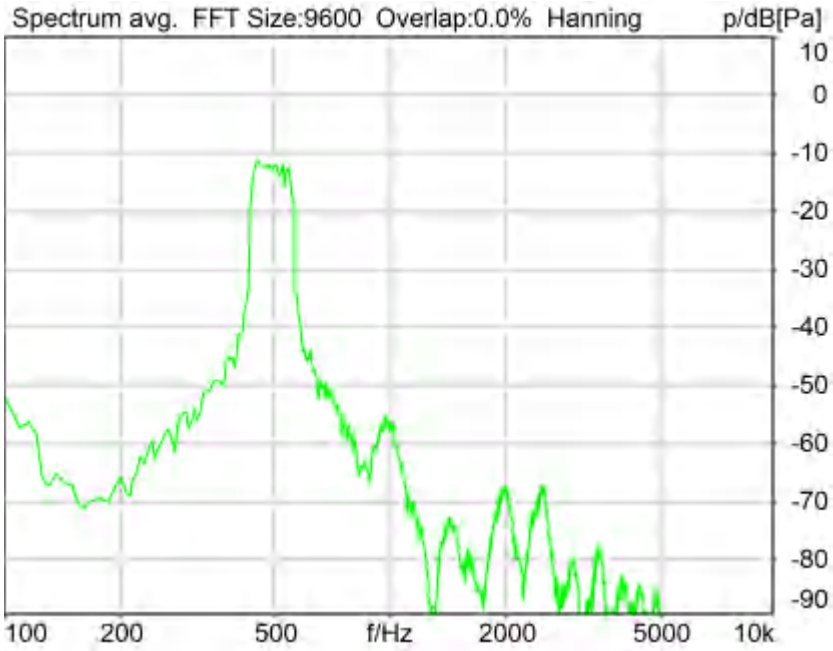
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.89 dB (1.80%) Ok

Ok

2024/1/20 13:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 34.64 dB (1.85%) Ok

Ok

2024/1/20 13:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

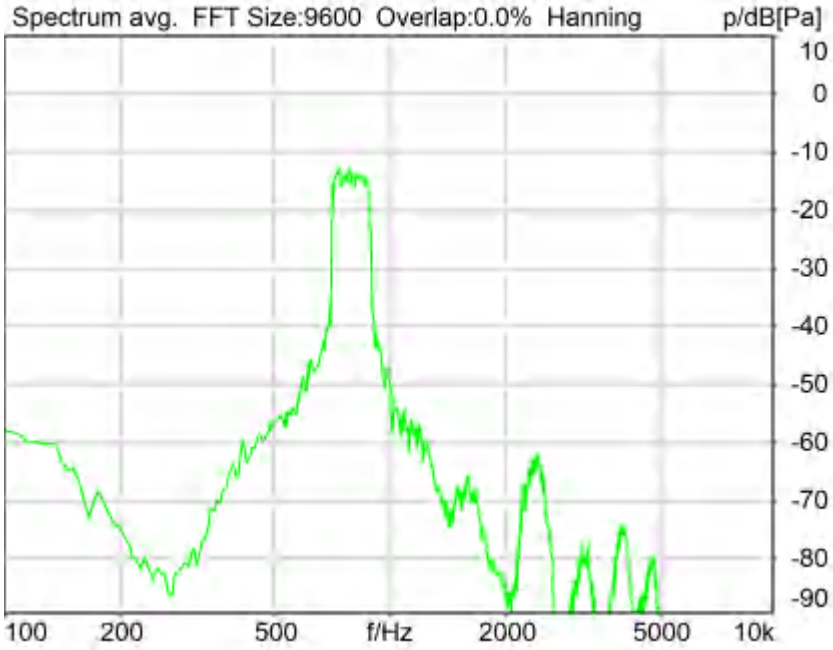
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.68 dB (2.32%) Ok

Ok

2024/1/20 13:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

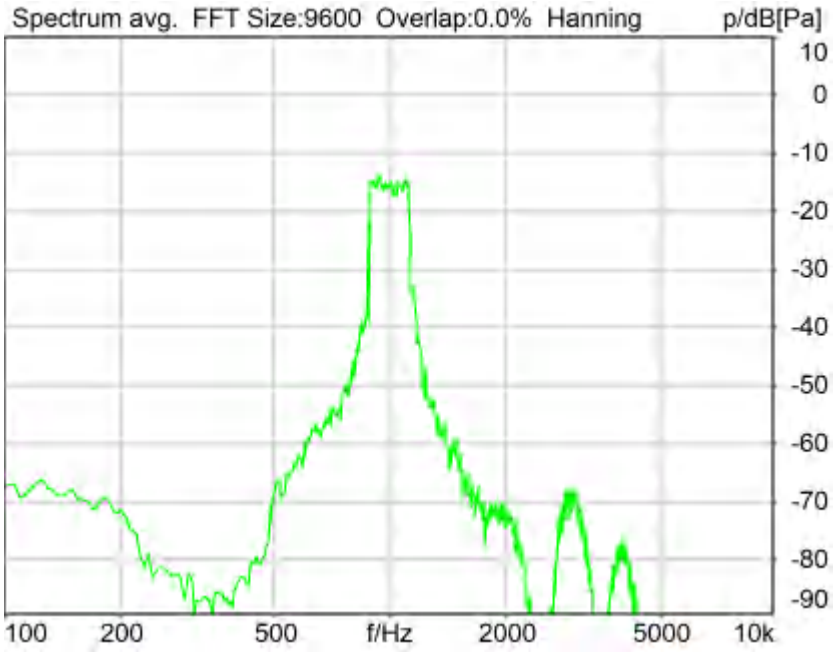
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.08 dB (3.51%) Ok

Ok

2024/1/20 13:22 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

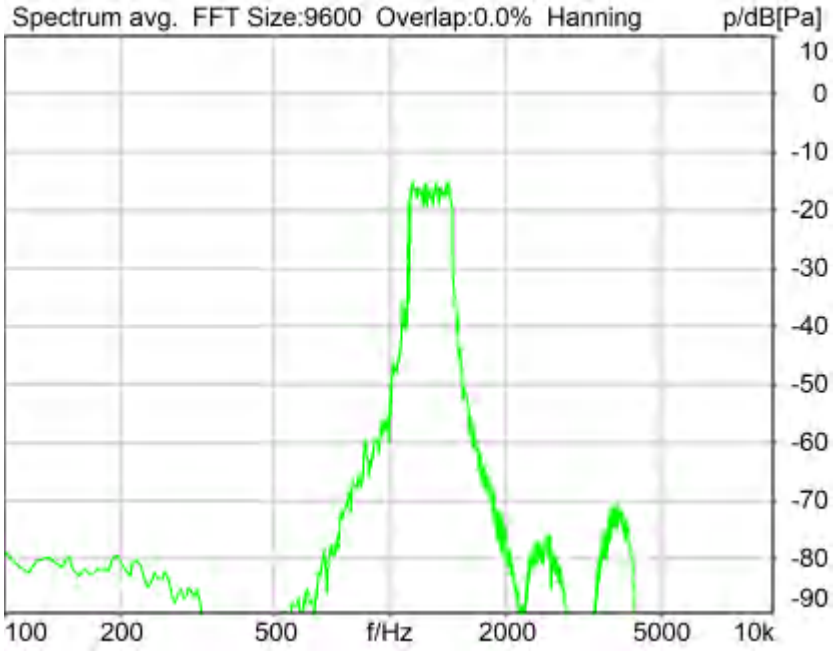
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.17 dB (5.52%) Ok

Ok

2024/1/20 13:23 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

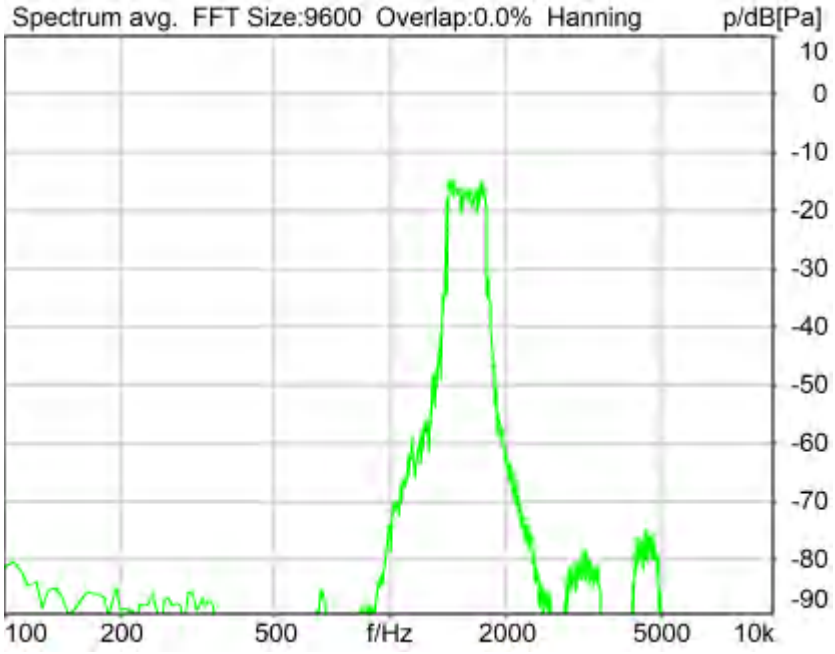
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.87 dB (3.21%) Ok

Ok

2024/1/20 13:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

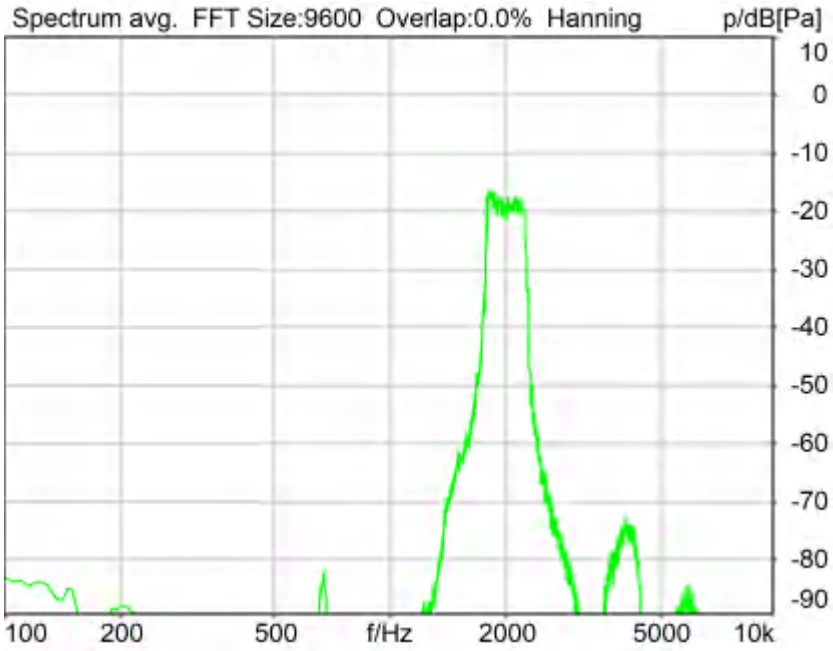
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.61 dB (3.31%) Ok

Ok

2024/1/20 13:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

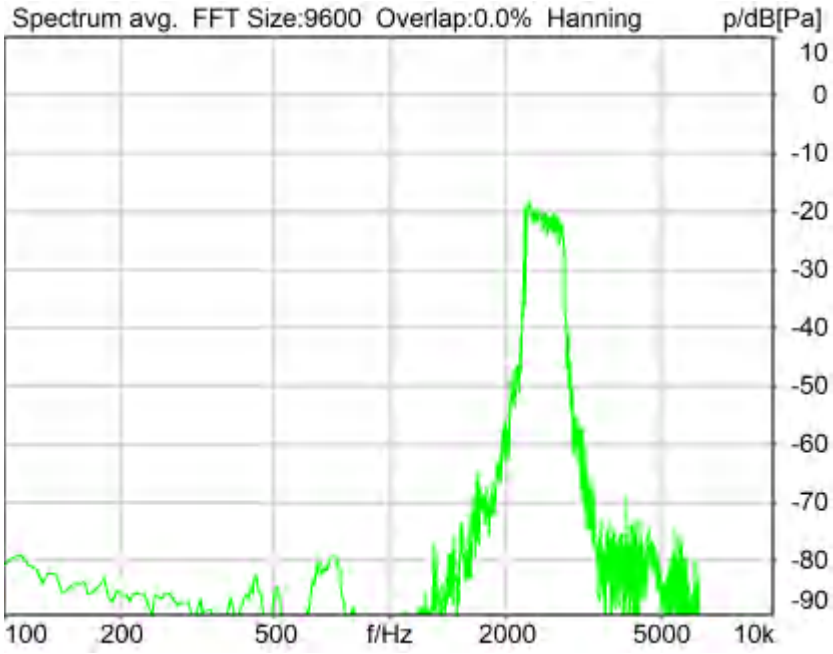
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.38 dB (4.80%) Ok

Ok

2024/1/20 13:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

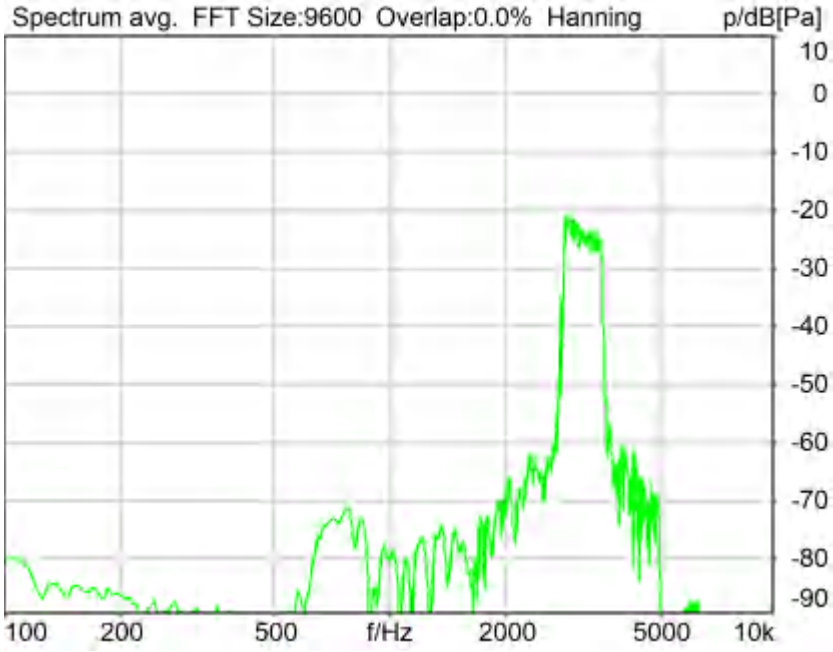
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.71 dB (3.27%) Ok

Ok

2024/1/20 13:25 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

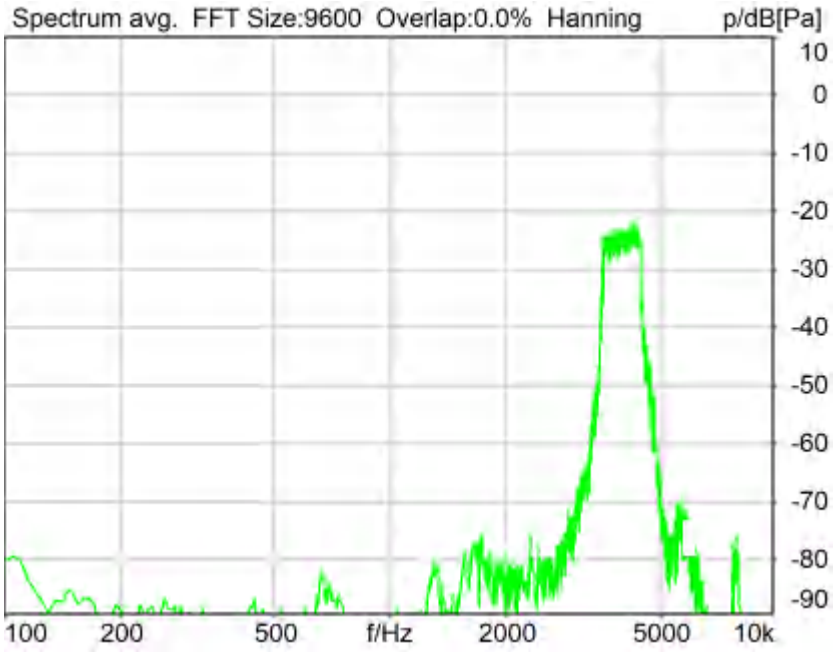
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.88 dB (6.39%) Ok

Ok

2024/1/20 13:25 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

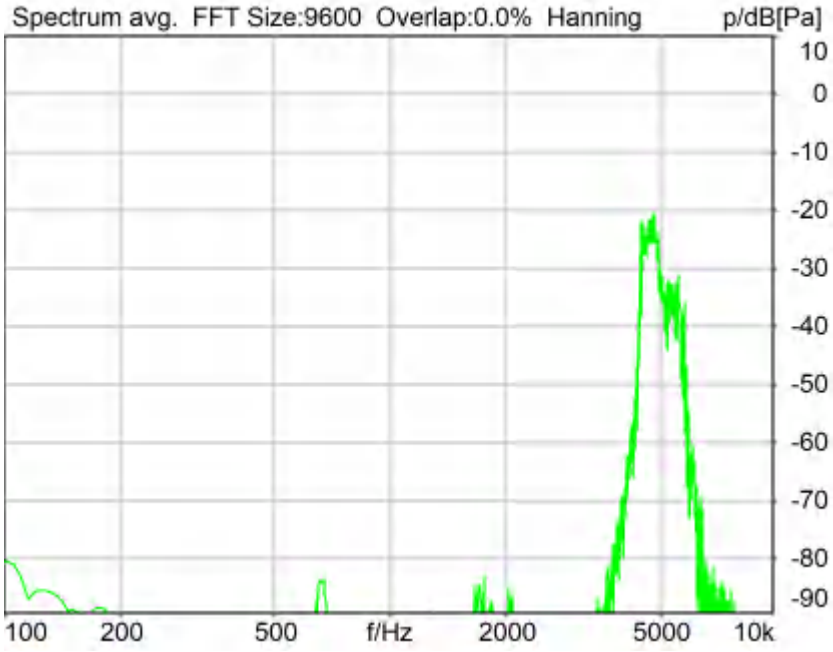
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.03 dB (7.91%) Ok

Ok

2024/1/20 13:25 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR
1	250Hz	26.26 dB
2	315Hz	29.61 dB
3	400Hz	35.01 dB
4	500Hz	34.89 dB
5	630Hz	34.64 dB
6	800Hz	32.68 dB
7	1000Hz	29.08 dB
8	1250Hz	25.17 dB
9	1600Hz	29.87 dB
10	2000Hz	29.61 dB
11	2500Hz	26.38 dB
12	3150Hz	29.71 dB
13	4000Hz	23.88 dB
14	5000Hz	22.03 dB

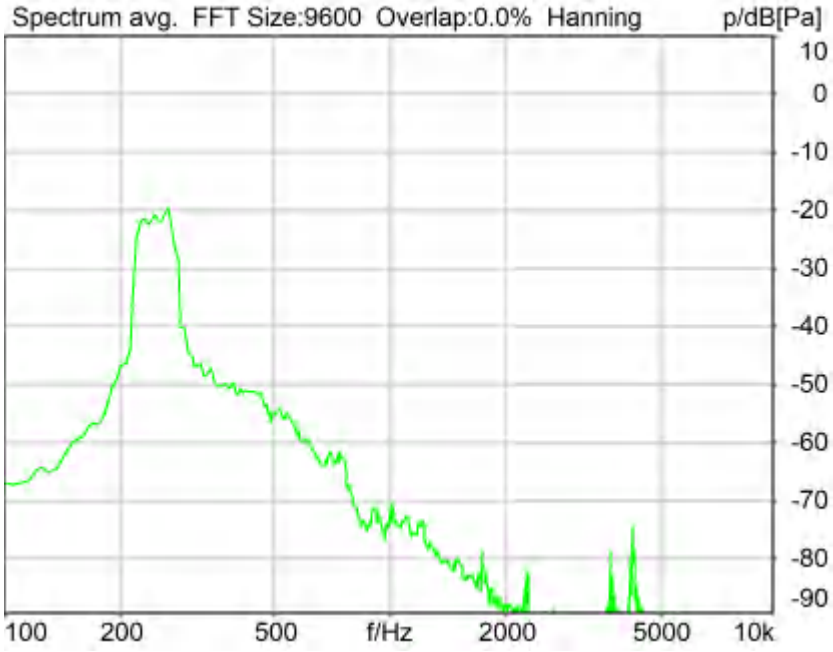
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 22.03dB at 5000Hz.

2024/1/20 13:26 ACQUA

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.34 dB (4.29%) Ok

Ok

2024/1/20 13:29 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

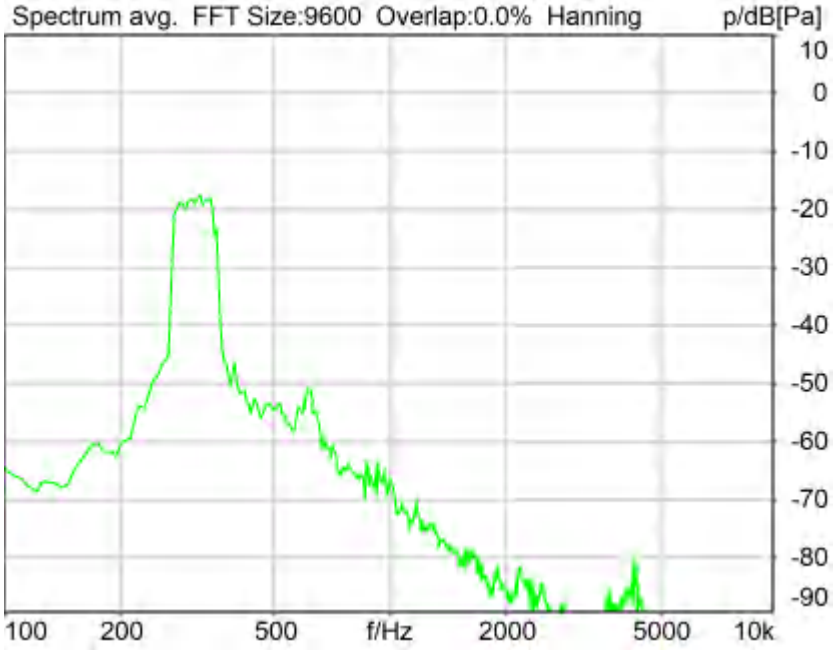
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 31.59 dB (2.63%) Ok

Ok

2024/1/20 13:30 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

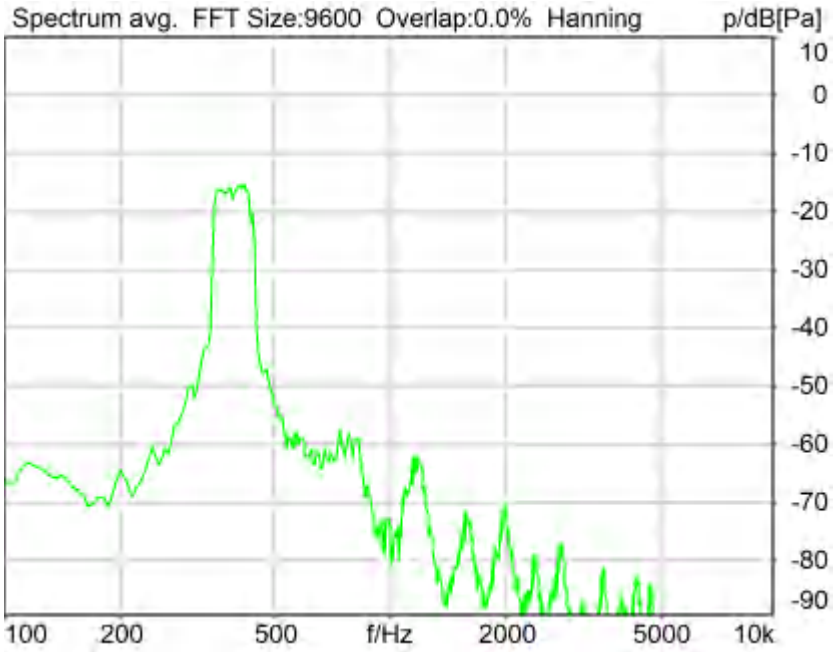
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 36.64 dB (1.47%) Ok

Ok

2024/1/20 13:30 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On

Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

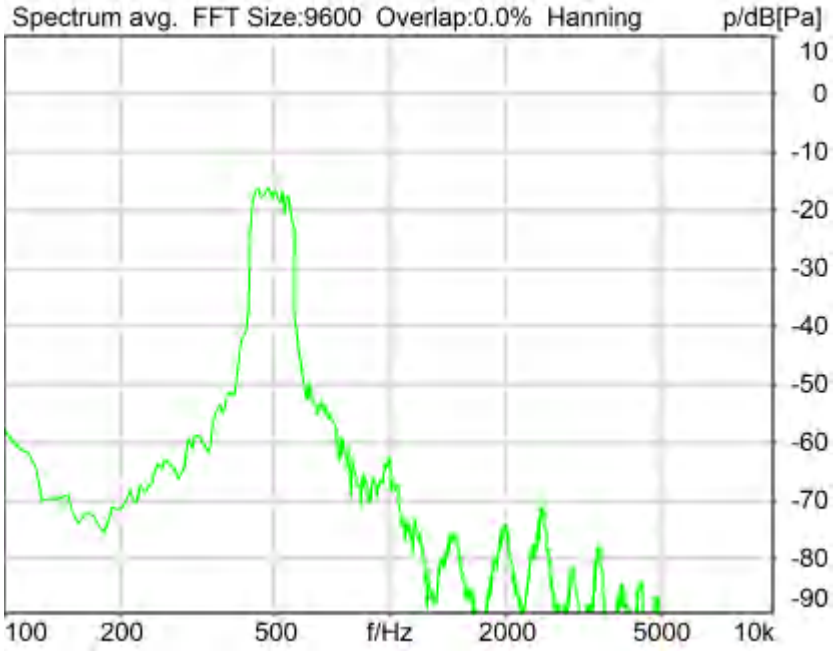
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 35.51 dB (1.68%) Ok

Ok

2024/1/20 13:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 35.04 dB (1.77%) Ok

Ok

2024/1/20 13:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

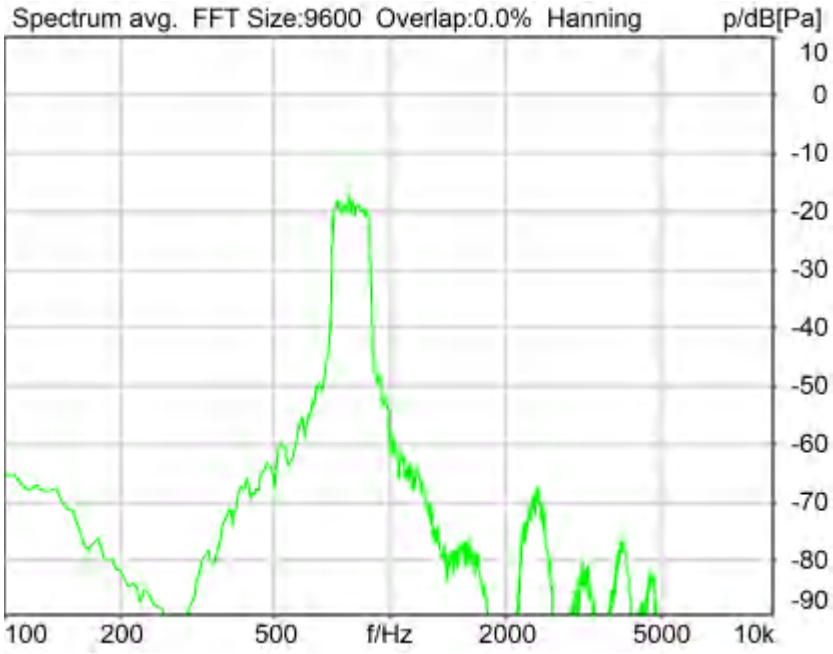
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 33.39 dB (2.14%) Ok

Ok

2024/1/20 13:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

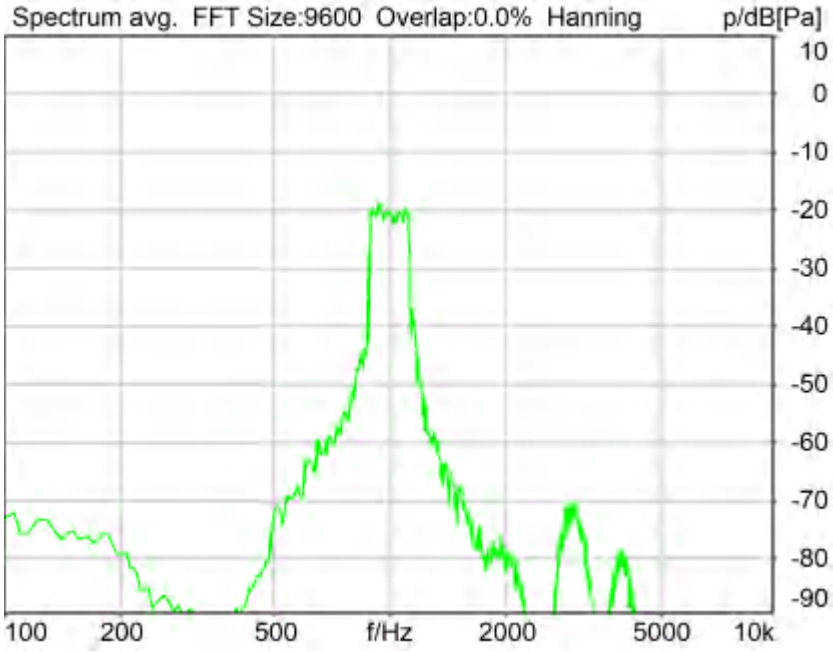
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.88 dB (3.60%) Ok

Ok

2024/1/20 13:32 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

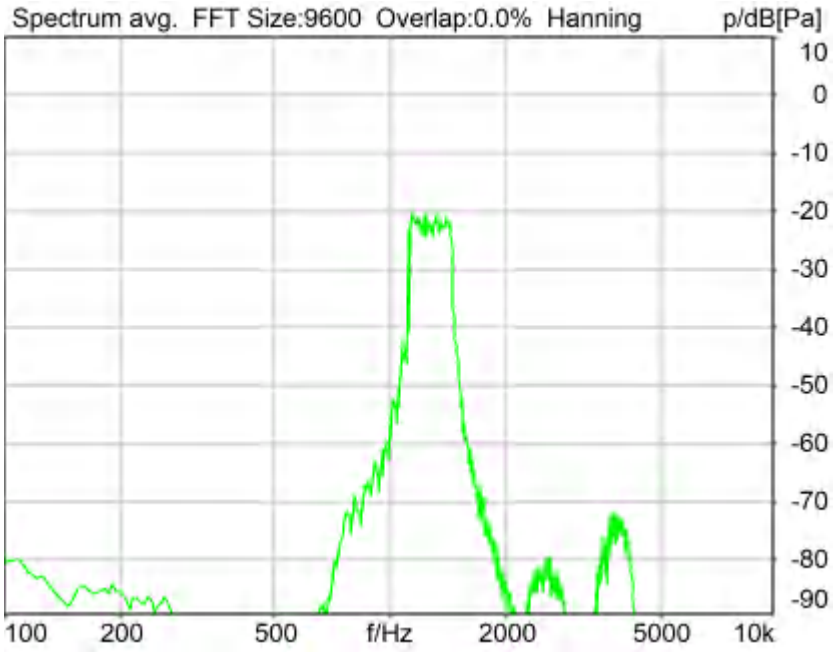
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.04 dB (5.60%) Ok

Ok

2024/1/20 13:32 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

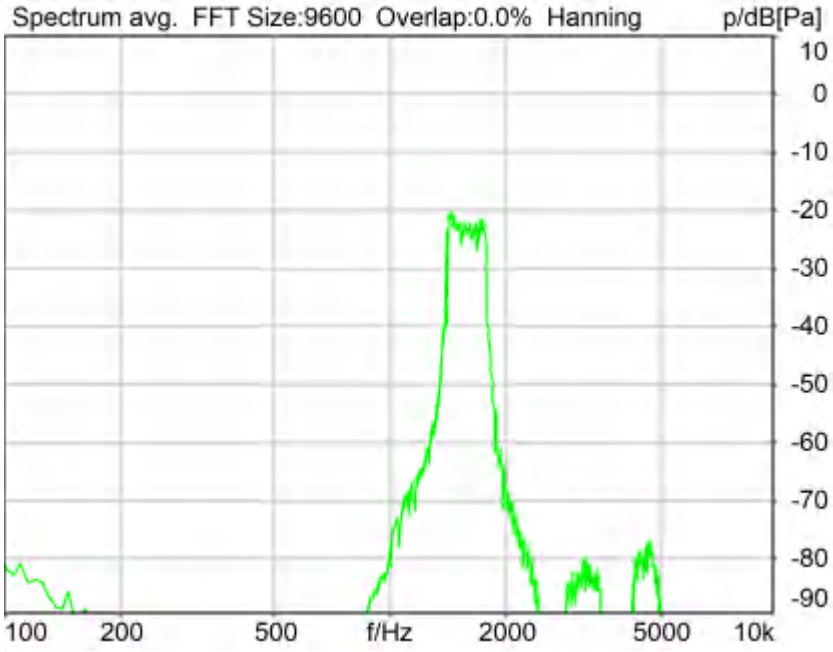
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.03 dB (3.15%) Ok

Ok

2024/1/20 13:33 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

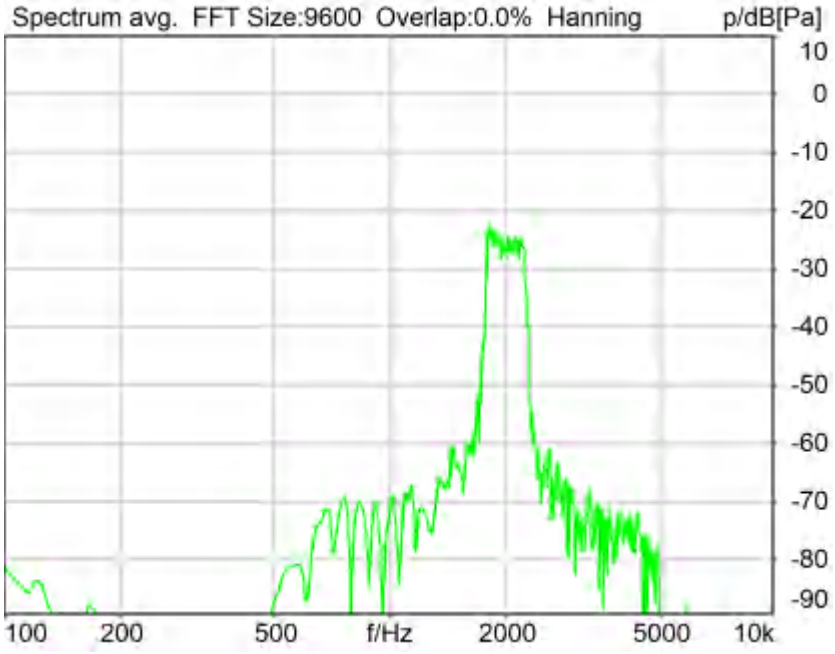
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.82 dB (4.06%) Ok

Ok

2024/1/20 13:33 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

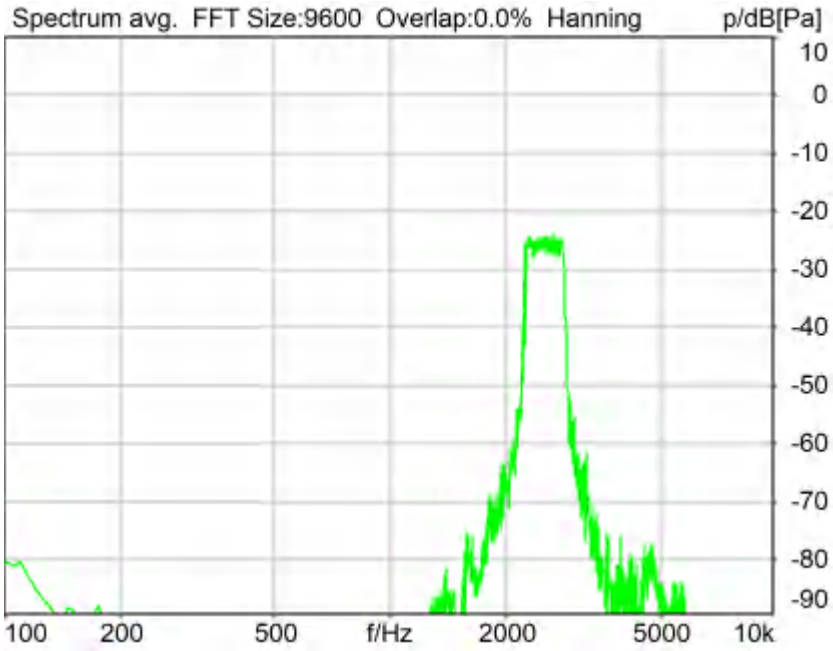
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.26 dB (3.44%) Ok

Ok

2024/1/20 13:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

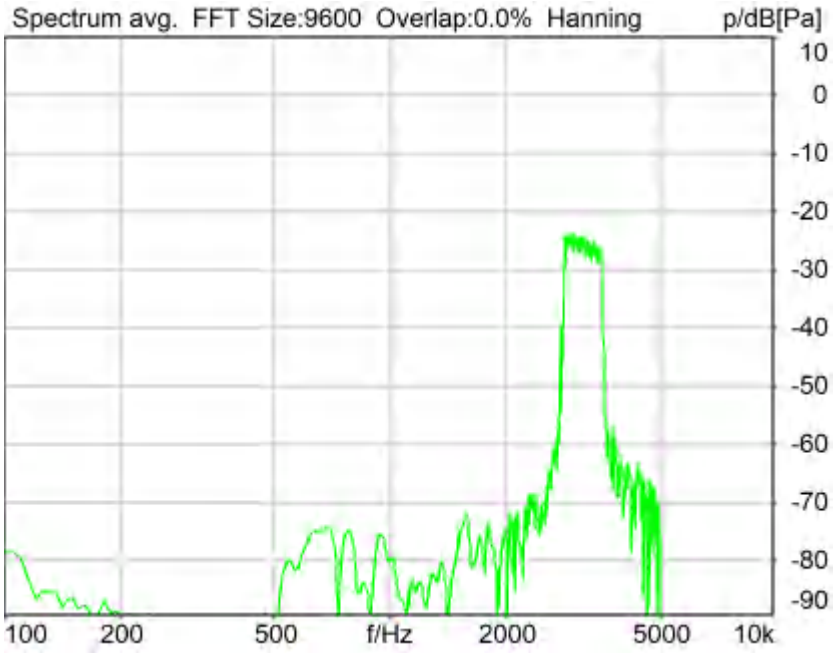
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.07 dB (3.14%) Ok

Ok

2024/1/20 13:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °

MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

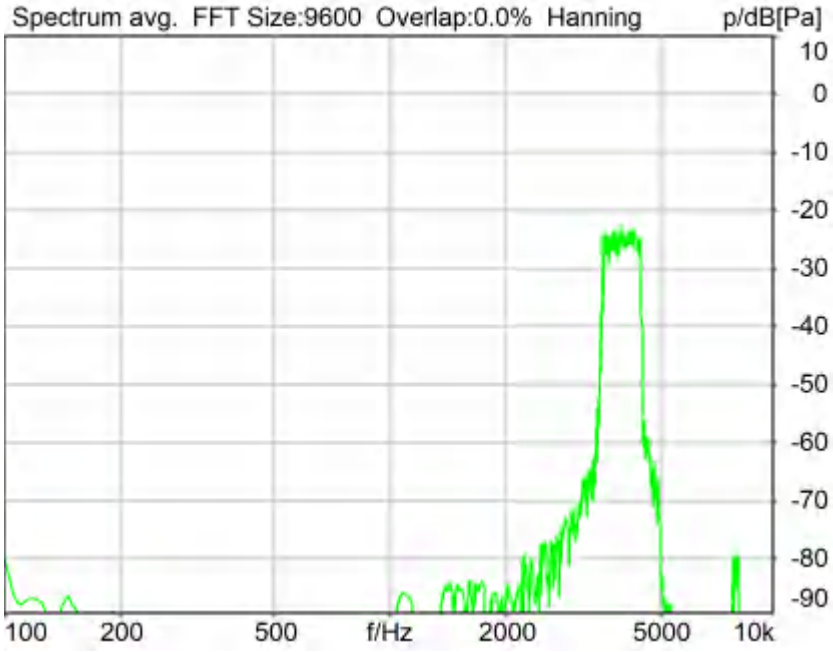
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.50 dB (2.99%) Ok

Ok

2024/1/20 13:35 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

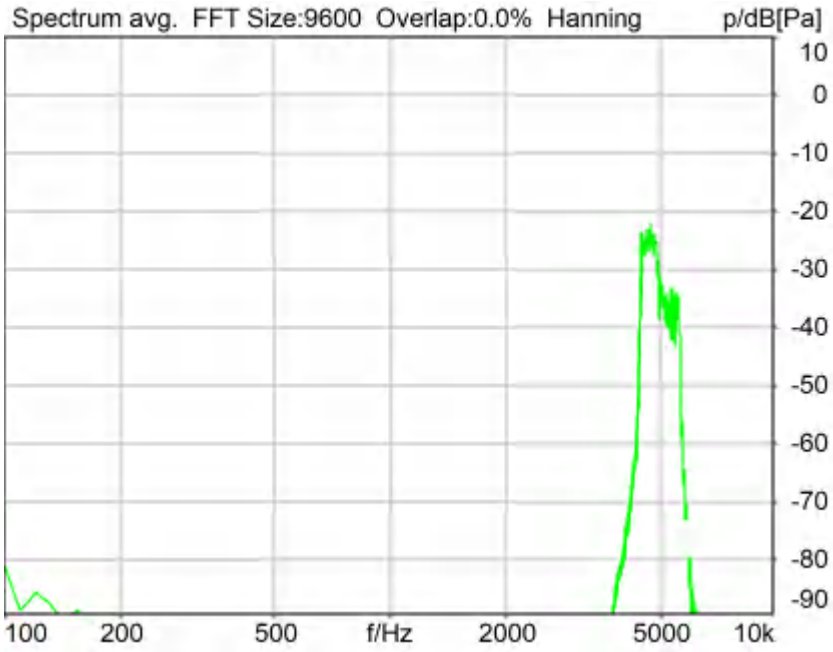
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.34 dB (2.42%) Ok

Ok

2024/1/20 13:35 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

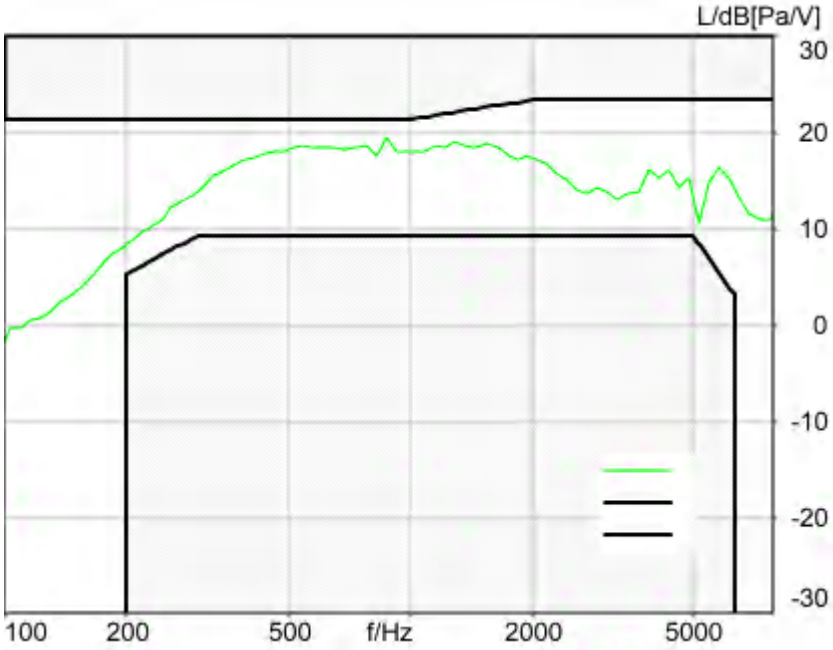
Region	Frequency	SDNR
1	250Hz	27.34 dB
2	315Hz	31.59 dB
3	400Hz	36.64 dB
4	500Hz	35.51 dB
5	630Hz	35.04 dB
6	800Hz	33.39 dB
7	1000Hz	28.88 dB
8	1250Hz	25.04 dB
9	1600Hz	30.03 dB
10	2000Hz	27.82 dB
11	2500Hz	29.26 dB
12	3150Hz	30.07 dB
13	4000Hz	30.50 dB
14	5000Hz	32.34 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 25.04dB at 1250Hz.

2024/1/20 13:36 ACQUA

5.3 Frequency Response 8N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
1.95 dB at 873.9 Hz Ok

Ok

2024/1/20 13:26 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

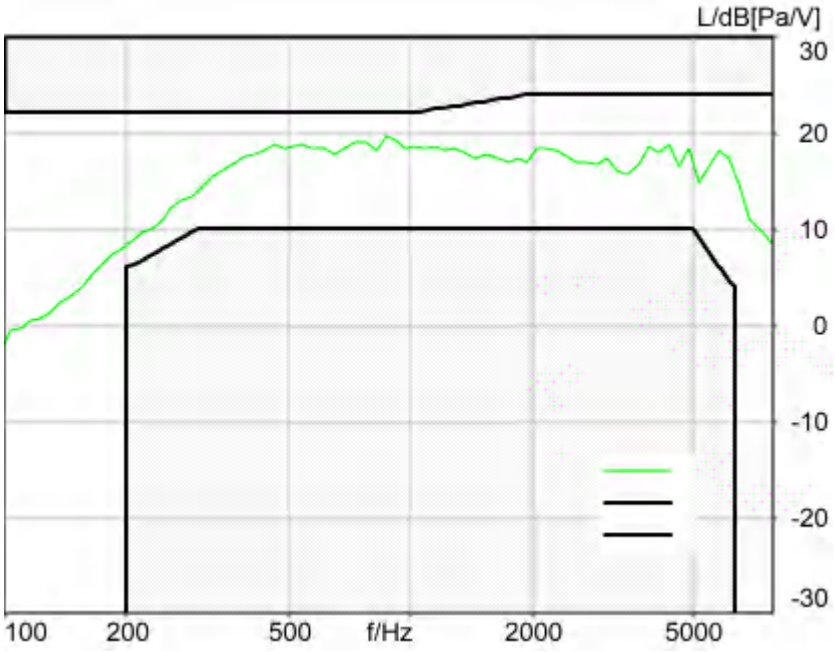
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

2.46 dB at 873.9 Hz Ok

Ok

2024/1/20 13:27 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-3.6 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal

Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

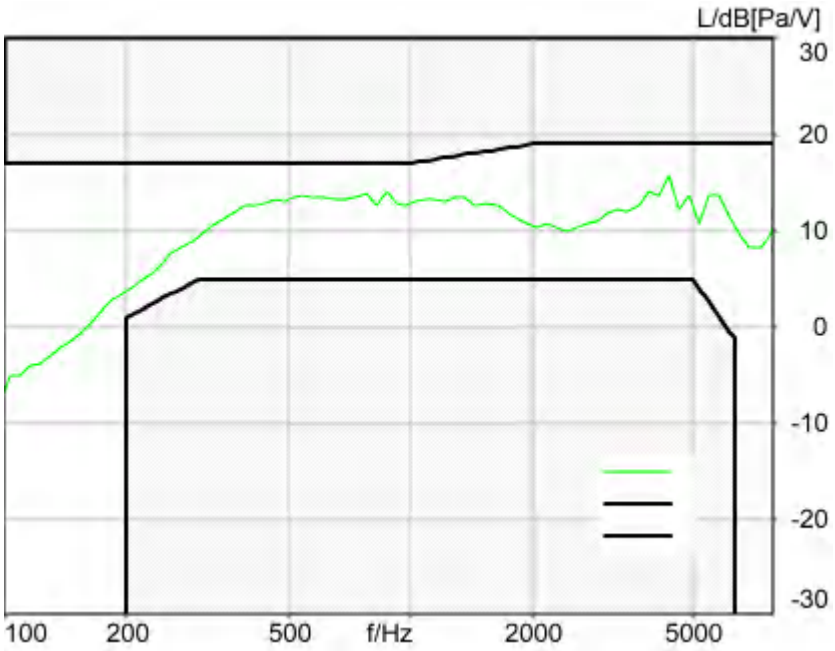
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
2.89 dB at 873.9 Hz Ok

Ok

2024/1/20 13:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features

Compensate delay	109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <-	Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

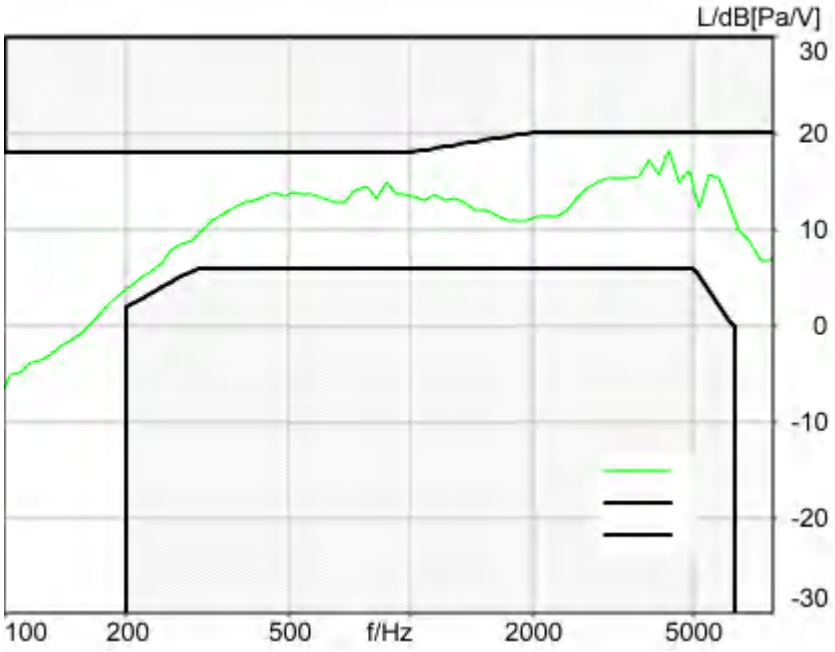
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

1.91 dB at 4369.4 Hz Ok

Ok

2024/1/20 13:36 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

		Rotation Delta A	0.0 °
MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-0.3 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 2.0 N, Force reached: 1.9 N

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 109.4000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1	0.00 dB	Ch. 0 Float	On
Range Ch. 2	0.00 dB	Ch. 1 Float	On

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1	0.00 dB	Range Ch. 2	0.00 dB

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:07
Responsible Person	audio

Status Overview

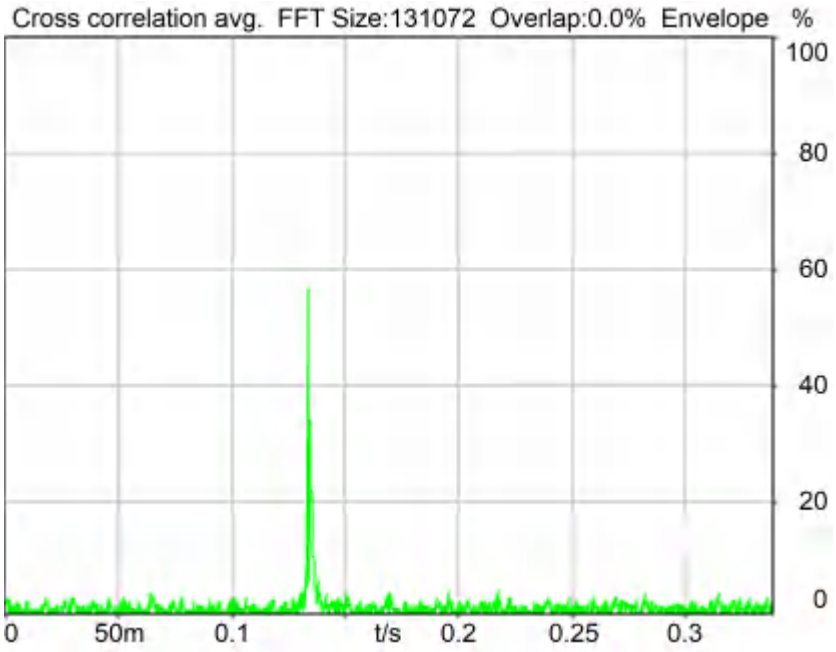
SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay NB	Done	Delay (Cross) [ms]	134.5	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.1a Receive Volume Control Performance 8N NB	Ok	Corrected Speech Level [dB[SPL]]	18.39	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.1b Receive Volume Control Performance 2N NB	Ok	Corrected Speech Level [dB[SPL]]	12.72	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.54	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.86	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 630 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.11	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.65	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.59	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	21.82	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.16	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.24	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.88	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.75	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.82	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.78	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.43	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise	Ok	Distortion (Noise) [dB],	27.40	339D NR

- 630 Hz NB		0.0 dB		n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.93	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.83	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	21.99	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.00	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	22.27	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.45	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.67	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.99	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.3 Frequency Response 8N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 305.9 Hz	2.33	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.3 Frequency Response 8N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 2057.5 Hz	1.90	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.3 Frequency Response 2N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 3657.5 Hz	1.98	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300
5.3 Frequency Response 2N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 3445.5 Hz	0.52	339D NR n5_20_DFT-S-OFDM_EVS NB 9.6kbps_CH167300

Overall Receive Delay NB	5
5.1a Receive Volume Control Performance 8N NB	6
5.1b Receive Volume Control Performance 2N NB	8
5.2 RCV Distortion and Noise - 400 Hz NB	10
5.2 RCV Distortion and Noise - 500 Hz NB	12
5.2 RCV Distortion and Noise - 630 Hz NB	14
5.2 RCV Distortion and Noise - 800 Hz NB	16
5.2 RCV Distortion and Noise - 1000 Hz NB	18
5.2 RCV Distortion and Noise - 1250 Hz NB	20
5.2 RCV Distortion and Noise - 1600 Hz NB	22
5.2 RCV Distortion and Noise - 2000 Hz NB	24
5.2 RCV Distortion and Noise - 2500 Hz NB	26
5.2 RCV Distortion and Noise - 3150 Hz NB	28
Report - Receive Distortion and Noise (Conversational Gain)	30
5.2 RCV Distortion and Noise - 400 Hz NB	31
5.2 RCV Distortion and Noise - 500 Hz NB	33
5.2 RCV Distortion and Noise - 630 Hz NB	35
5.2 RCV Distortion and Noise - 800 Hz NB	37
5.2 RCV Distortion and Noise - 1000 Hz NB	39
5.2 RCV Distortion and Noise - 1250 Hz NB	41
5.2 RCV Distortion and Noise - 1600 Hz NB	43
5.2 RCV Distortion and Noise - 2000 Hz NB	45
5.2 RCV Distortion and Noise - 2500 Hz NB	46
5.2 RCV Distortion and Noise - 3150 Hz NB	48
Report - Receive Distortion and Noise (Conversational Gain)	50
5.3 Frequency Response 8N FF HANB	51
5.3 Frequency Response 8N DF HANB	53
5.3 Frequency Response 2N FF HANB	55
5.3 Frequency Response 2N DF HANB	58

Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 134.5 ms

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Unmodified HEAD acoustics Measurement Descriptor

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: cssnb1b_r1s.dat
Level adj. Ch1 -90.0 dB
CSSnb1b_R1s.dat - CS-signal with special 1s random noise
NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2
Pause 0.5 s +
voiced signal + 4000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 4000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_NB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

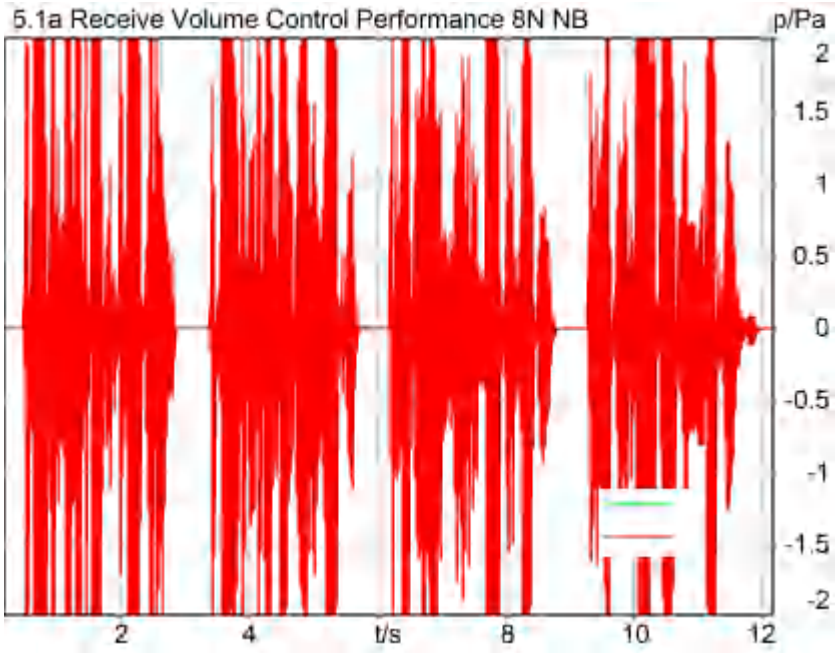
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 88.39 dB[SPL], Act.: 85.08%
Corrected Speech Level: 18.39 dB[SPL] Ok

Ok

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Limits

	lower
Run 1	18.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 134.5000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

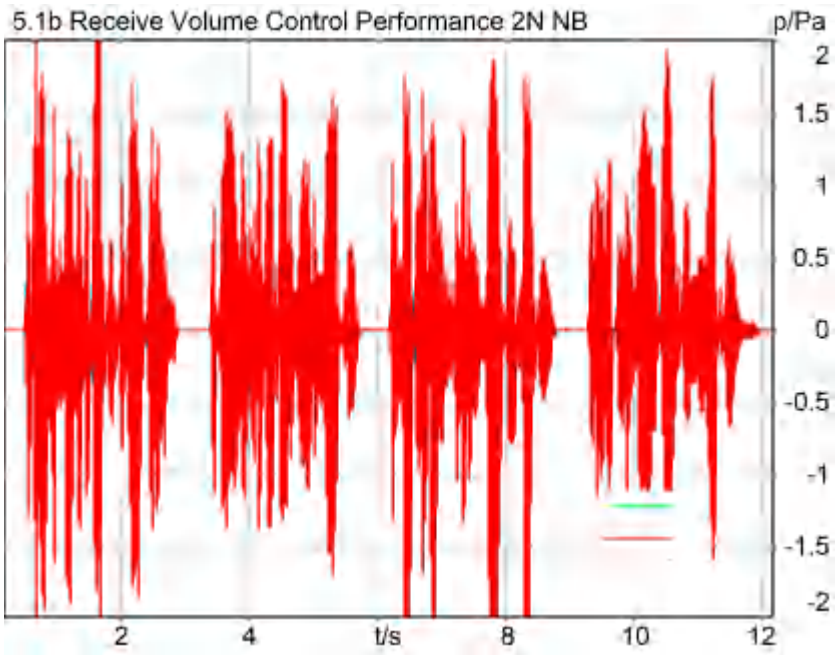
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 82.72 dB[SPL], Act.: 84.96%
Corrected Speech Level: 12.72 dB[SPL] Ok

Ok

2024/1/25 16:32 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.54 dB (3.74%) Ok

Ok

2024/1/25 16:39 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz

Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

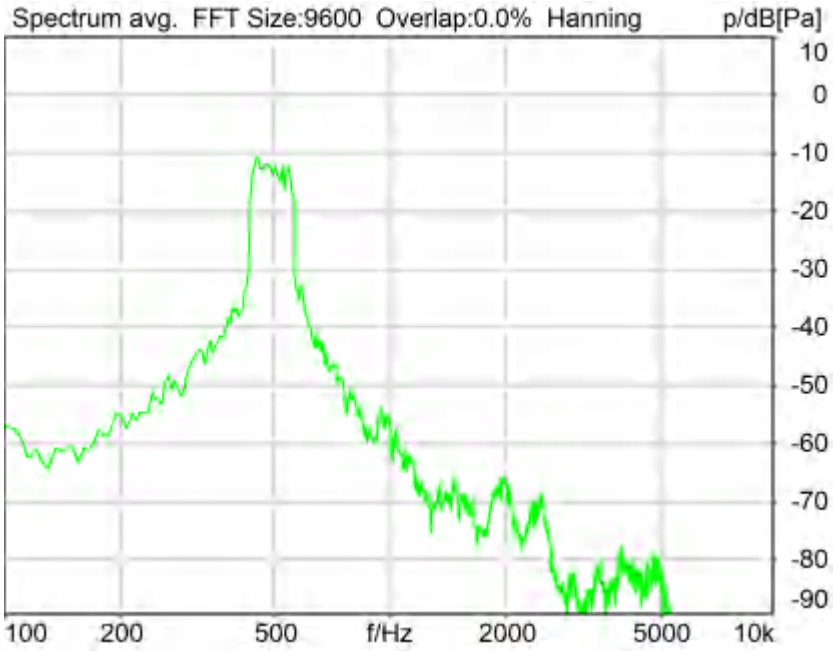
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.86 dB (3.61%) Ok

Ok

2024/1/25 16:39 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz

Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.11 dB (3.93%) Ok

Ok

2024/1/25 16:39 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz

Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

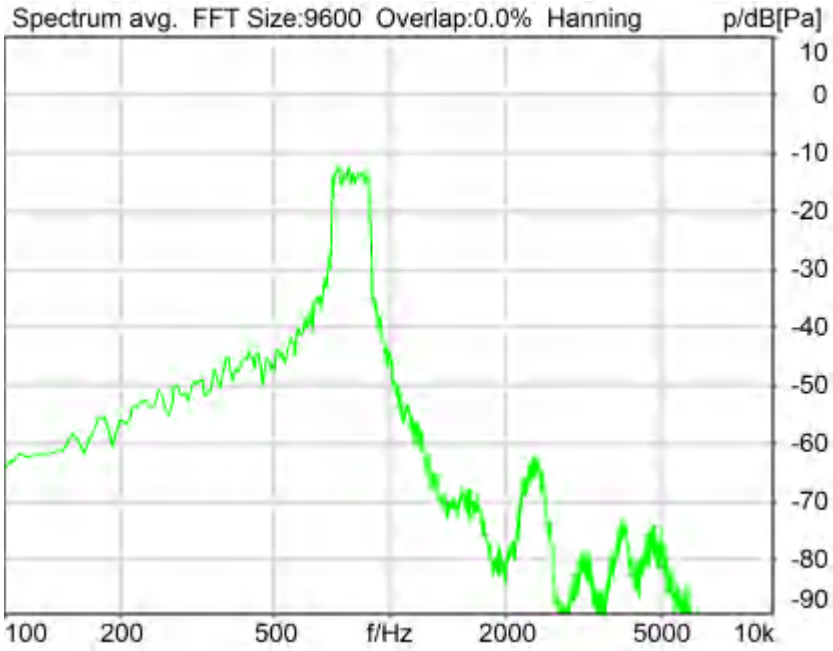
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.65 dB (5.22%) Ok

Ok

2024/1/25 16:40 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz

Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

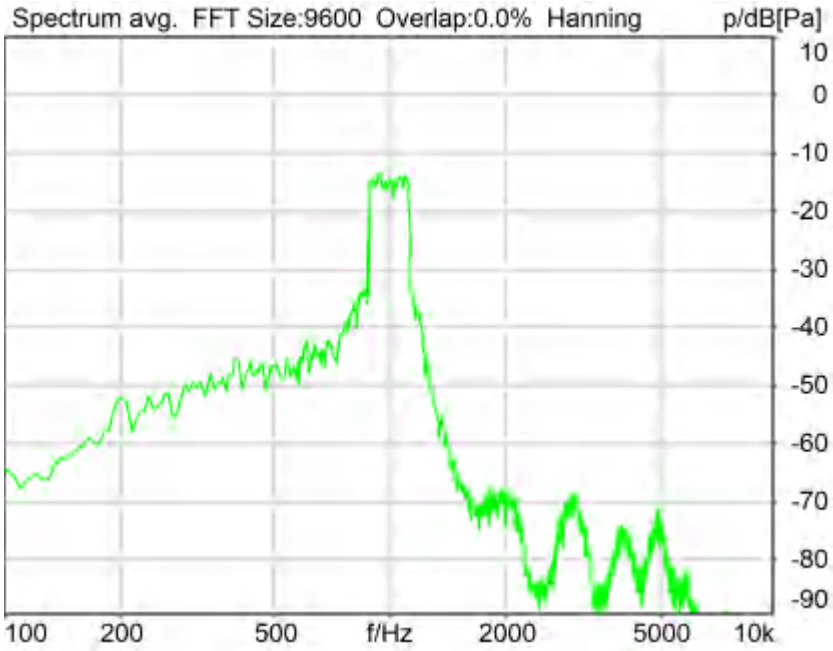
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.59 dB (6.62%) Ok

Ok

2024/1/25 16:40 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz

Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

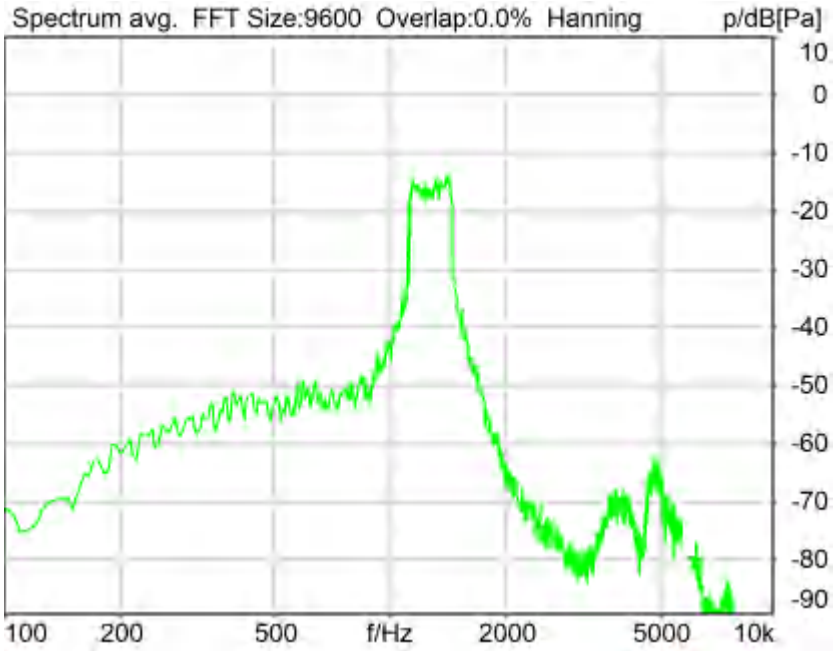
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 21.82 dB (8.11%) Ok

Ok

2024/1/25 16:41 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

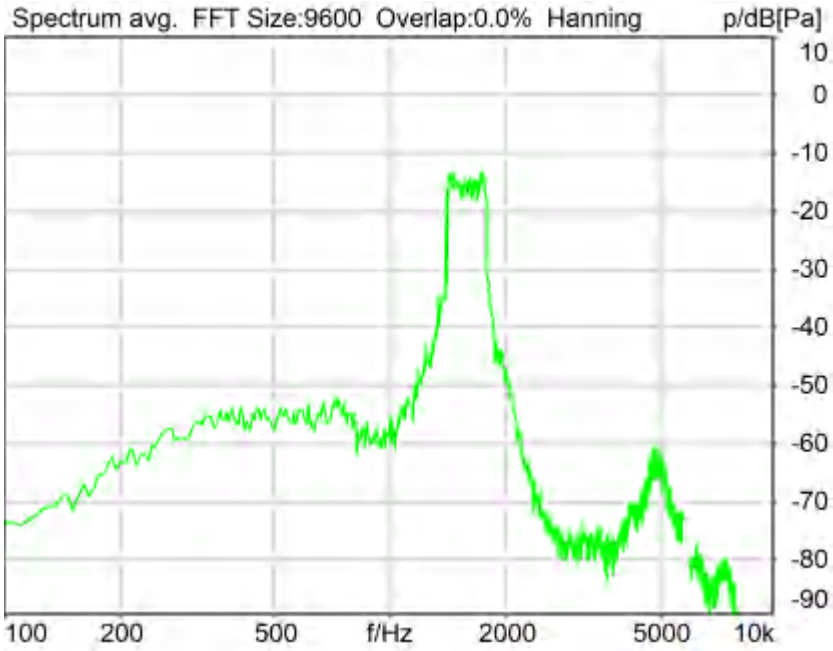
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.16 dB (5.52%) Ok

Ok

2024/1/25 16:41 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

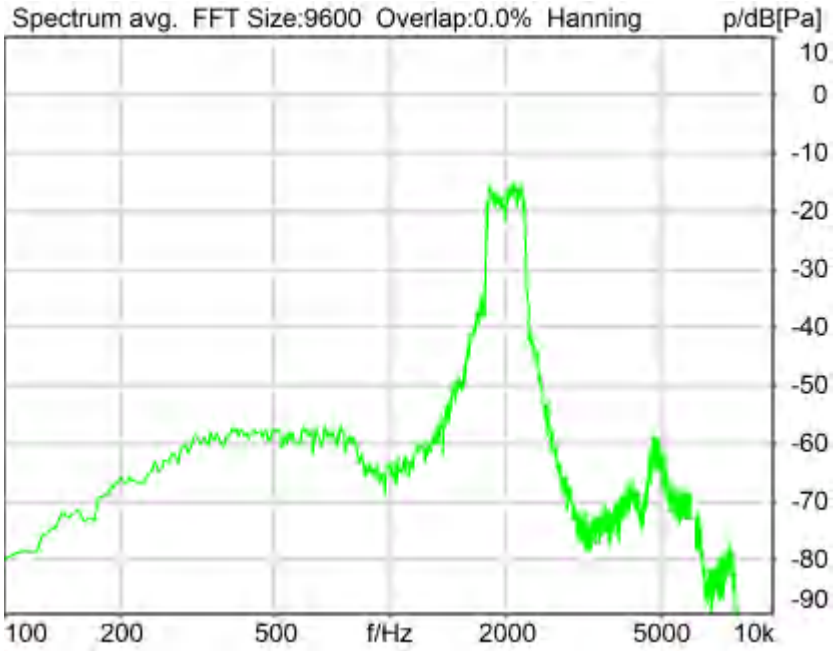
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.24 dB (6.89%) Ok

Ok

2024/1/25 16:41 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

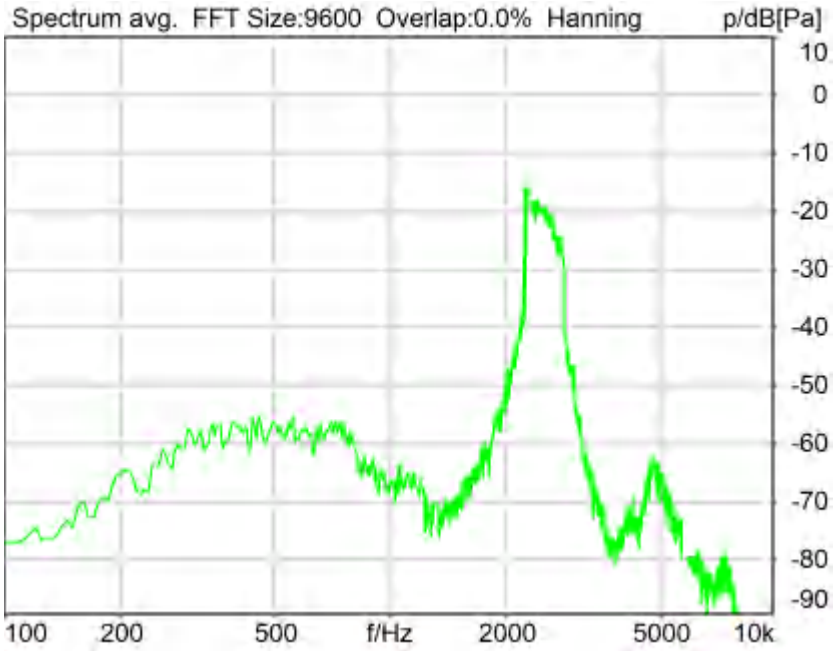
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.88 dB (5.70%) Ok

Ok

2024/1/25 16:42 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

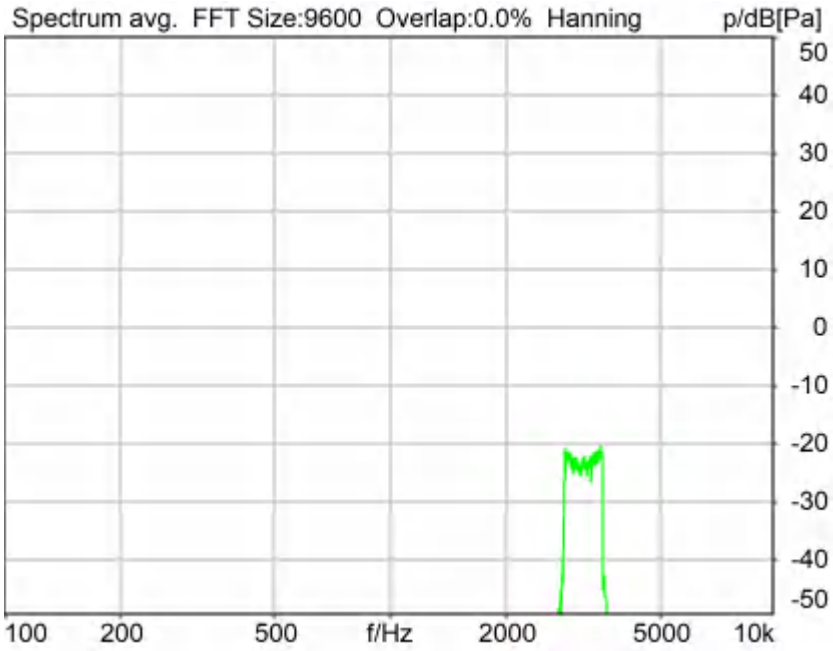
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.75 dB (3.65%) Ok

Ok

2024/1/25 16:42 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	134.5000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR
1	400Hz	28.54 dB
2	500Hz	28.86 dB

3	630Hz	28.11 dB
4	800Hz	25.65 dB
5	1000Hz	23.59 dB
6	1250Hz	21.82 dB
7	1600Hz	25.16 dB
8	2000Hz	23.24 dB
9	2500Hz	24.88 dB
10	3150Hz	28.75 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.82dB at 1250Hz.

2024/1/25 16:42 ACQUA

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.78 dB (3.64%) Ok

Ok

2024/1/25 16:32 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140

Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

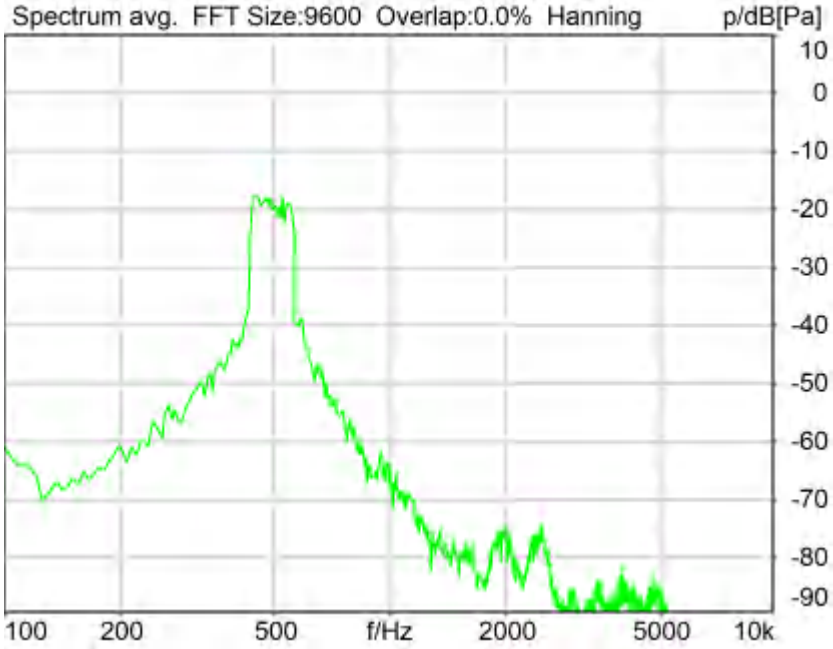
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.43 dB (3.79%) Ok

Ok

2024/1/25 16:33 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.40 dB (4.27%) Ok

Ok

2024/1/25 16:33 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))

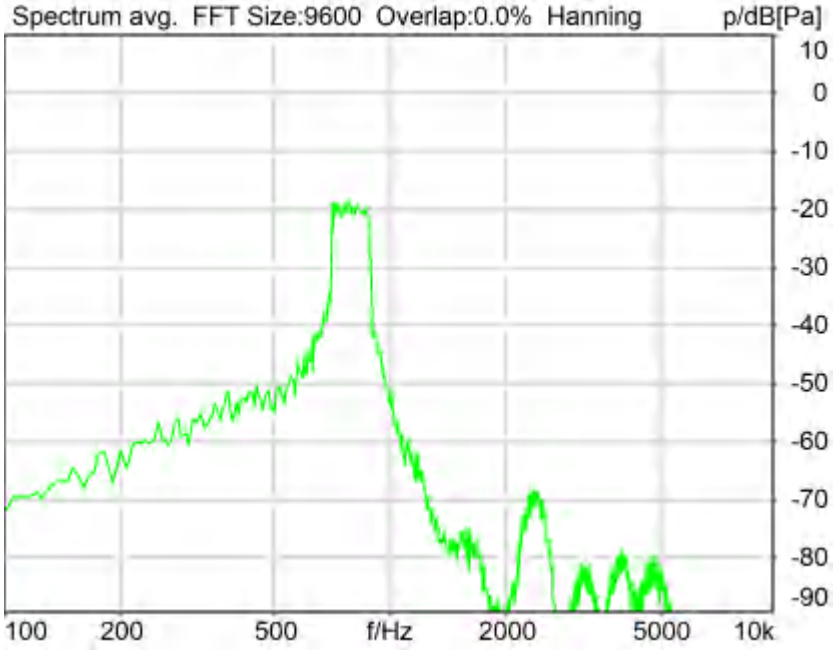
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.93 dB (5.05%) Ok

Ok

2024/1/25 16:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

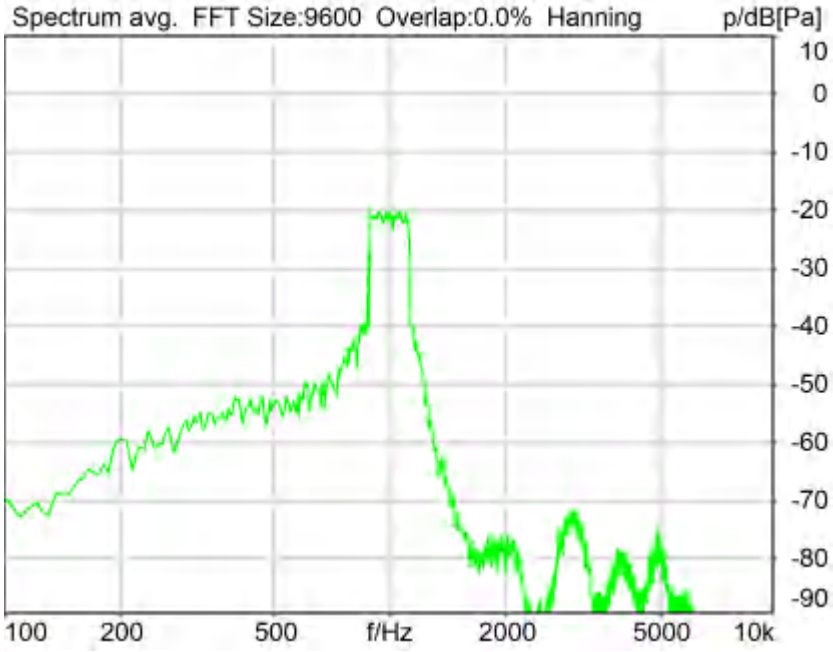
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.83 dB (6.43%) Ok

Ok

2024/1/25 16:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

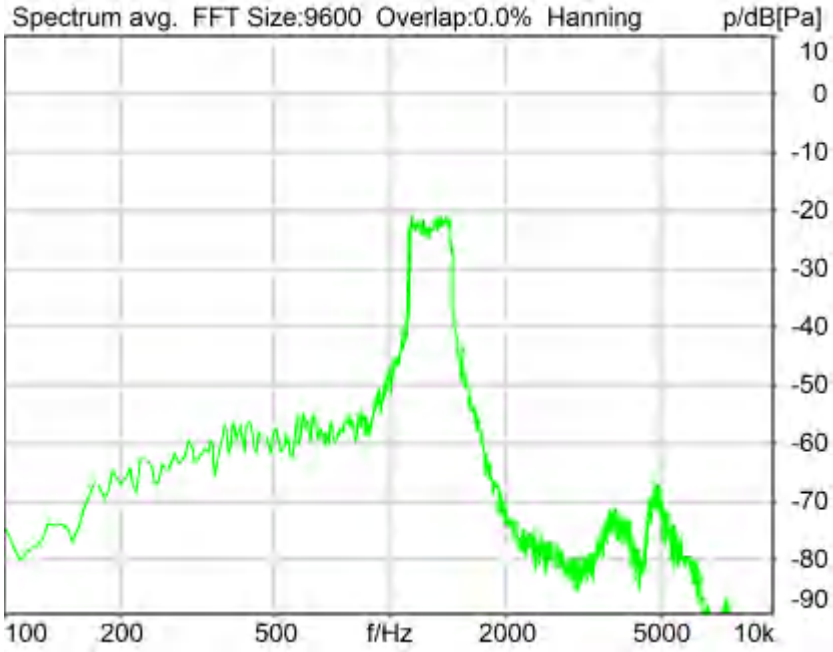
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 21.99 dB (7.95%) Ok

Ok

2024/1/25 16:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

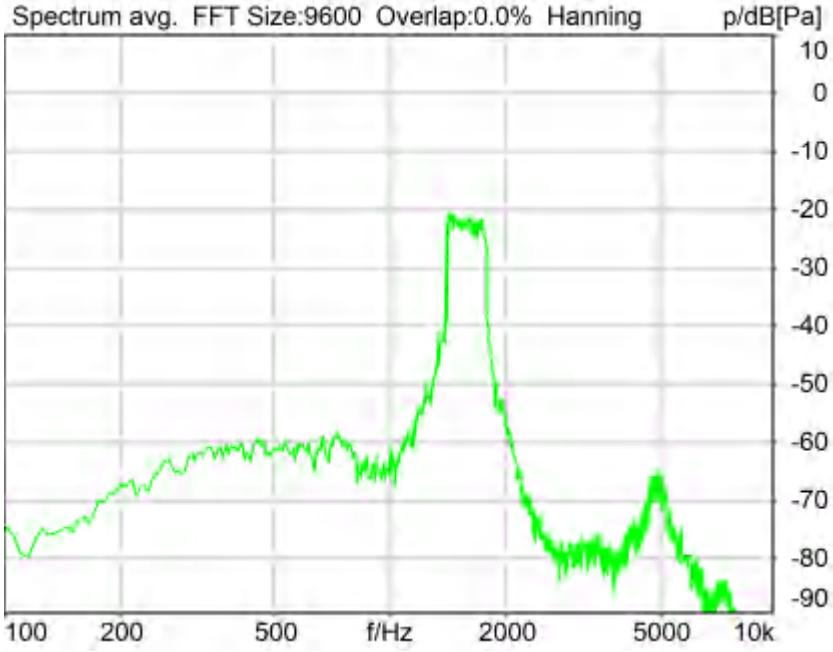
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.00 dB (5.62%) Ok

Ok

2024/1/25 16:35 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis
Direction Out 2 -> In 2

Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

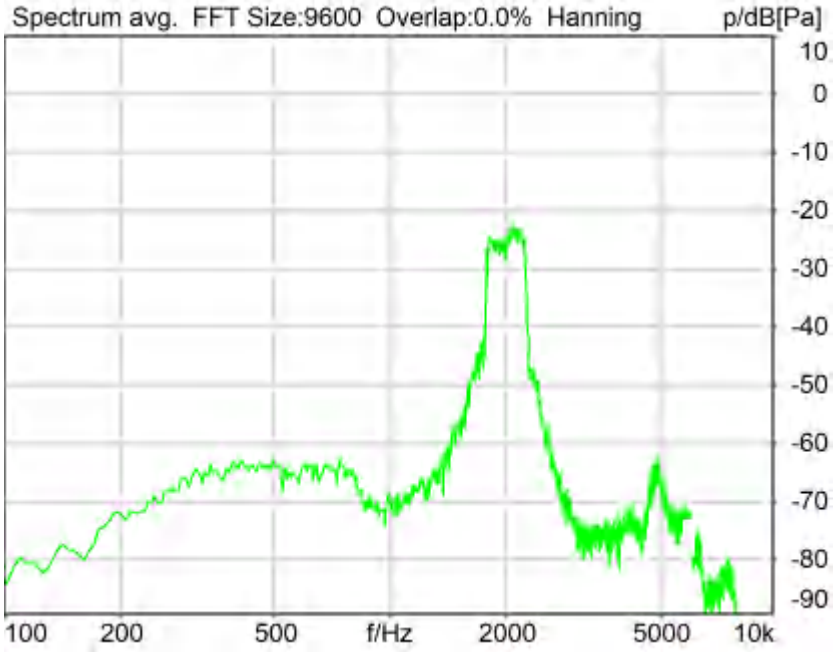
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.27 dB (7.70%) Ok

Ok

2024/1/25 16:35 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652

DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

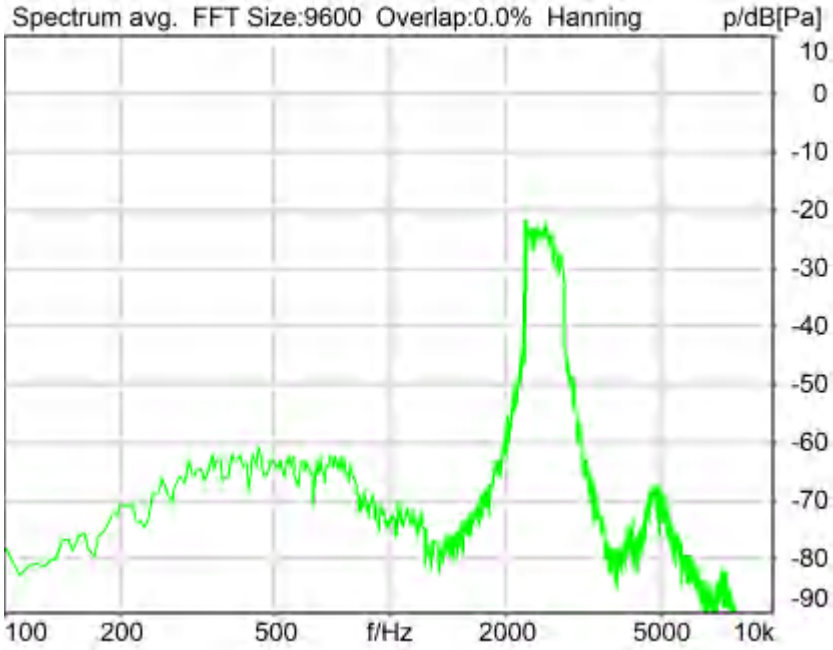
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.45 dB (5.34%) Ok

Ok

2024/1/25 16:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off

dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

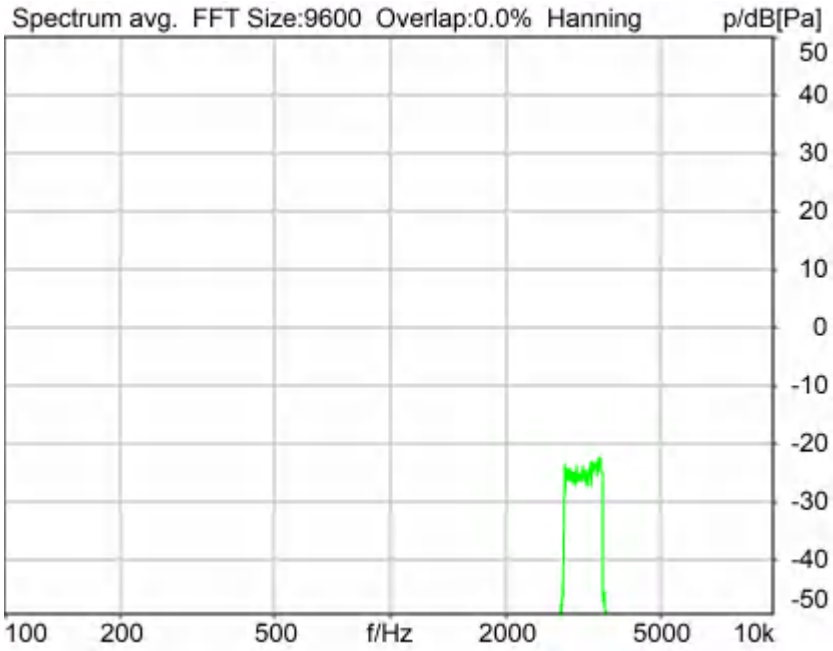
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.67 dB (3.28%) Ok

Ok

2024/1/25 16:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Region	Frequency	SDNR
1	400Hz	28.78 dB
2	500Hz	28.43 dB

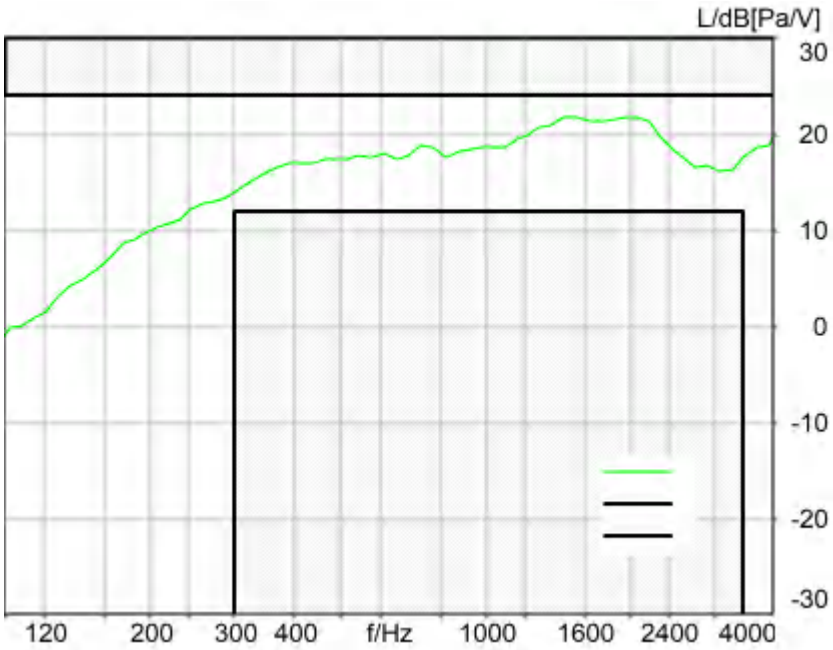
3	630Hz	27.40 dB
4	800Hz	25.93 dB
5	1000Hz	23.83 dB
6	1250Hz	21.99 dB
7	1600Hz	25.00 dB
8	2000Hz	22.27 dB
9	2500Hz	25.45 dB
10	3150Hz	29.67 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.99dB at 1250Hz.

2024/1/25 16:36 ACQUA

5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.33 dB at 305.9 Hz Ok

Ok

2024/1/25 16:43 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 134.5000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)			
RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)			
Block mode	Bypass		

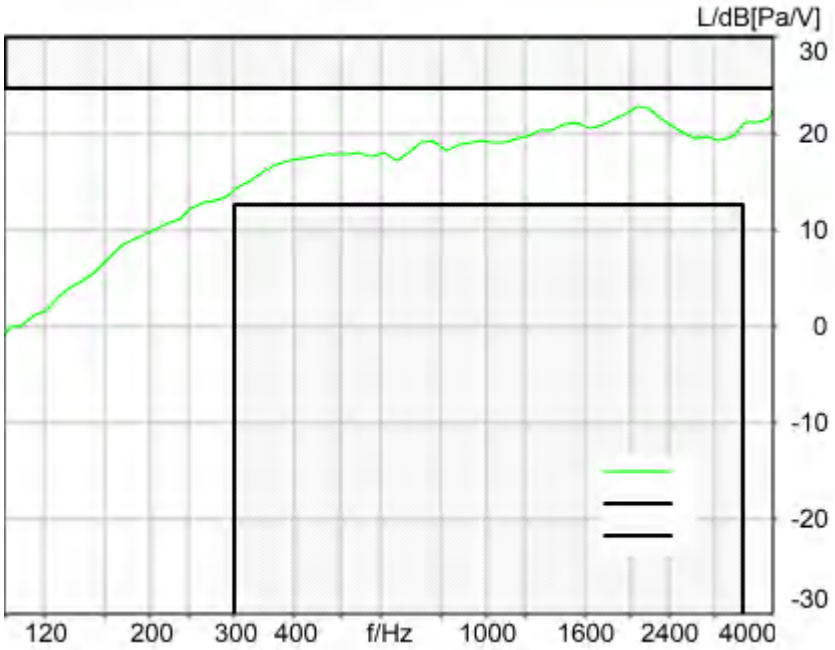
Artificial Head Settings (HATS 1 (HMS II.3))			
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
1.90 dB at 2057.5 Hz Ok

Ok

2024/1/25 16:43 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat

Level adj. Ch1	-90.0 dB	Level adj. Ch2	-4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 134.5000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

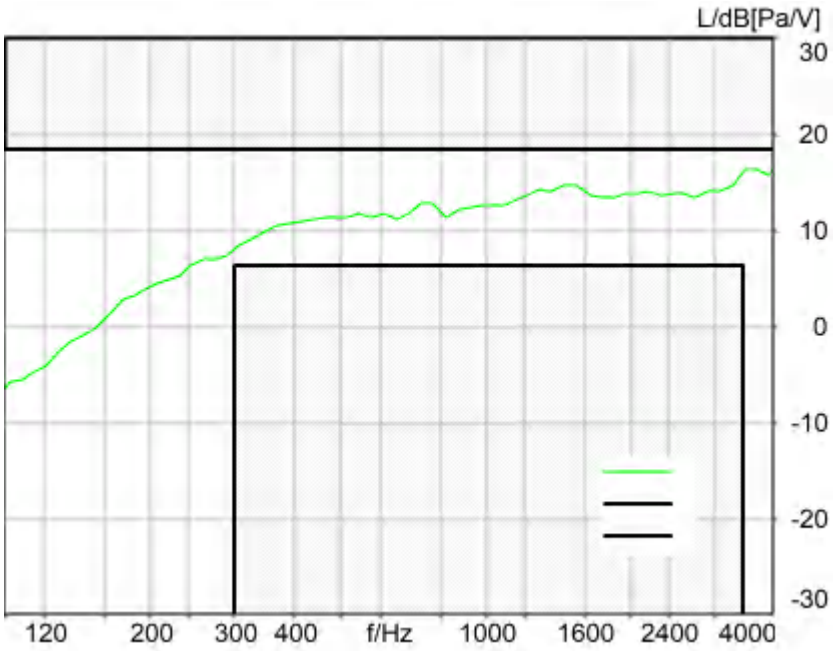
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
1.98 dB at 3657.5 Hz Ok

Ok

2024/1/25 16:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	117.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

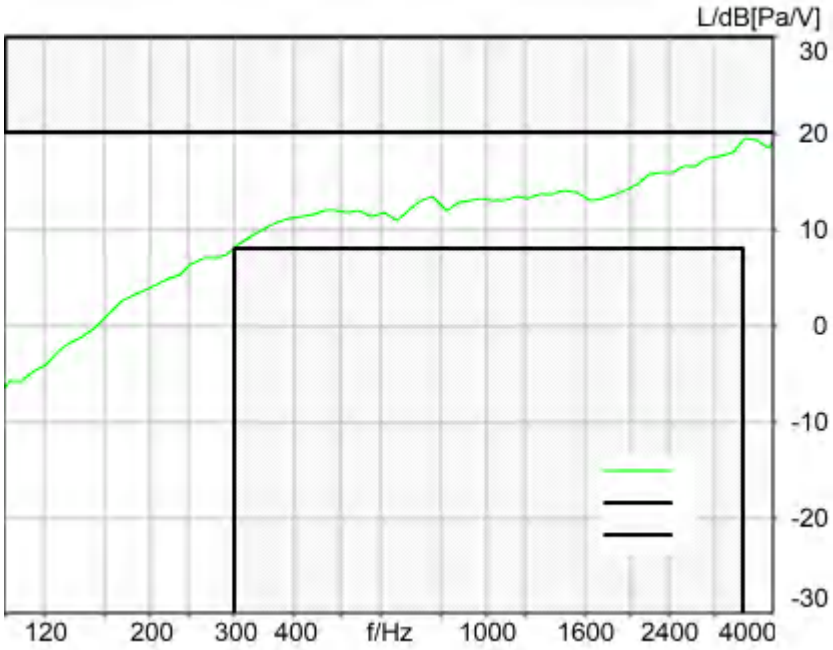
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB

Mic 1 Power Supply Off Mic 2 Power Supply Off

5.3 Frequency Response 2N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
0.52 dB at 3445.5 Hz Ok

Ok

2024/1/25 16:37 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"

Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 117.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:12
Responsible Person	audio

Status Overview

SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay WB	Done	Delay (Cross) [ms]	128.7	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.1a Receive Volume Control Performance 8N WB	Ok	Corrected Speech Level [dB[SPL]]	18.48	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.1b Receive Volume Control Performance 2N WB	Ok	Corrected Speech Level [dB[SPL]]	12.66	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.95	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.20	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.05	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.82	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.50	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.54	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.73	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.33	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.57	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.94	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.32	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.58	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.07	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise	Ok	Distortion (Noise) [dB],	20.66	339D NR

- 5000 Hz WB		0.0 dB		n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 5000Hz)	20.66	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.60	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.83	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.39	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.87	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.45	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.79	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.69	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.54	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.25	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	21.91	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.95	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.09	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.76	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.2 RCV Distortion and Noise - 5000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	20.64	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 5000Hz)	20.64	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.3 Frequency Response 8N FF	Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	0.12	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.3 Frequency Response 8N	Ok	Min. dist. to tolerance	0.14	339D NR

DF		scheme [dB], 4870.0 Hz		n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.3 Frequency Response 2N FF	Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	0.14	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300
5.3 Frequency Response 2N DF	Not Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	-0.71	339D NR n5_20_DFT-S-OFDM_EVS WB13.2kbps_CH167300

Overall Receive Delay WB	6
5.1a Receive Volume Control Performance 8N WB	7
5.1b Receive Volume Control Performance 2N WB	9
5.2 RCV Distortion and Noise - 250 Hz WB	11
5.2 RCV Distortion and Noise - 315 Hz WB	13
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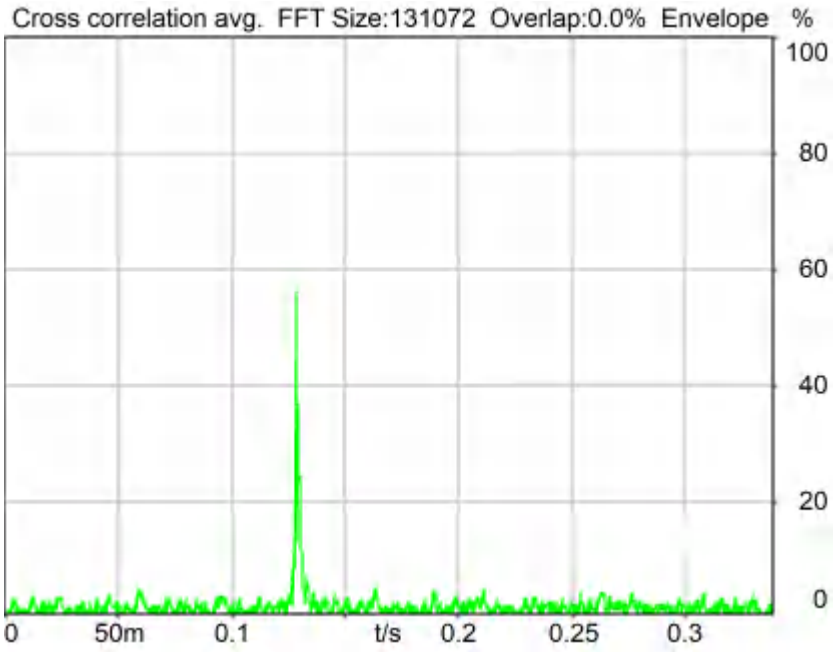
5.2 RCV Distortion and Noise - 500 Hz WB	17
5.2 RCV Distortion and Noise - 630 Hz WB	19
5.2 RCV Distortion and Noise - 800 Hz WB	21
5.2 RCV Distortion and Noise - 1000 Hz WB	23
5.2 RCV Distortion and Noise - 1250 Hz WB	25
5.2 RCV Distortion and Noise - 1600 Hz WB	27
5.2 RCV Distortion and Noise - 2000 Hz WB	29
5.2 RCV Distortion and Noise - 2500 Hz WB	31
5.2 RCV Distortion and Noise - 3150 Hz WB	33
5.2 RCV Distortion and Noise - 4000 Hz WB	35
5.2 RCV Distortion and Noise - 5000 Hz WB	37
Report - Receive Distortion and Noise (Conversational Gain)	39
5.2 RCV Distortion and Noise - 250 Hz WB	40
5.2 RCV Distortion and Noise - 315 Hz WB	42
5.2 RCV Distortion and Noise - 400 Hz WB	44
5.2 RCV Distortion and Noise - 500 Hz WB	46
5.2 RCV Distortion and Noise - 630 Hz WB	48
5.2 RCV Distortion and Noise - 800 Hz WB	50
5.2 RCV Distortion and Noise - 1000 Hz WB	52
5.2 RCV Distortion and Noise - 1250 Hz WB	54
5.2 RCV Distortion and Noise - 1600 Hz WB	56
5.2 RCV Distortion and Noise - 2000 Hz WB	58
5.2 RCV Distortion and Noise - 2500 Hz WB	60
5.2 RCV Distortion and Noise - 3150 Hz WB	62
5.2 RCV Distortion and Noise - 4000 Hz WB	64
5.2 RCV Distortion and Noise - 5000 Hz WB	66
Report - Receive Distortion and Noise (Conversational Gain)	68
5.3 Frequency Response 8N FF	69
5.3 Frequency Response 8N DF	71
5.3 Frequency Response 2N FF	73
5.3 Frequency Response 2N DF	75

Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 128.7 ms

2024/1/26 12:38 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: csswb1b_r1s.dat
WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2
Pause 0.5 s +
voiced signal + 8000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 8000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_WB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

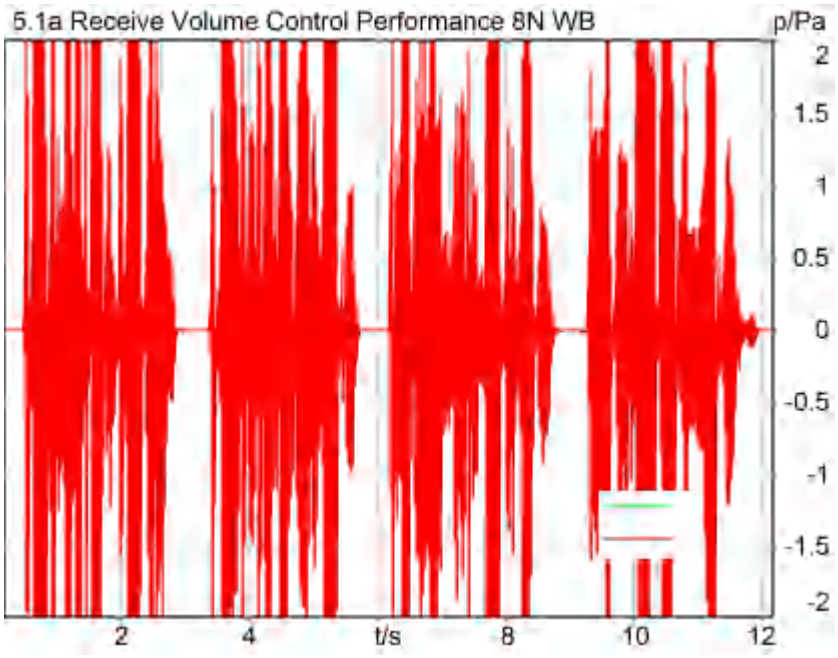
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 88.48 dB[SPL], Act.: 85.12%
Corrected Speech Level: 18.48 dB[SPL] Ok

Ok

2024/1/25 16:07 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 123.5000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

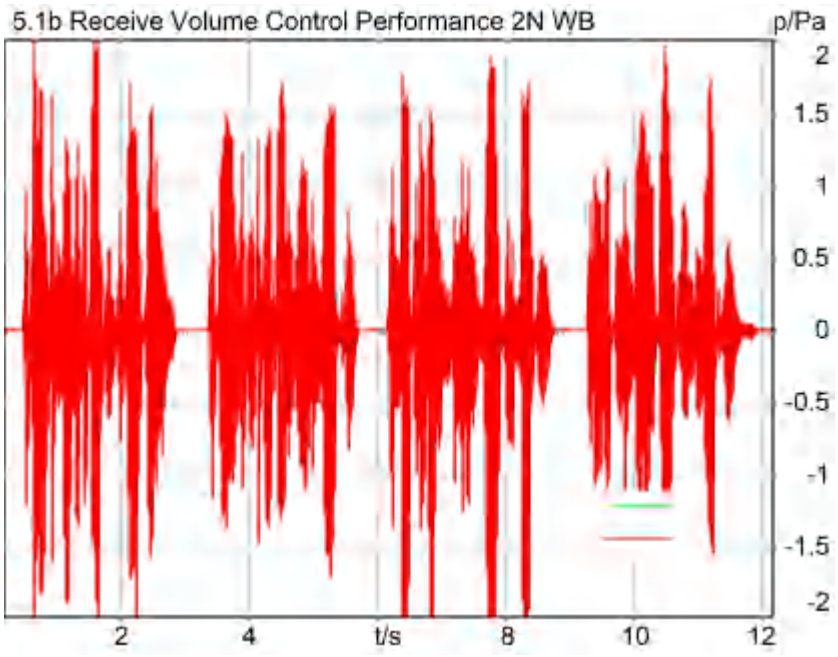
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 82.66 dB[SPL], Act.: 85.00%
Corrected Speech Level: 12.66 dB[SPL] Ok

Ok

2024/1/25 16:19 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 123.5000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

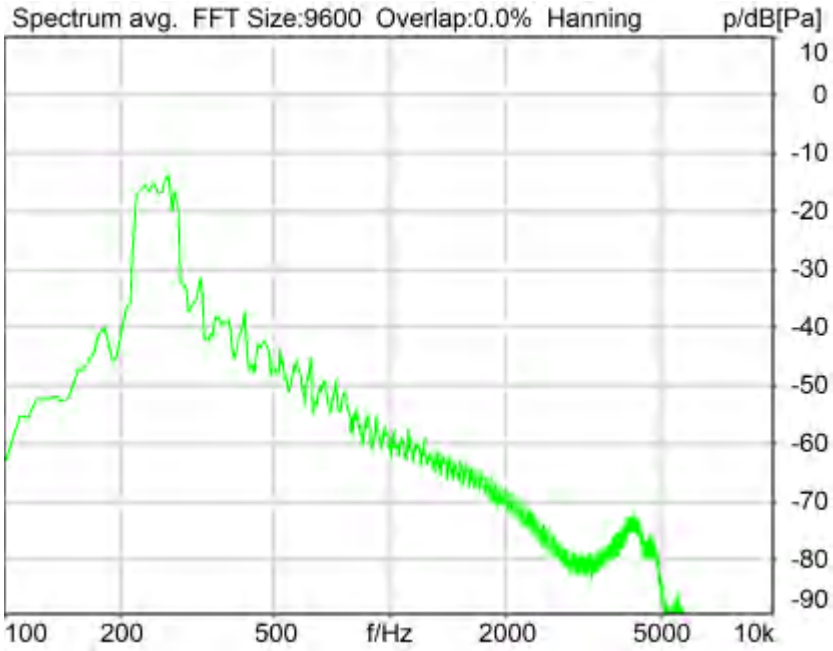
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.95 dB (7.12%) Ok

Ok

2024/1/26 12:39 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	128.7000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

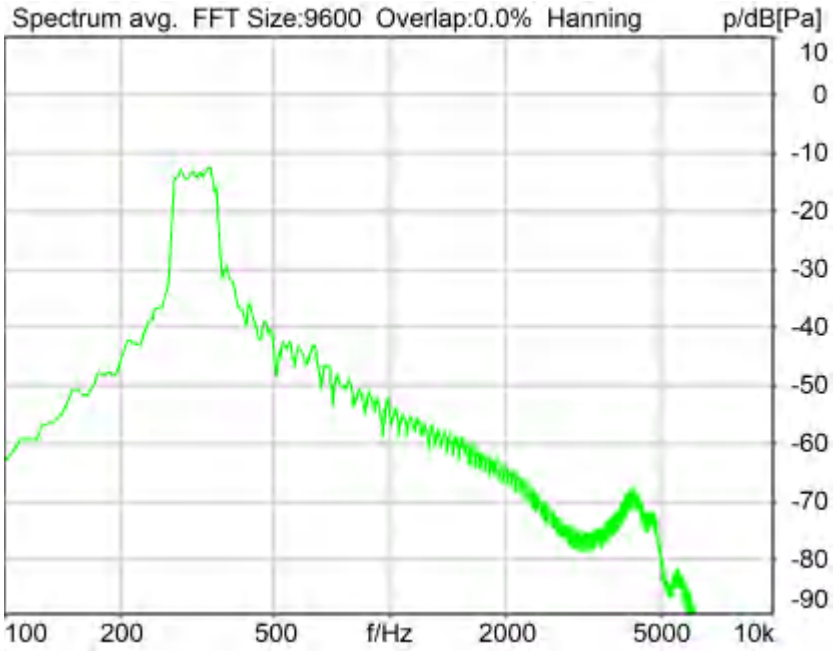
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.20 dB (6.17%) Ok

Ok

2024/1/26 12:40 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	128.7000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

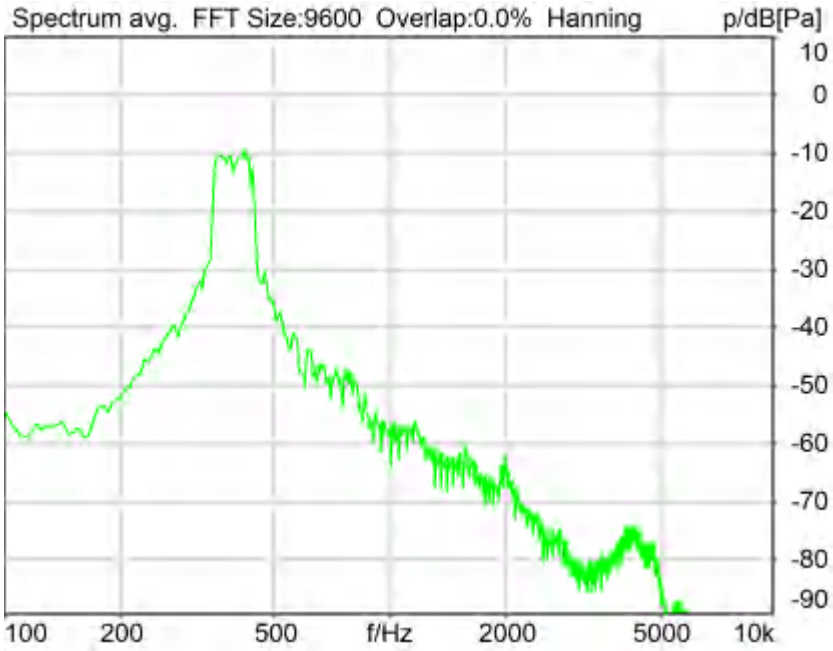
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.05 dB (3.96%) Ok

Ok

2024/1/26 12:40 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	128.7000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.82 dB (3.62%) Ok

Ok

2024/1/26 12:40 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	128.7000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.50 dB (3.76%) Ok

Ok

2024/1/26 10:42 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 24.54 dB (5.93%) Ok

Ok

2024/1/26 10:43 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

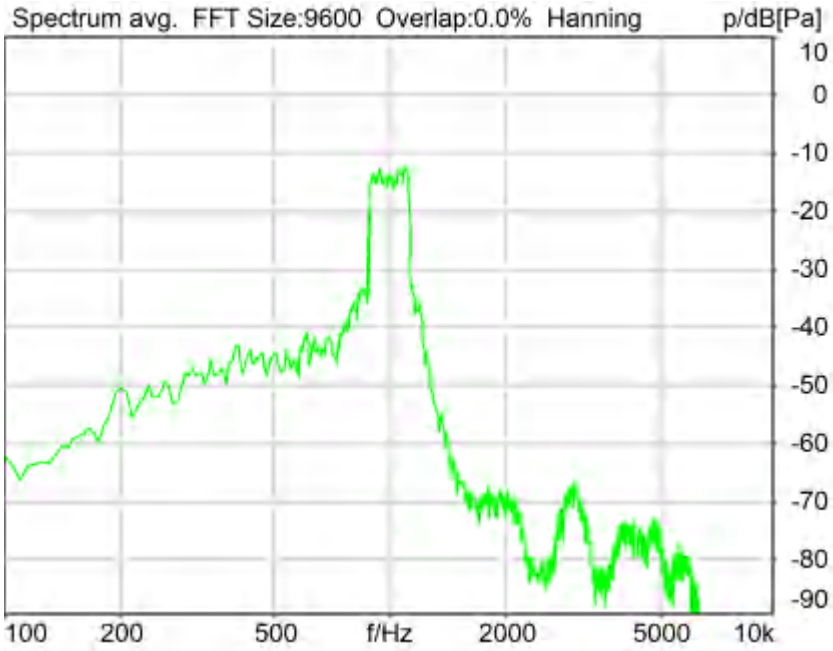
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.73 dB (6.51%) Ok

Ok

2024/1/26 10:43 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

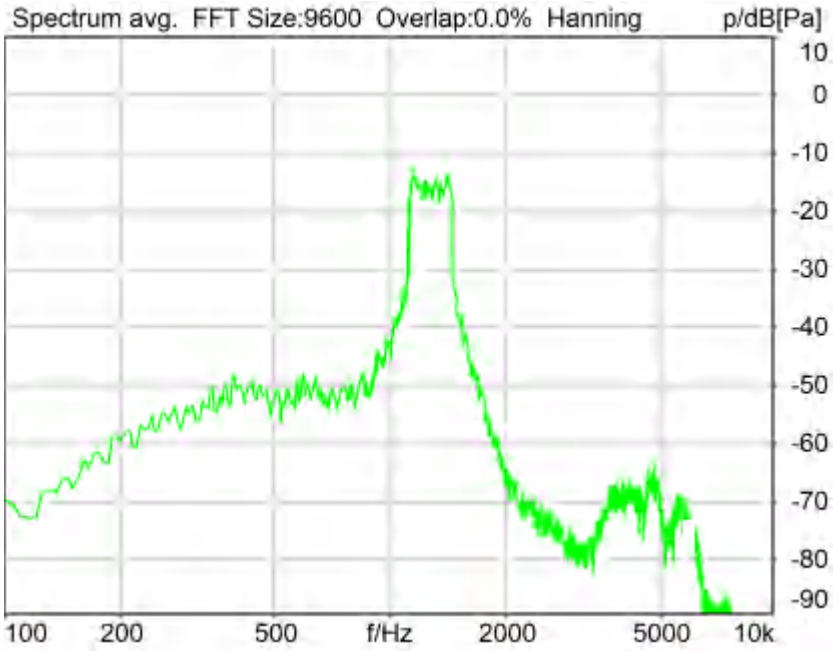
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.33 dB (7.65%) Ok

Ok

2024/1/26 10:43 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

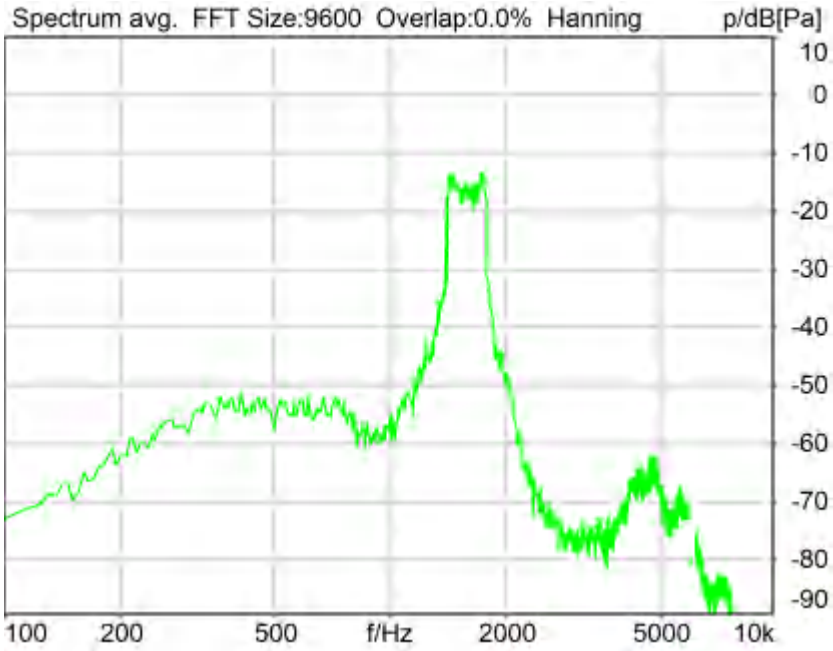
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.57 dB (5.91%) Ok

Ok

2024/1/26 10:44 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

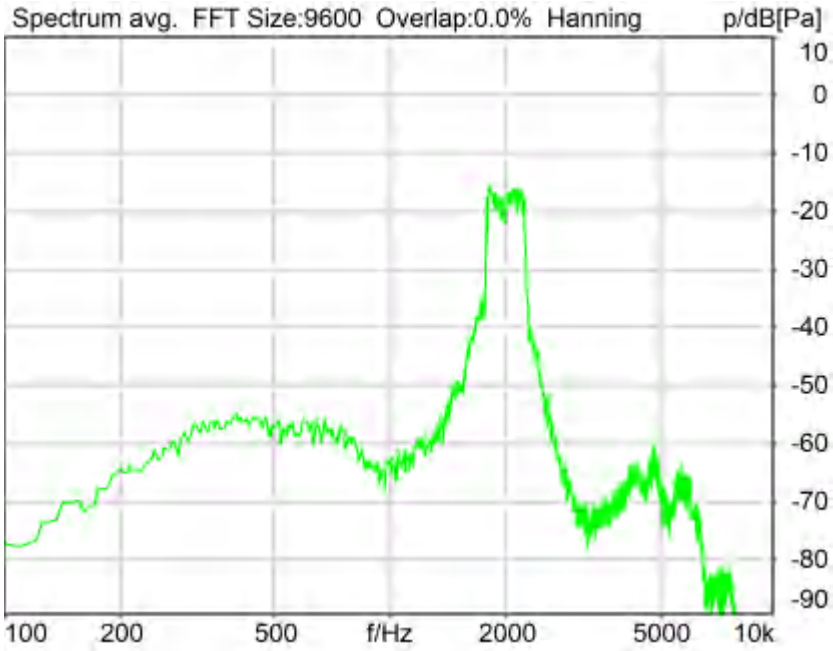
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.94 dB (7.13%) Ok

Ok

2024/1/26 10:44 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 25.32 dB (5.42%) Ok

Ok

2024/1/26 10:45 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

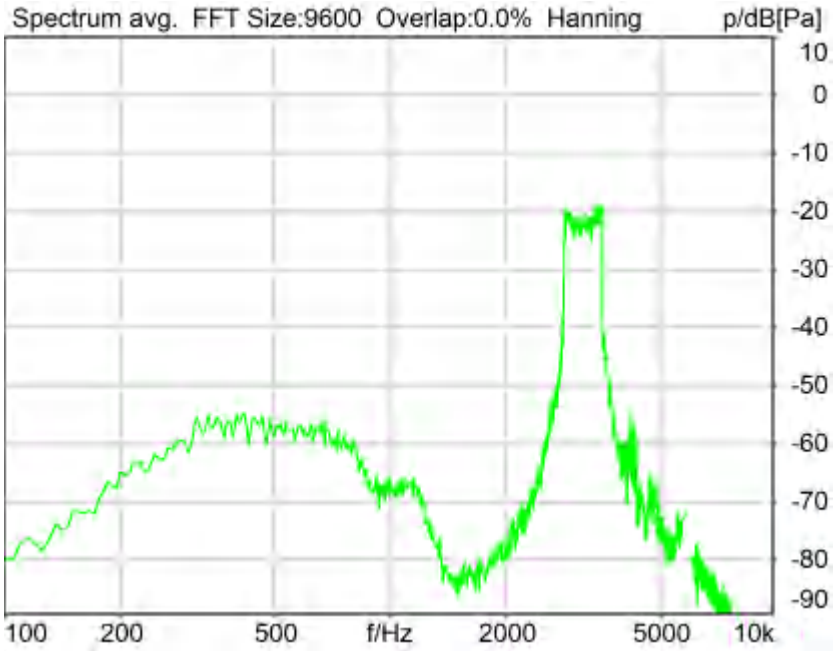
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.58 dB (3.73%) Ok

Ok

2024/1/26 10:45 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

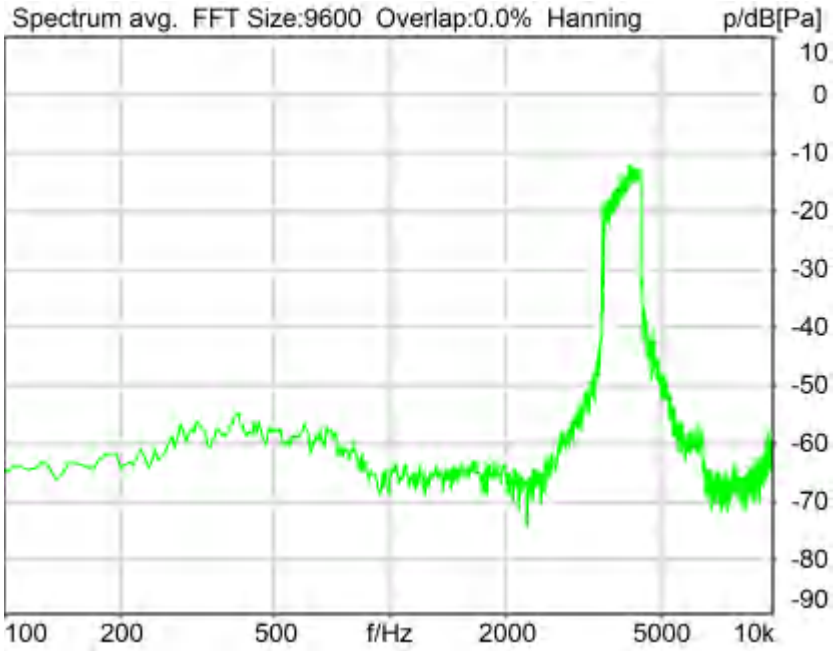
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.07 dB (7.88%) Ok

Ok

2024/1/26 10:45 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

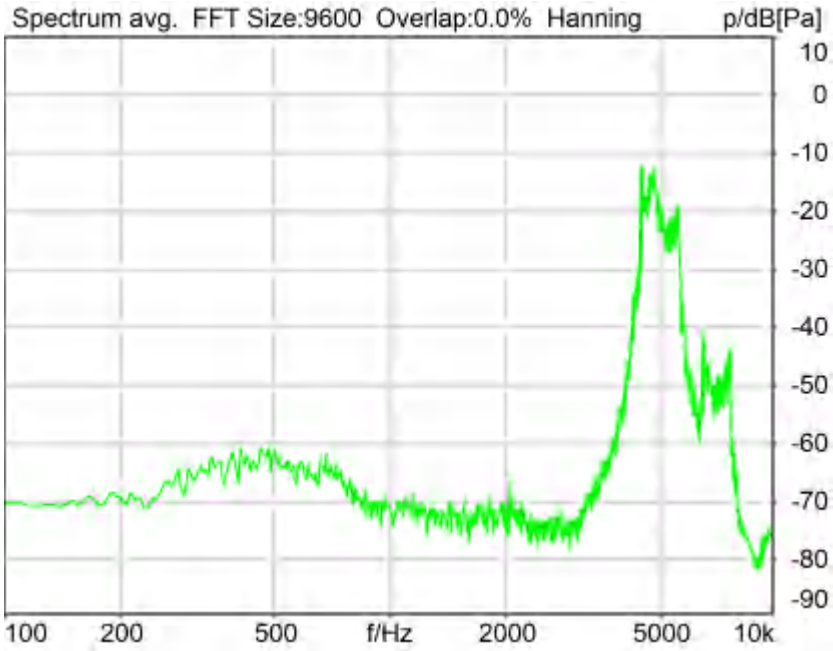
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 20.66 dB (9.27%) Ok

Ok

2024/1/26 10:46 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR

1	250Hz	23.13 dB
2	315Hz	24.61 dB
3	400Hz	28.42 dB
4	500Hz	28.64 dB
5	630Hz	28.50 dB
6	800Hz	24.54 dB
7	1000Hz	23.73 dB
8	1250Hz	22.33 dB
9	1600Hz	24.57 dB
10	2000Hz	22.94 dB
11	2500Hz	25.32 dB
12	3150Hz	28.58 dB
13	4000Hz	22.07 dB
14	5000Hz	20.66 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 20.66dB at 5000Hz.

2024/1/26 10:46 ACQUA

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 23.60 dB (6.60%) Ok

Ok

2024/1/26 10:49 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

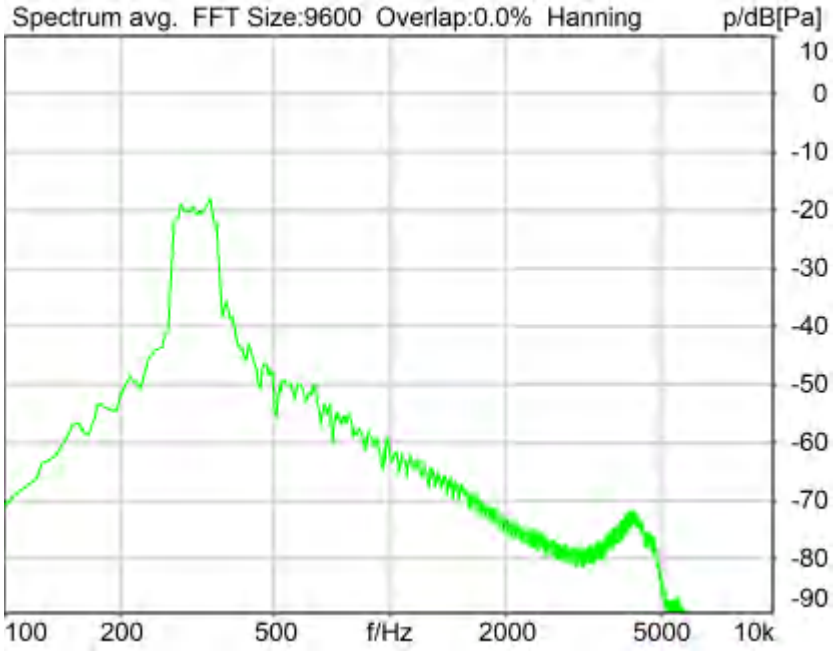
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.83 dB (5.73%) Ok

Ok

2024/1/26 10:50 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)			
RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)			
Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))			
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.39 dB (3.80%) Ok

Ok

2024/1/26 10:50 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.87 dB (3.60%) Ok

Ok

2024/1/26 10:51 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.45 dB (3.78%) Ok

Ok

2024/1/26 10:51 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 24.79 dB (5.76%) Ok

Ok

2024/1/26 10:51 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

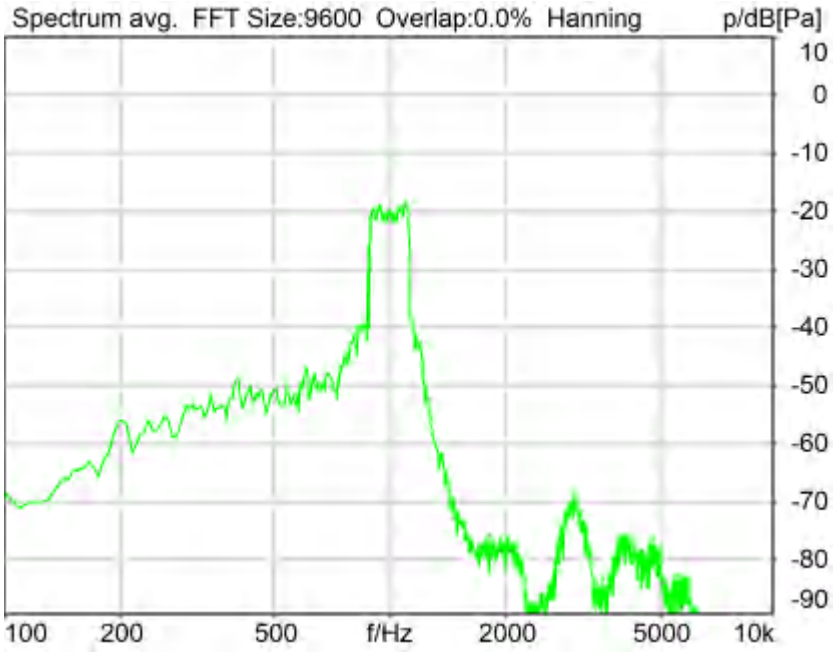
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.69 dB (6.54%) Ok

Ok

2024/1/26 10:52 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

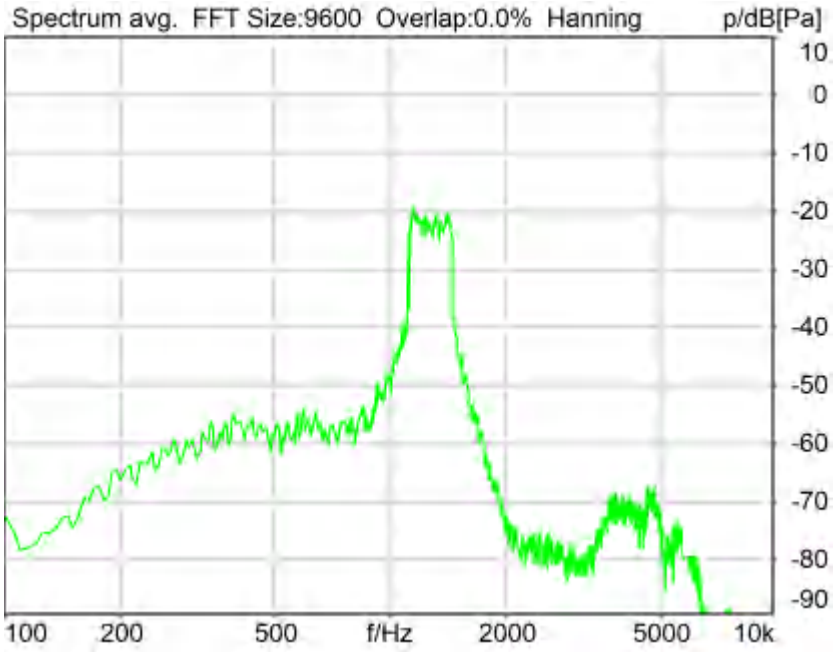
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.54 dB (7.47%) Ok

Ok

2024/1/26 10:52 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

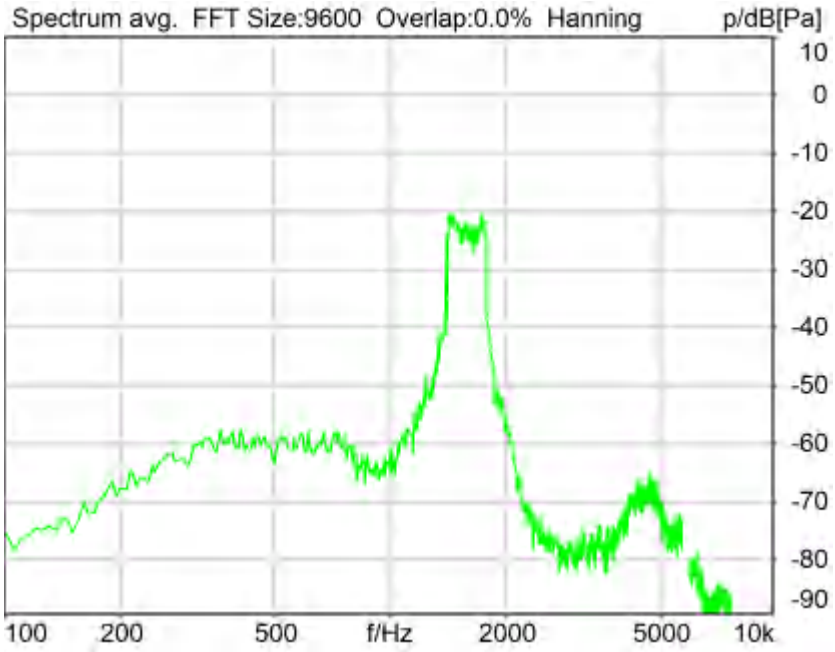
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.25 dB (6.13%) Ok

Ok

2024/1/26 10:53 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 21.91 dB (8.03%) Ok

Ok

2024/1/26 10:53 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

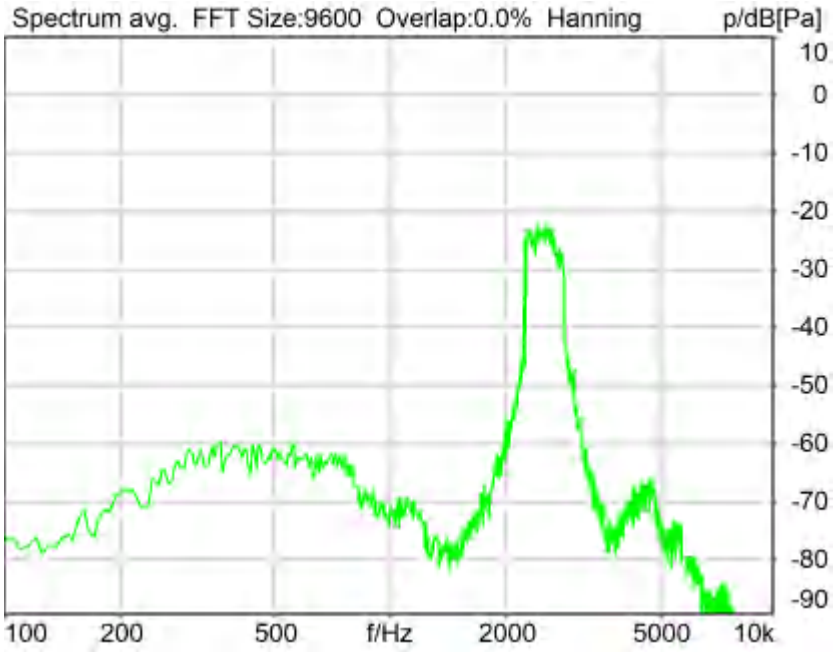
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.95 dB (5.65%) Ok

Ok

2024/1/26 10:53 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

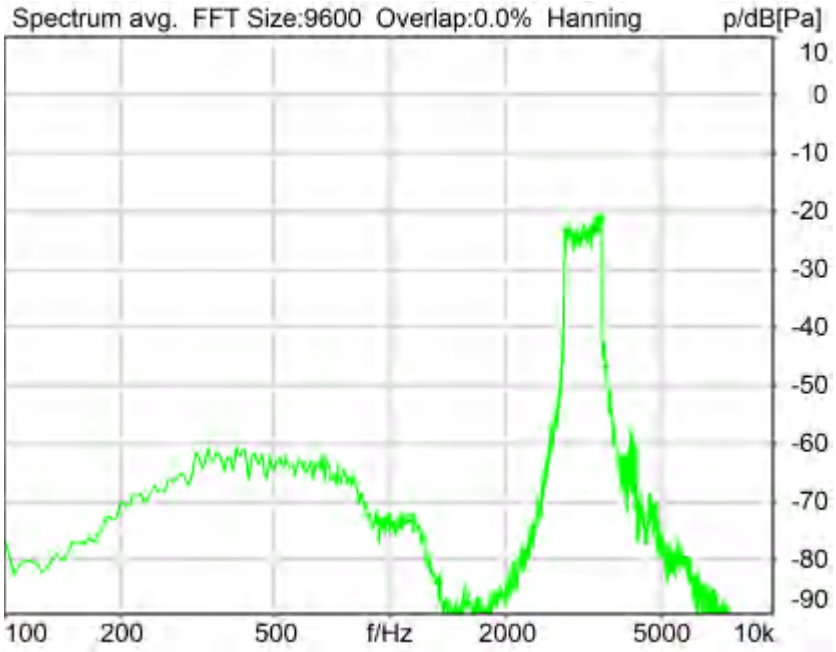
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.09 dB (3.51%) Ok

Ok

2024/1/26 10:54 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

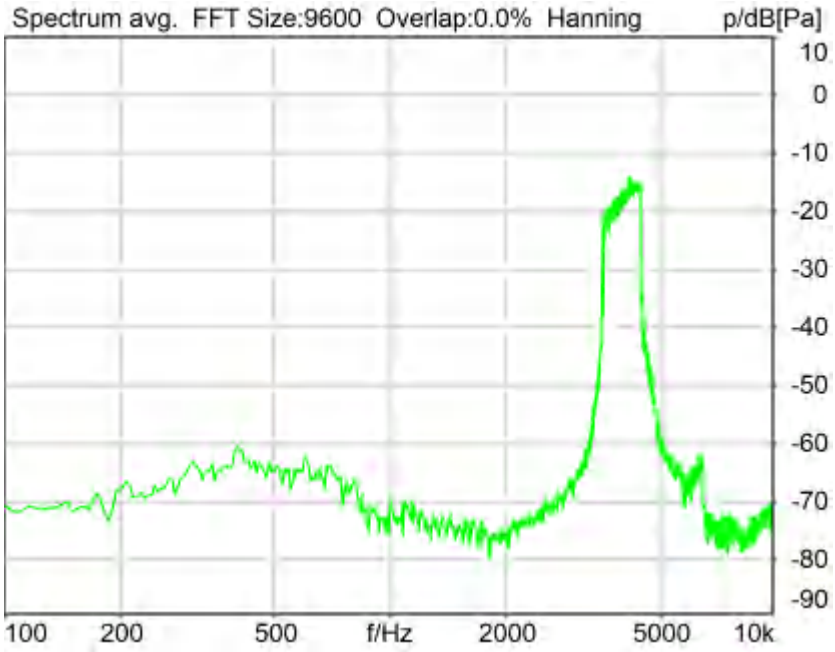
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.76 dB (4.09%) Ok

Ok

2024/1/26 10:54 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

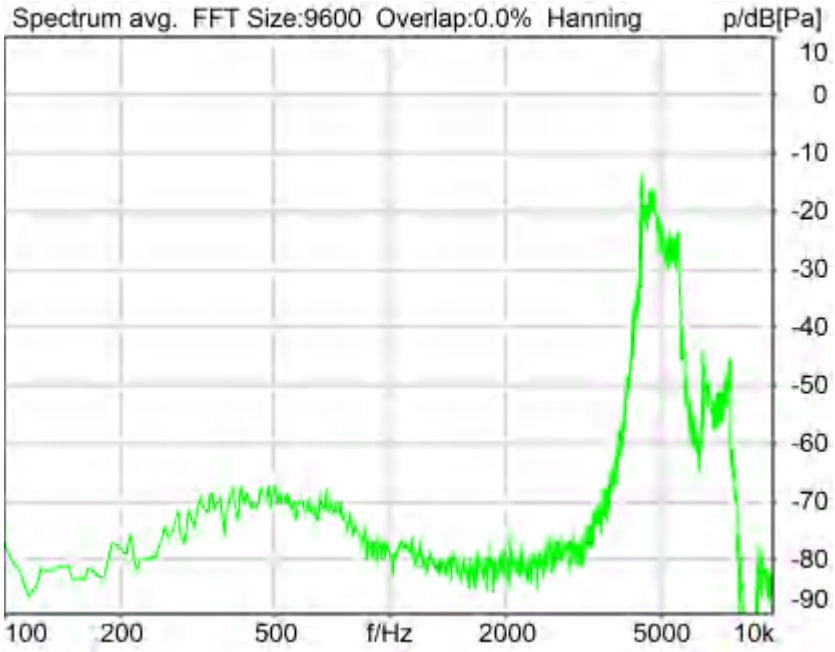
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 20.64 dB (9.29%) Ok

Ok

2024/1/26 10:55 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 130.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

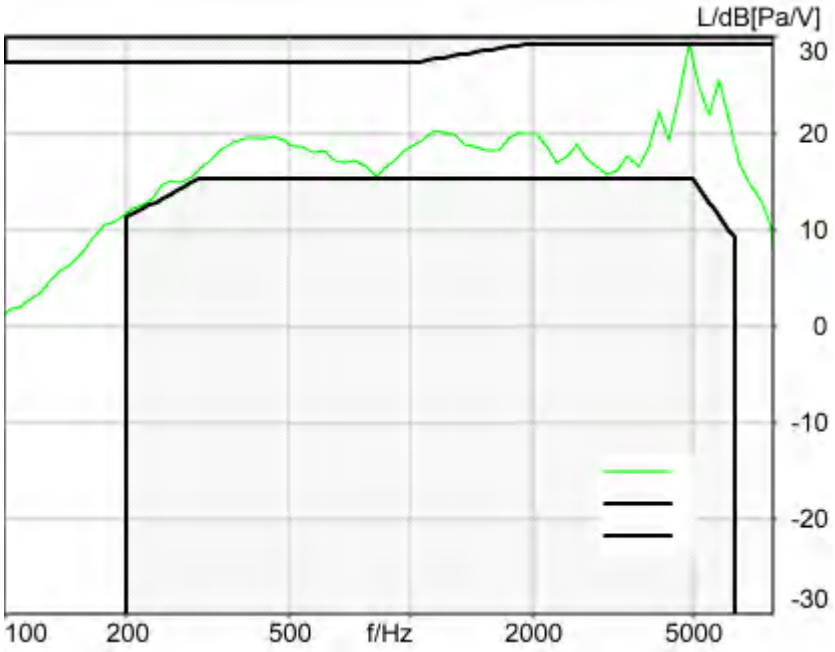
Region	Frequency	SDNR
1	250Hz	23.60 dB
2	315Hz	24.83 dB
3	400Hz	28.39 dB
4	500Hz	28.87 dB
5	630Hz	28.45 dB
6	800Hz	24.79 dB
7	1000Hz	23.69 dB
8	1250Hz	22.54 dB
9	1600Hz	24.25 dB
10	2000Hz	21.91 dB
11	2500Hz	24.95 dB
12	3150Hz	29.09 dB
13	4000Hz	27.76 dB
14	5000Hz	20.64 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 20.64dB at 5000Hz.

2024/1/26 10:55 ACQUA

5.3 Frequency Response 8N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
0.12 dB at 4870.0 Hz Ok

Ok

2024/1/26 14:02 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 128.7000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband

Absolute minimal distance

0.14 dB at 4870.0 Hz Ok

Ok

2024/1/26 12:58 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 128.7000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---
Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

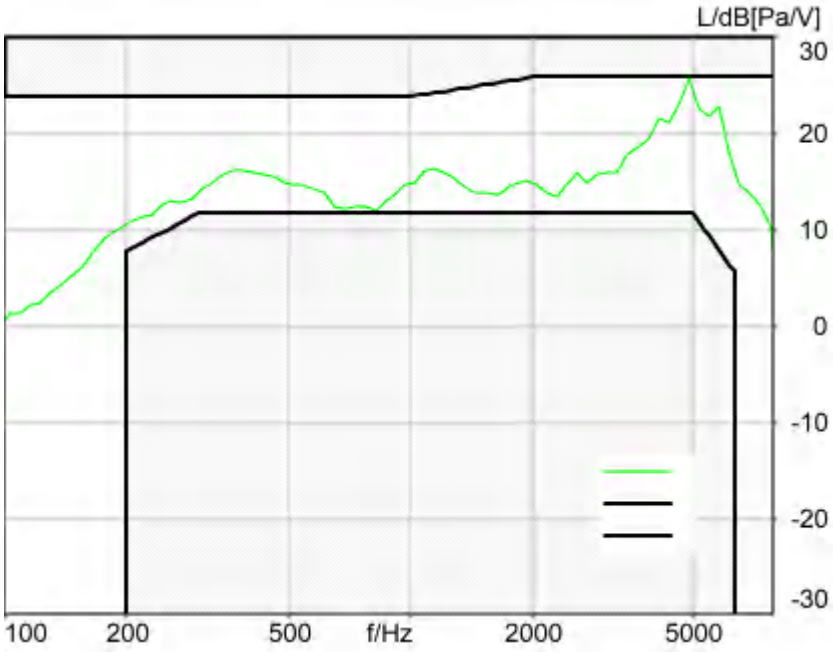
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

0.14 dB at 4870.0 Hz Ok

Ok

2024/1/26 14:59 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 128.7000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out

In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

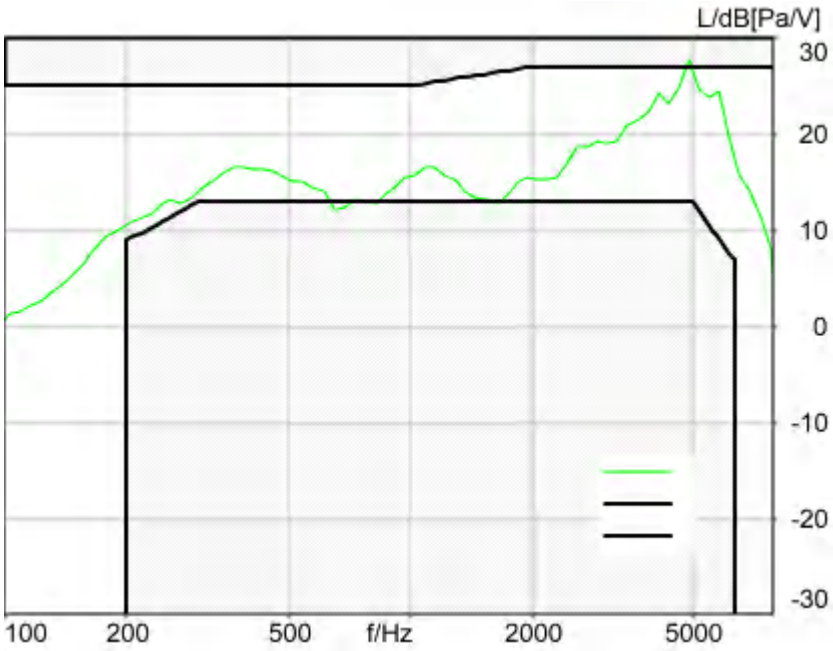
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
-0.71 dB at 4870.0 Hz Not Ok

Not Ok

2024/1/26 14:59 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 128.7000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
Description	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:13
Responsible Person	audio

Status Overview

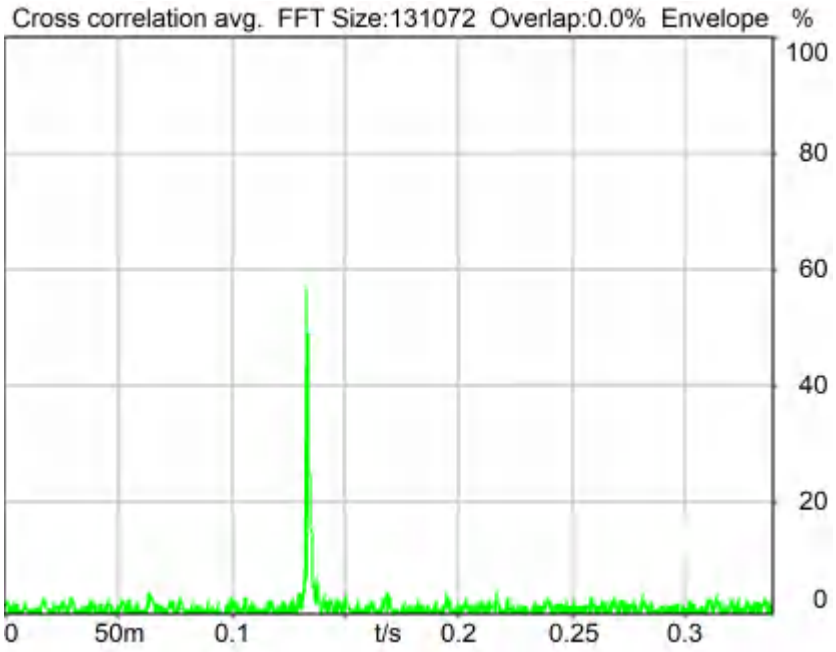
SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay NB	Done	Delay (Cross) [ms]	133.8	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.1a Receive Volume Control Performance 8N NB	Ok	Corrected Speech Level [dB[SPL]]	18.37	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.1b Receive Volume Control Performance 2N NB	Ok	Corrected Speech Level [dB[SPL]]	12.68	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.78	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.34	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 630 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.18	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.18	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.49	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	21.79	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.07	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.21	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.87	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.72	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.79	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.04	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.57	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise	Ok	Distortion (Noise) [dB],	27.95	339D NR

- 630 Hz NB		0.0 dB		n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.32	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.57	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	22.06	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.77	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	22.26	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.36	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.68	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	22.06	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.3 Frequency Response 8N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 2057.5 Hz	2.81	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.3 Frequency Response 8N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 2177.4 Hz	2.42	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.3 Frequency Response 2N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 3657.5 Hz	2.39	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500
5.3 Frequency Response 2N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 3445.5 Hz	0.88	339D NR n25_40_DFT-S-OFDM_EVS NB9.6kbps_CH376500

Overall Receive Delay NB	5
5.1a Receive Volume Control Performance 8N NB	6
5.1b Receive Volume Control Performance 2N NB	8
5.2 RCV Distortion and Noise - 400 Hz NB	10
5.2 RCV Distortion and Noise - 500 Hz NB	12
5.2 RCV Distortion and Noise - 630 Hz NB	14
5.2 RCV Distortion and Noise - 800 Hz NB	16
5.2 RCV Distortion and Noise - 1000 Hz NB	18
5.2 RCV Distortion and Noise - 1250 Hz NB	20
5.2 RCV Distortion and Noise - 1600 Hz NB	22
5.2 RCV Distortion and Noise - 2000 Hz NB	24
5.2 RCV Distortion and Noise - 2500 Hz NB	26
5.2 RCV Distortion and Noise - 3150 Hz NB	28
Report - Receive Distortion and Noise (Conversational Gain)	30
5.2 RCV Distortion and Noise - 400 Hz NB	31
5.2 RCV Distortion and Noise - 500 Hz NB	33
5.2 RCV Distortion and Noise - 630 Hz NB	35
5.2 RCV Distortion and Noise - 800 Hz NB	37
5.2 RCV Distortion and Noise - 1000 Hz NB	39
5.2 RCV Distortion and Noise - 1250 Hz NB	41
5.2 RCV Distortion and Noise - 1600 Hz NB	43
5.2 RCV Distortion and Noise - 2000 Hz NB	45
5.2 RCV Distortion and Noise - 2500 Hz NB	46
5.2 RCV Distortion and Noise - 3150 Hz NB	48
Report - Receive Distortion and Noise (Conversational Gain)	50
5.3 Frequency Response 8N FF HANB	51
5.3 Frequency Response 8N DF HANB	53
5.3 Frequency Response 2N FF HANB	55
5.3 Frequency Response 2N DF HANB	58

Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 133.8 ms

2024/1/25 16:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: cssnb1b_r1s.dat
Level adj. Ch1 -90.0 dB
CSSnb1b_R1s.dat - CS-signal with special 1s random noise
NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2
Pause 0.5 s +
voiced signal + 4000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 4000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_NB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

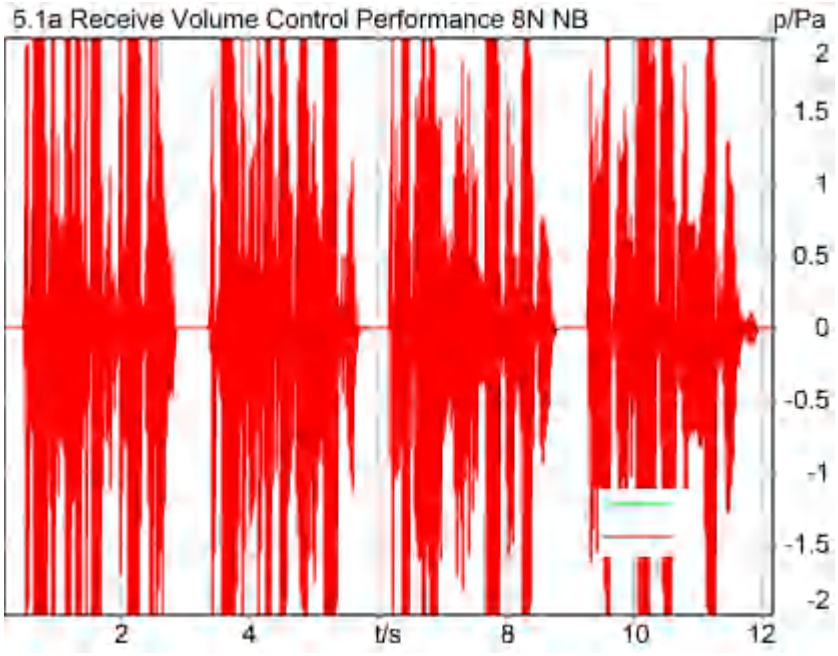
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 88.37 dB[SPL], Act.: 84.93%
Corrected Speech Level: 18.37 dB[SPL] Ok

Ok

2024/1/25 16:53 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

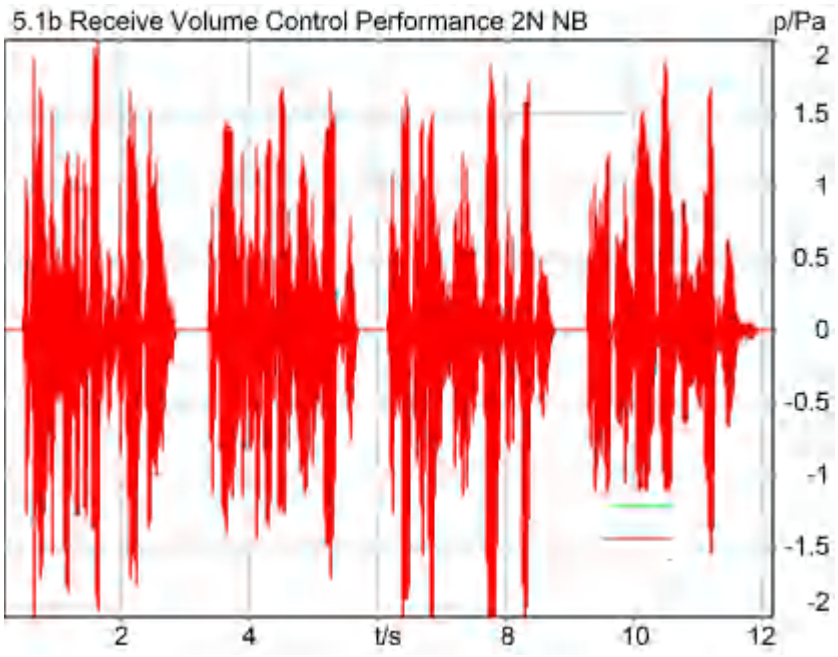
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 82.68 dB[SPL], Act.: 84.91%
Corrected Speech Level: 12.68 dB[SPL] Ok

Ok

2024/1/25 17:05 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.78 dB (3.64%) Ok

Ok

2024/1/25 16:55 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz

Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 29.34 dB (3.41%) Ok

Ok

2024/1/25 16:56 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz

Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.18 dB (3.90%) Ok

Ok

2024/1/25 16:56 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz

Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 25.18 dB (5.51%) Ok

Ok

2024/1/25 16:56 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz

Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

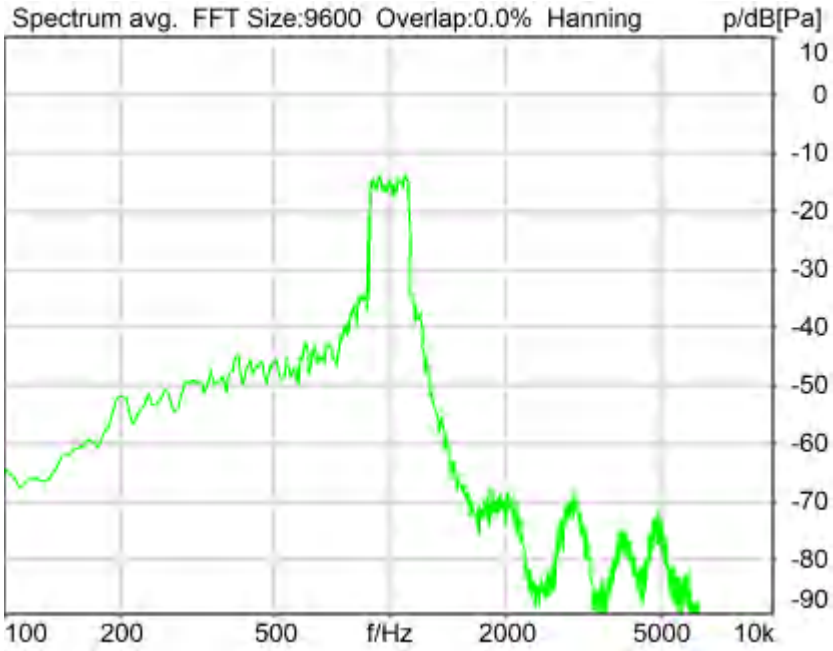
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.49 dB (6.69%) Ok

Ok

2024/1/25 16:57 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz

Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

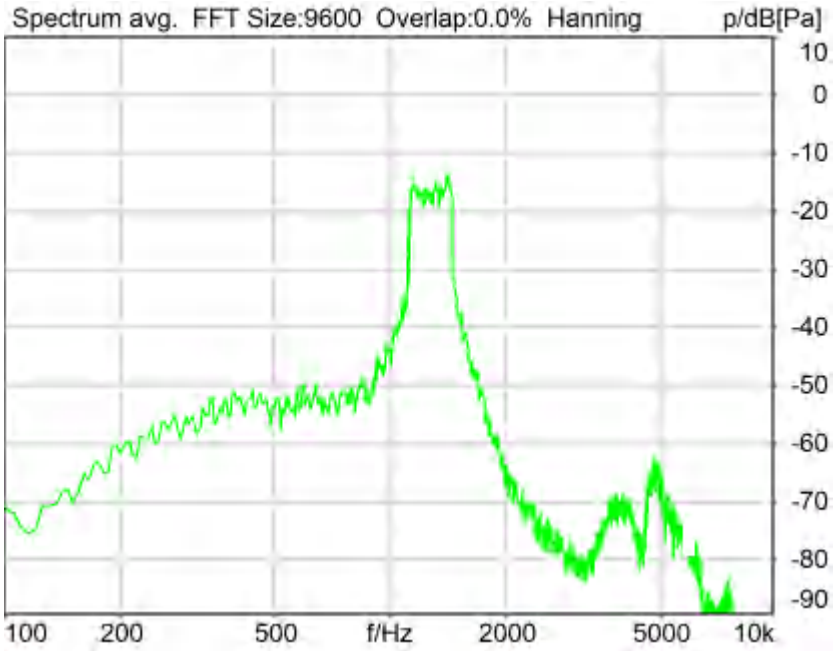
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 21.79 dB (8.14%) Ok

Ok

2024/1/25 16:57 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

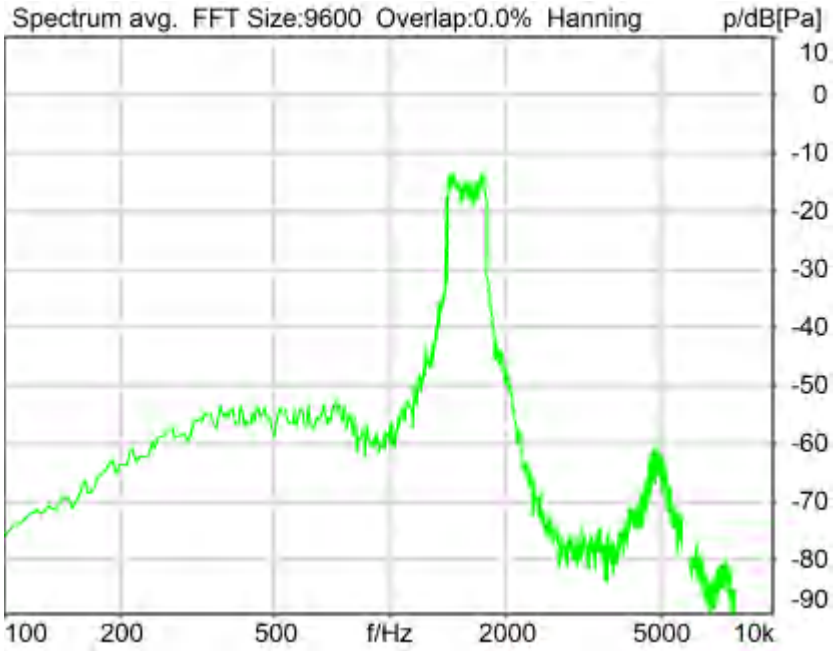
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.07 dB (5.58%) Ok

Ok

2024/1/25 16:58 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

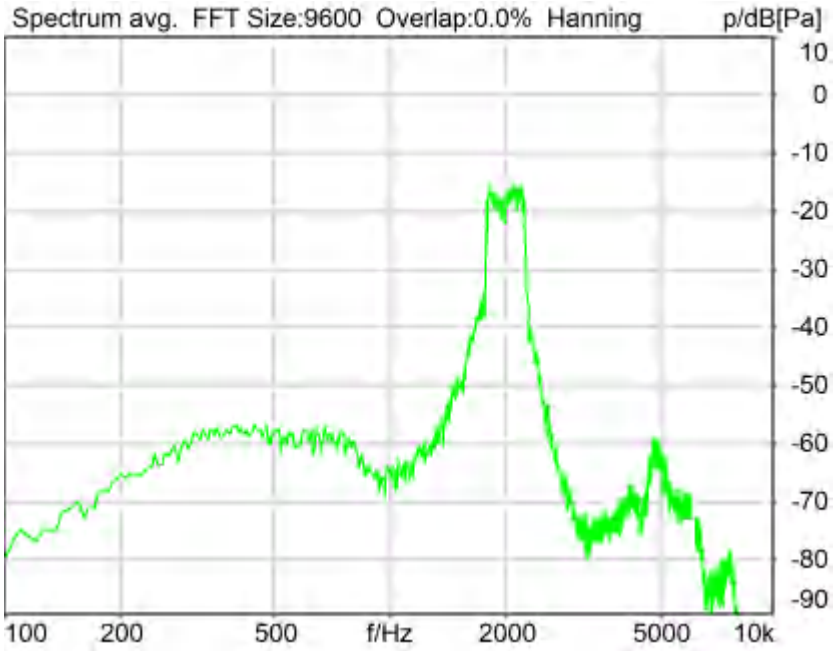
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.21 dB (6.91%) Ok

Ok

2024/1/25 16:58 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 24.87 dB (5.71%) Ok

Ok

2024/1/25 16:58 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

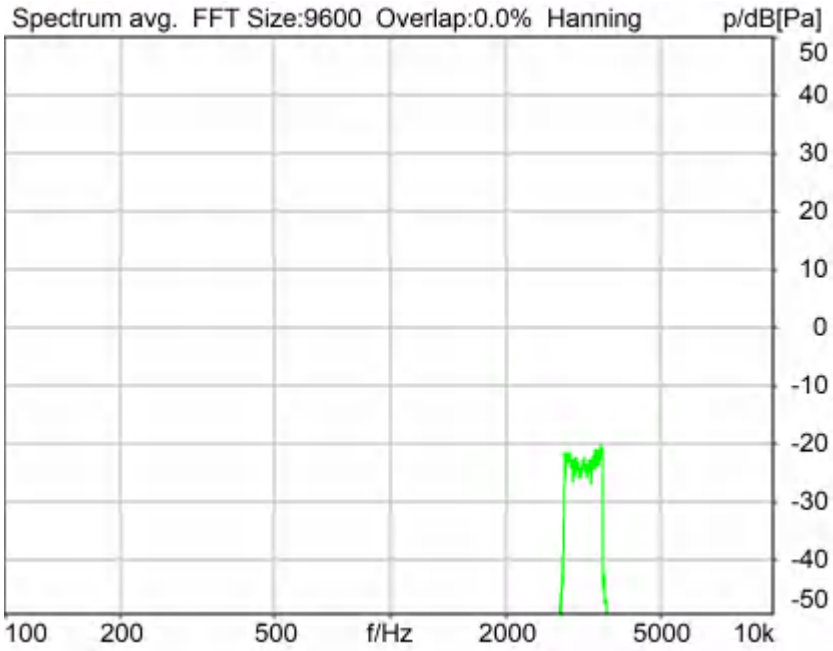
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.72 dB (3.66%) Ok

Ok

2024/1/25 16:59 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR
1	400Hz	28.78 dB
2	500Hz	29.34 dB

3	630Hz	28.18 dB
4	800Hz	25.18 dB
5	1000Hz	23.49 dB
6	1250Hz	21.79 dB
7	1600Hz	25.07 dB
8	2000Hz	23.21 dB
9	2500Hz	24.87 dB
10	3150Hz	28.72 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.79dB at 1250Hz.

2024/1/25 17:02 ACQUA

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 29.04 dB (3.53%) Ok

Ok

2024/1/25 17:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140

Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 29.57 dB (3.32%) Ok

Ok

2024/1/25 17:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.95 dB (4.01%) Ok

Ok

2024/1/25 17:07 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

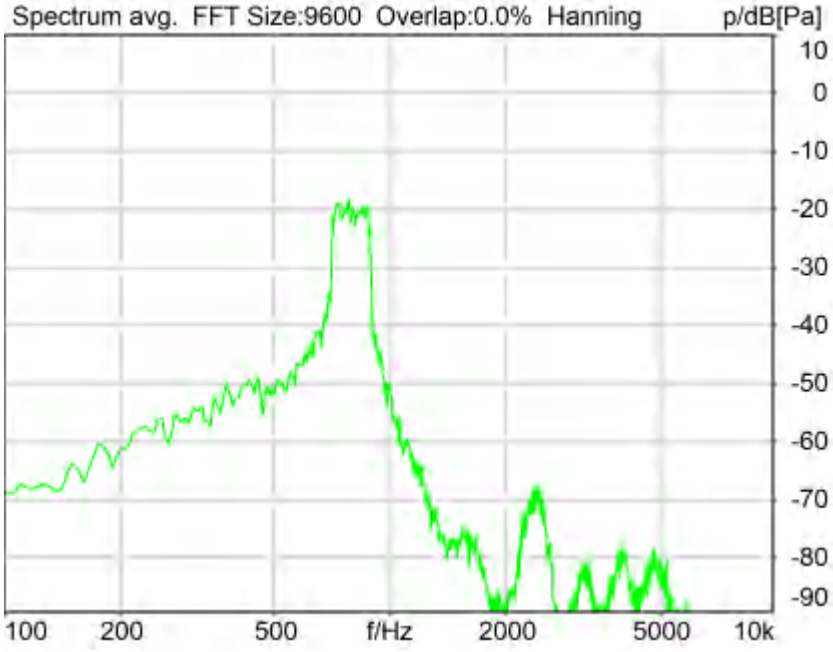
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.32 dB (5.42%) Ok

Ok

2024/1/25 17:07 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

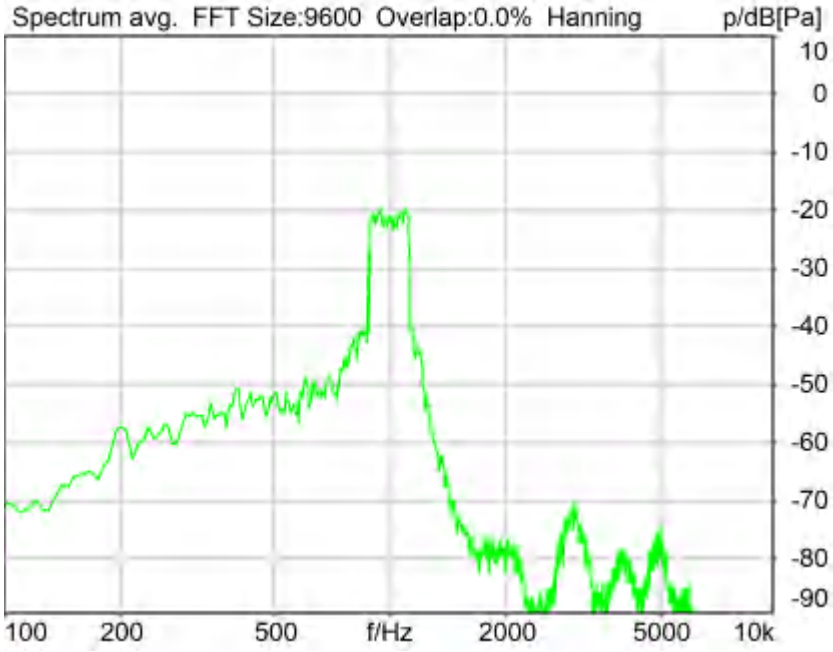
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.57 dB (6.63%) Ok

Ok

2024/1/25 17:08 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

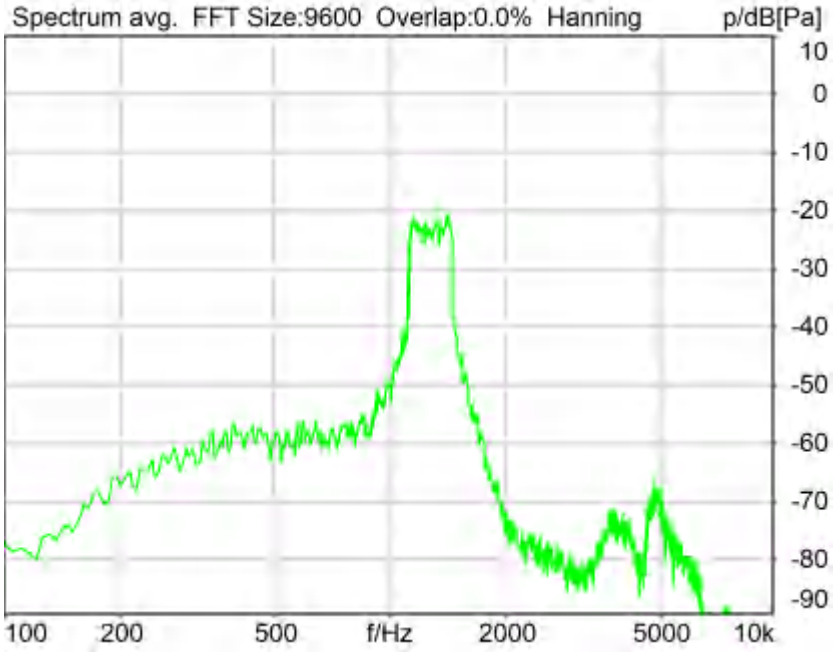
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.06 dB (7.88%) Ok

Ok

2024/1/25 17:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

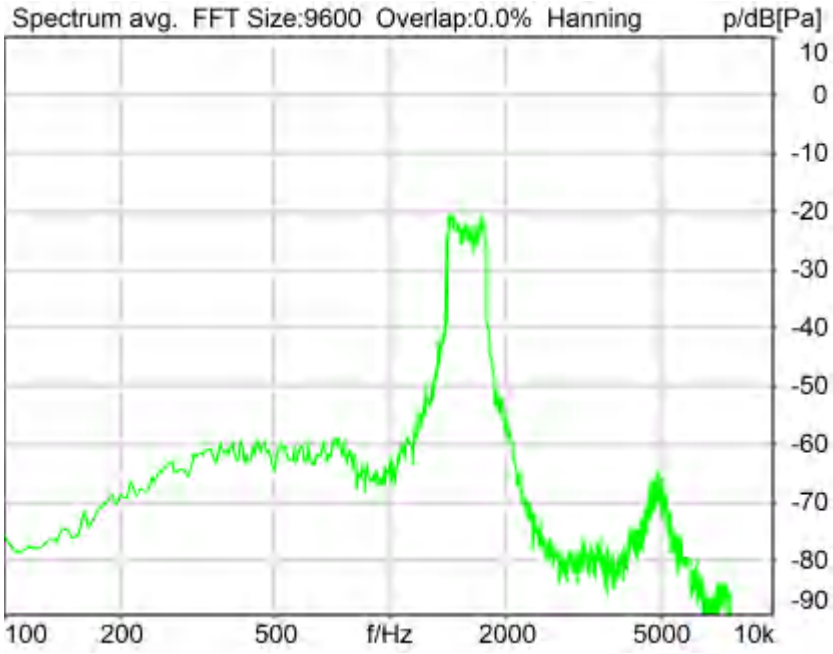
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.77 dB (5.77%) Ok

Ok

2024/1/25 17:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis
Direction Out 2 -> In 2

Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

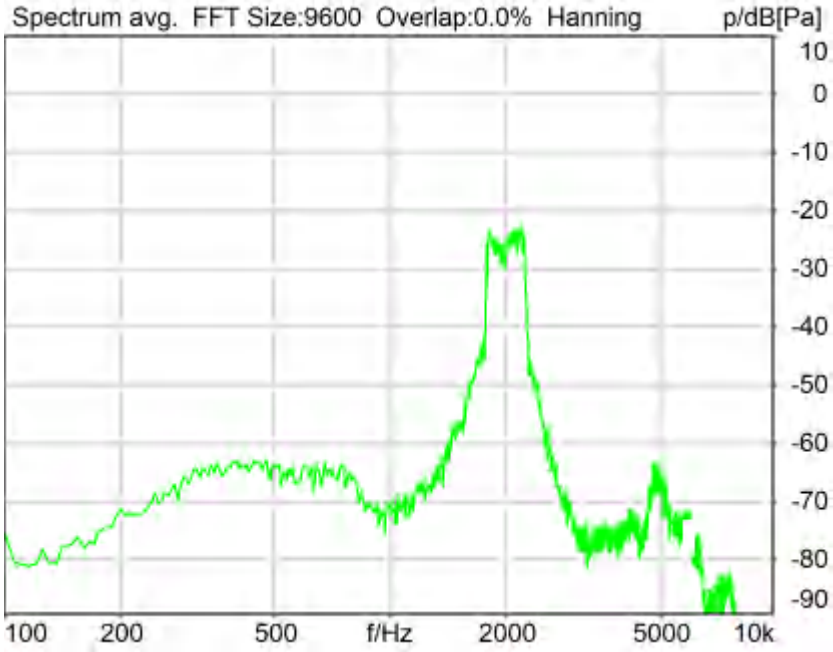
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.26 dB (7.71%) Ok

Ok

2024/1/25 17:09 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652

DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

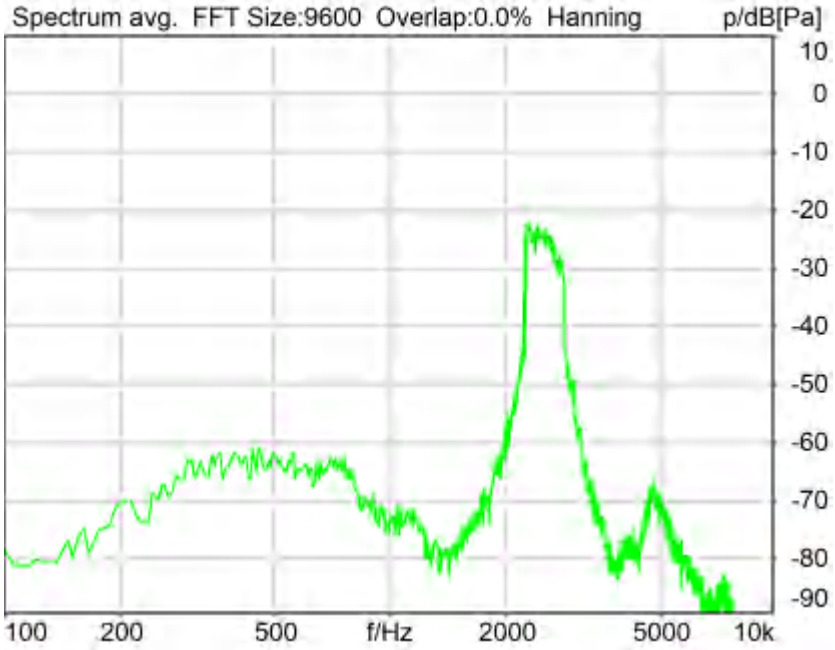
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.36 dB (5.40%) Ok

Ok

2024/1/25 17:09 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off

dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

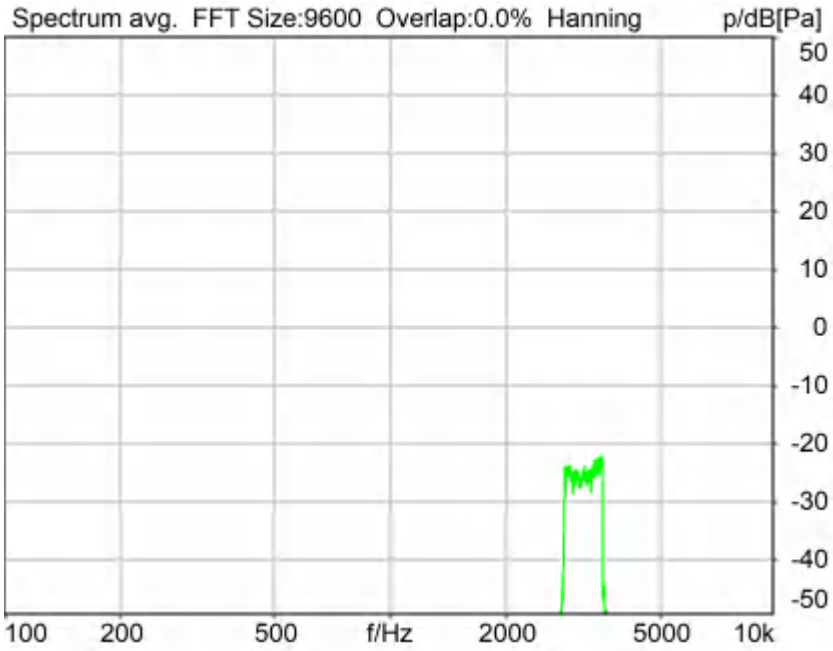
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.68 dB (3.28%) Ok

Ok

2024/1/25 17:10 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Region	Frequency	SDNR
1	400Hz	29.04 dB
2	500Hz	29.57 dB

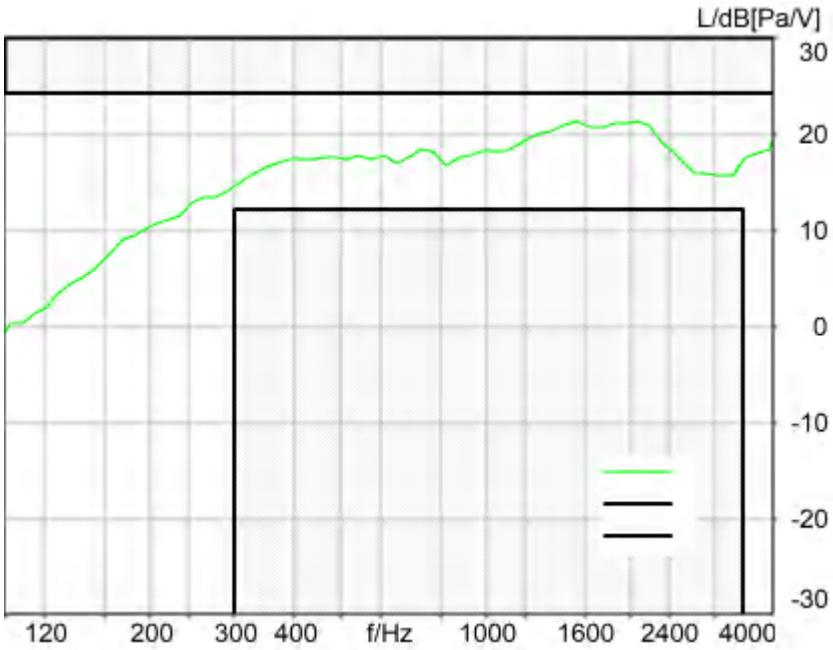
3	630Hz	27.95 dB
4	800Hz	25.32 dB
5	1000Hz	23.57 dB
6	1250Hz	22.06 dB
7	1600Hz	24.77 dB
8	2000Hz	22.26 dB
9	2500Hz	25.36 dB
10	3150Hz	29.68 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 22.06dB at 1250Hz.

2024/1/25 17:10 ACQUA

5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.81 dB at 2057.5 Hz Ok

Ok

2024/1/25 17:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)			
RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)			
Block mode	Bypass		

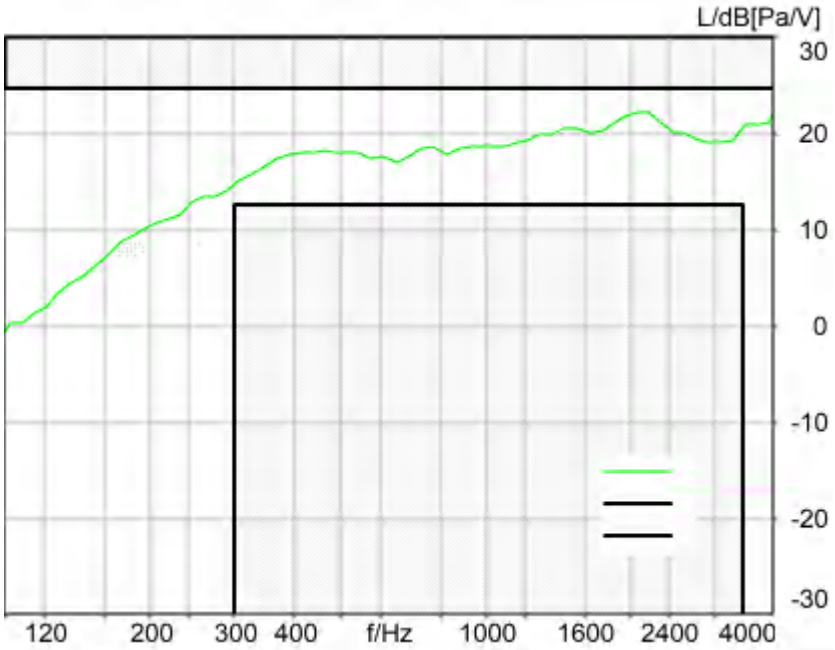
Artificial Head Settings (HATS 1 (HMS II.3))			
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.42 dB at 2177.4 Hz Ok

Ok

2024/1/25 17:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat

Level adj. Ch1	-90.0 dB	Level adj. Ch2	-4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

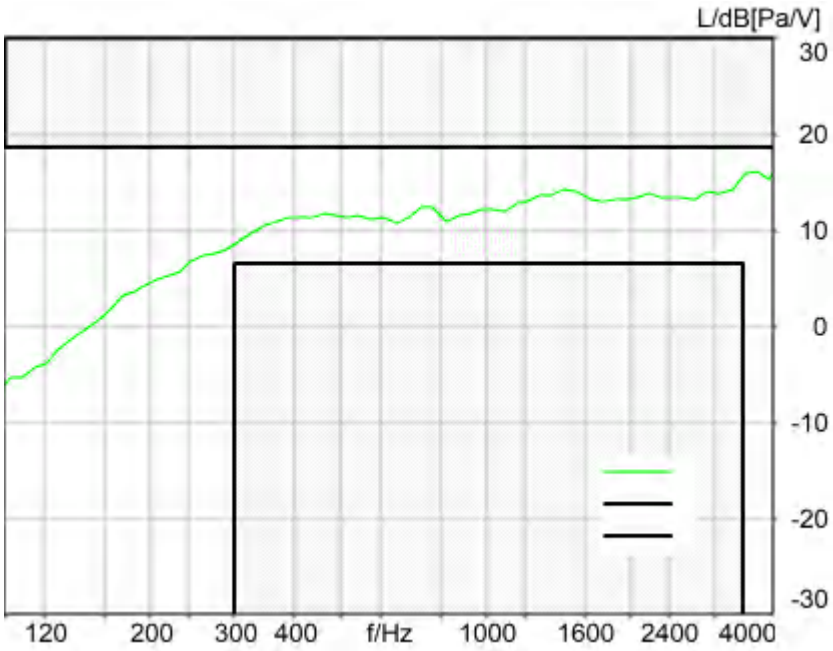
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.39 dB at 3657.5 Hz Ok

Ok

2024/1/25 17:10 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

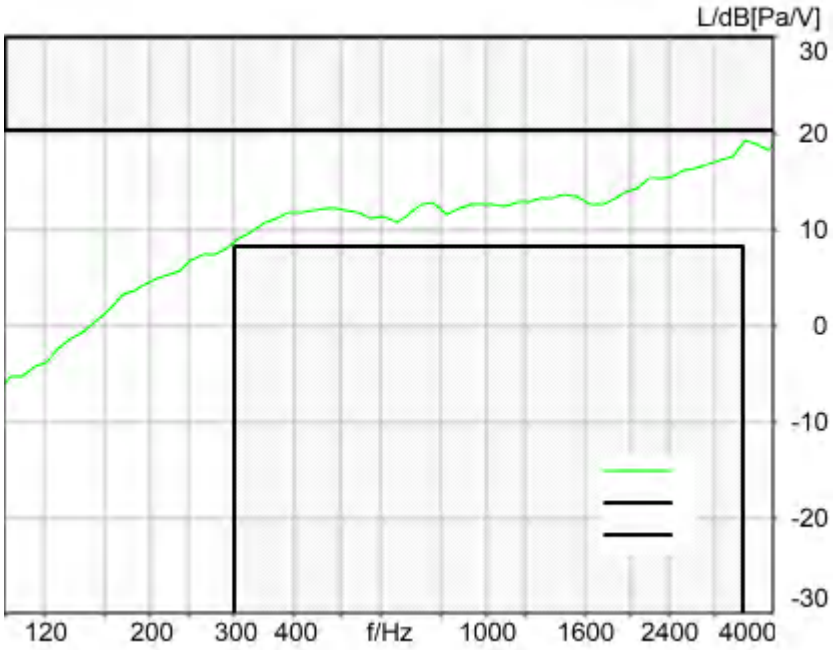
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB

Mic 1 Power Supply Off Mic 2 Power Supply Off

5.3 Frequency Response 2N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
0.88 dB at 3445.5 Hz Ok

Ok

2024/1/25 17:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"

Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 133.8000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
Description	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:14
Responsible Person	audio

Status Overview

SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay WB	Done	Delay (Cross) [ms]	126.6	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.1a Receive Volume Control Performance 8N WB	Ok	Corrected Speech Level [dB[SPL]]	18.63	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.1b Receive Volume Control Performance 2N WB	Ok	Corrected Speech Level [dB[SPL]]	12.54	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.78	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.72	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.02	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.18	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.00	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.32	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.49	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	21.82	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.11	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.24	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.90	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.72	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	26.57	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise	Ok	Distortion (Noise) [dB],	25.38	339D NR

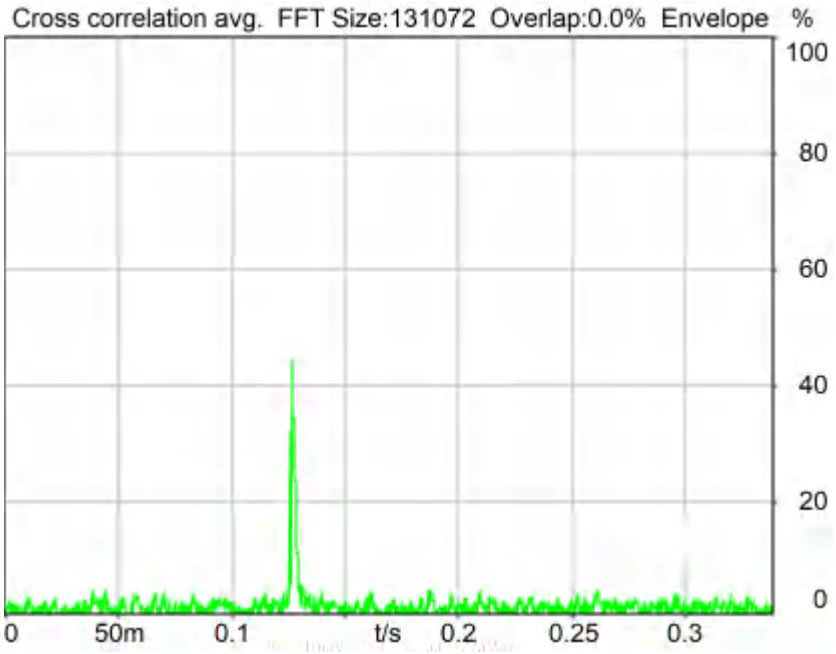
- 5000 Hz WB		0.0 dB		n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.82	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.78	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.82	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.11	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.98	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.52	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.68	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.60	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.08	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.82	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.28	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.36	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.65	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.05	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.2 RCV Distortion and Noise - 5000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.17	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	22.08	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.3 Frequency Response 8N FF	Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	0.83	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.3 Frequency Response 8N	Ok	Min. dist. to tolerance	0.21	339D NR

DF		scheme [dB], 4870.0 Hz		n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500
5.3 Frequency Response 2N FF	Ok	Min. dist. to tolerance scheme [dB], 823.9 Hz	0.11	339D NR n25_40_DFT-S-OFDM_EVS WB13.2kbps_CH376500

Overall Receive Delay WB	6
5.1a Receive Volume Control Performance 8N WB	8
5.1b Receive Volume Control Performance 2N WB	10
5.2 RCV Distortion and Noise - 250 Hz WB	11
5.2 RCV Distortion and Noise - 315 Hz WB	13
5.2 RCV Distortion and Noise - 400 Hz WB	15
5.2 RCV Distortion and Noise - 500 Hz WB	17
5.2 RCV Distortion and Noise - 630 Hz WB	19
5.2 RCV Distortion and Noise - 800 Hz WB	21
5.2 RCV Distortion and Noise - 1000 Hz WB	23
5.2 RCV Distortion and Noise - 1250 Hz WB	25
5.2 RCV Distortion and Noise - 1600 Hz WB	27
5.2 RCV Distortion and Noise - 2000 Hz WB	29
5.2 RCV Distortion and Noise - 2500 Hz WB	31
5.2 RCV Distortion and Noise - 3150 Hz WB	33
5.2 RCV Distortion and Noise - 4000 Hz WB	35
5.2 RCV Distortion and Noise - 5000 Hz WB	37
Report - Receive Distortion and Noise (Conversational Gain)	39
5.2 RCV Distortion and Noise - 250 Hz WB	40
5.2 RCV Distortion and Noise - 315 Hz WB	42
5.2 RCV Distortion and Noise - 400 Hz WB	44
5.2 RCV Distortion and Noise - 500 Hz WB	46
5.2 RCV Distortion and Noise - 630 Hz WB	48
5.2 RCV Distortion and Noise - 800 Hz WB	50
5.2 RCV Distortion and Noise - 1000 Hz WB	52
5.2 RCV Distortion and Noise - 1250 Hz WB	54
5.2 RCV Distortion and Noise - 1600 Hz WB	56
5.2 RCV Distortion and Noise - 2000 Hz WB	57
5.2 RCV Distortion and Noise - 2500 Hz WB	59
5.2 RCV Distortion and Noise - 3150 Hz WB	61
5.2 RCV Distortion and Noise - 4000 Hz WB	63
5.2 RCV Distortion and Noise - 5000 Hz WB	65
Report - Receive Distortion and Noise (Conversational Gain)	67
5.3 Frequency Response 8N FF	68
5.3 Frequency Response 8N DF	70
5.3 Frequency Response 2N FF	73

Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 126.6 ms

2024/1/23 19:15 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting on

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: csswb1b_r1s.dat
WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2
Pause 0.5 s +
voiced signal + 8000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 8000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)
Rotation Delta A 0.0 °

MECRP Delta Ye	0.0 mm	Rotation Delta C	0.0 °
MECRP Delta Ze	0.0 mm	Rotation Delta B	5.0 °
Delta Xe	0.0 mm	Delta A	0.0 °
Delta Ye	0.0 mm	Delta C	0.0 °
Delta Ze	0.0 mm	Delta B	0.0 °
Ym	-6.2 mm	Ear Type 3.3 Coordinates	

Mounting: Right Ear
Force to apply: 8.0 N, Force reached: 8.0 N

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_WB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

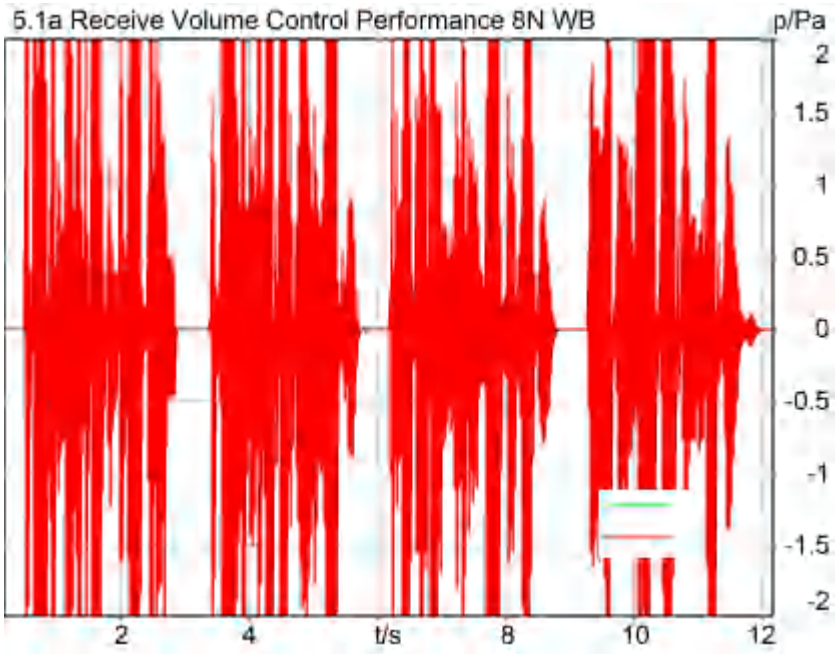
HIB Settings

HIB Name	60020095	Serial	60020095

HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 88.63 dB[SPL], Act.: 85.00%
Corrected Speech Level: 18.63 dB[SPL] Ok

Ok

2024/1/25 17:29 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features
Show source signal Source ch.2
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

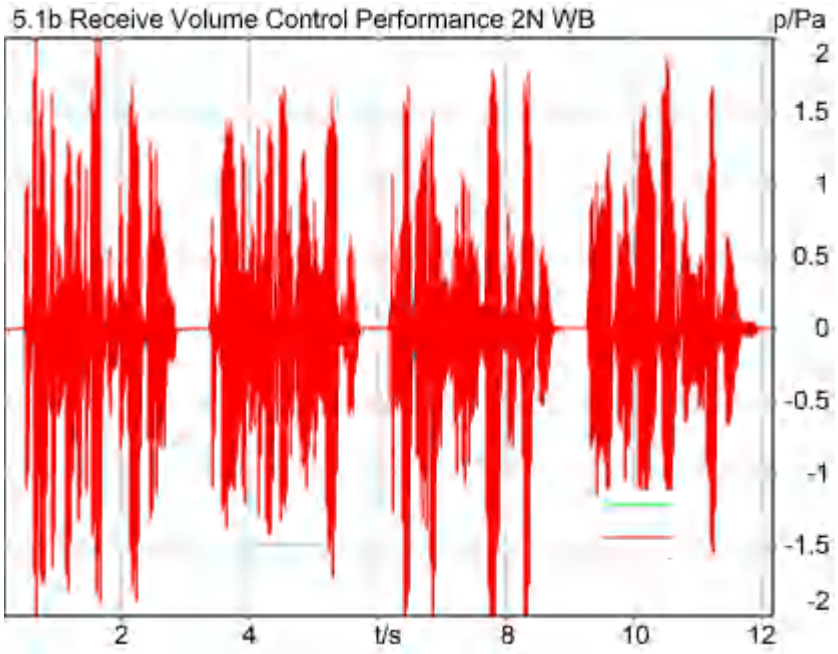
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 82.54 dB[SPL], Act.: 84.73%
Corrected Speech Level: 12.54 dB[SPL] Ok

Ok

2024/1/25 17:19 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis
Direction Out 2 -> In 2

Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features

Show source signal	Source ch.2
Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

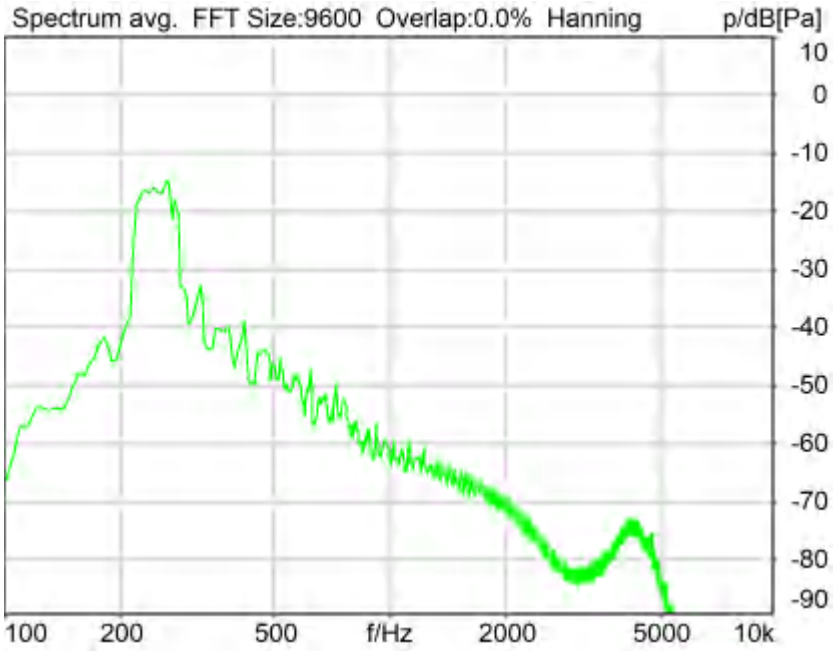
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.78 dB (6.47%) Ok

Ok

2024/1/25 17:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz

Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

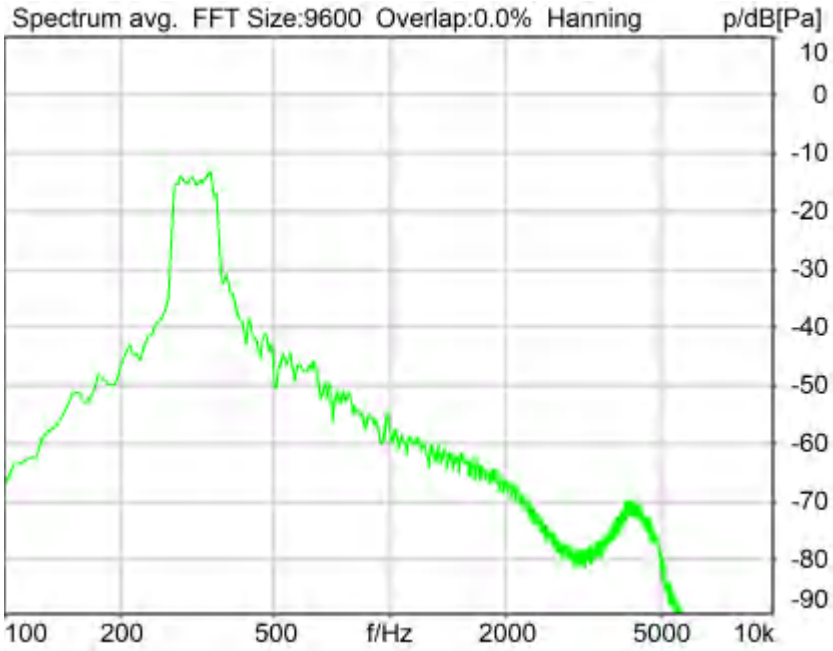
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.72 dB (5.18%) Ok

Ok

2024/1/25 17:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz

Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 29.02 dB (3.54%) Ok

Ok

2024/1/25 17:32 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz

Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 29.18 dB (3.48%) Ok

Ok

2024/1/25 17:32 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz

Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.00 dB (3.98%) Ok

Ok

2024/1/25 17:32 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz

Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 25.32 dB (5.42%) Ok

Ok

2024/1/25 17:33 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz

Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

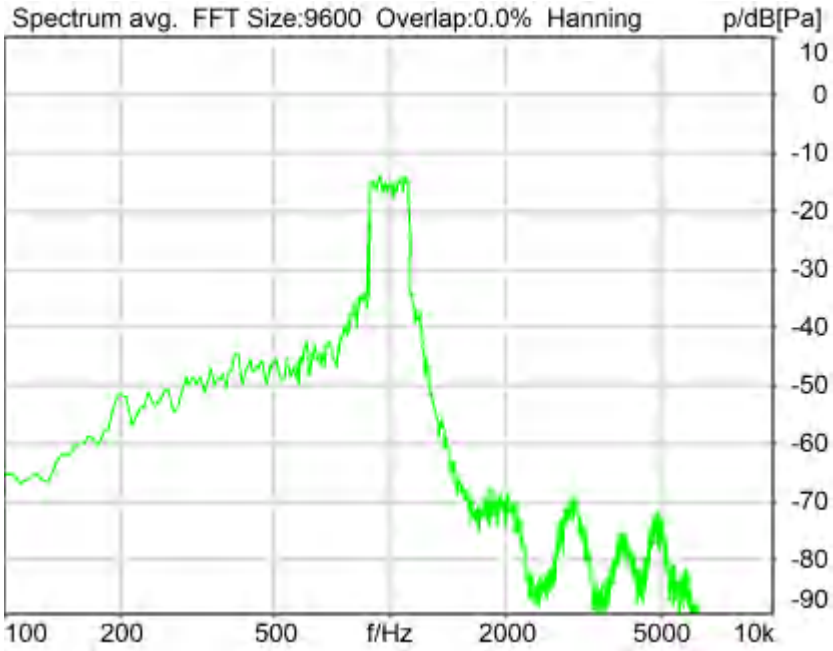
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.49 dB (6.69%) Ok

Ok

2024/1/25 17:33 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz

Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

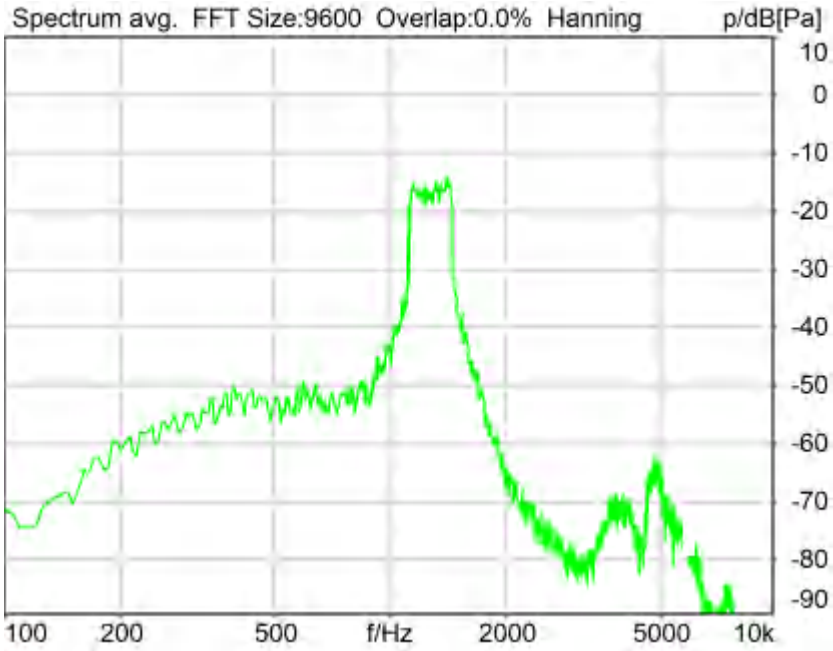
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 21.82 dB (8.11%) Ok

Ok

2024/1/25 17:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

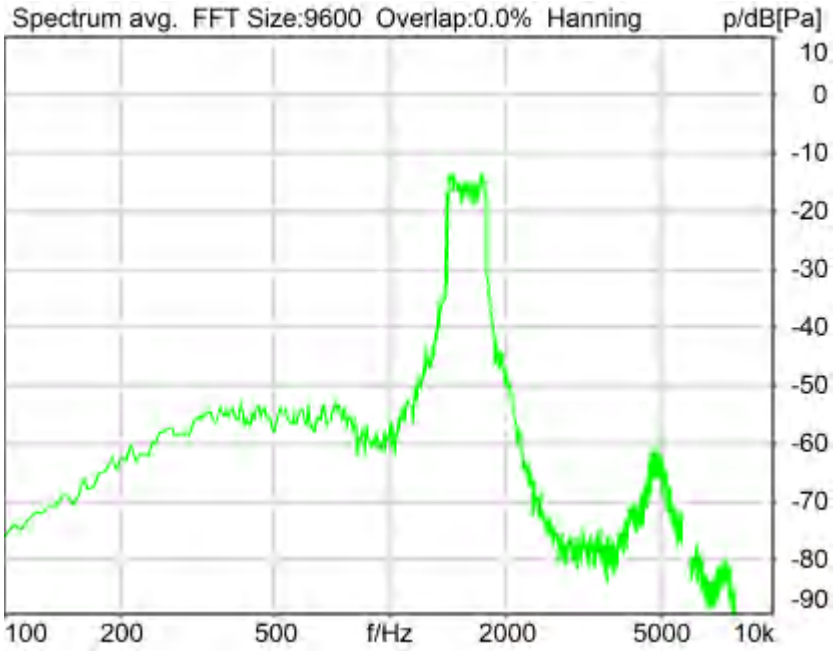
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.11 dB (5.55%) Ok

Ok

2024/1/25 17:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

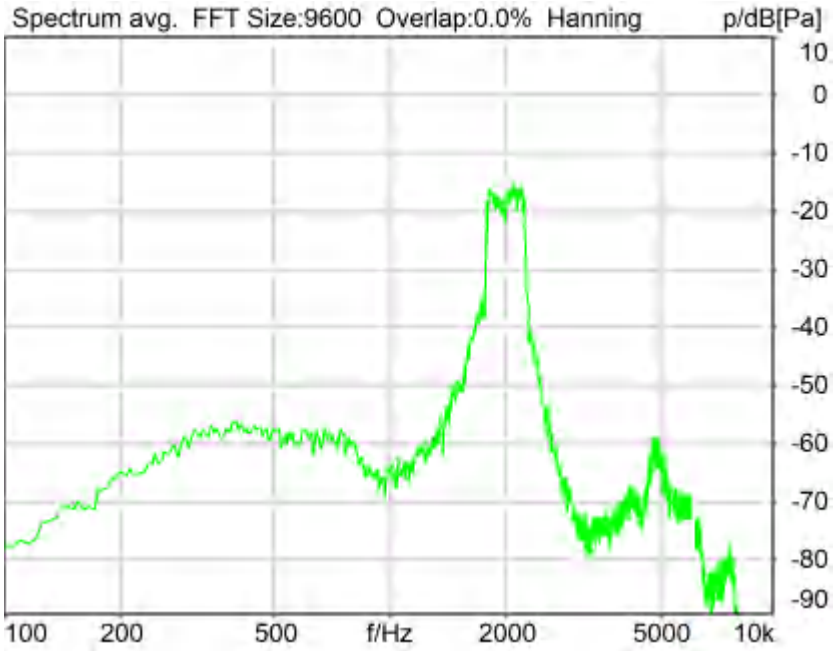
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.24 dB (6.89%) Ok

Ok

2024/1/25 17:34 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz

Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

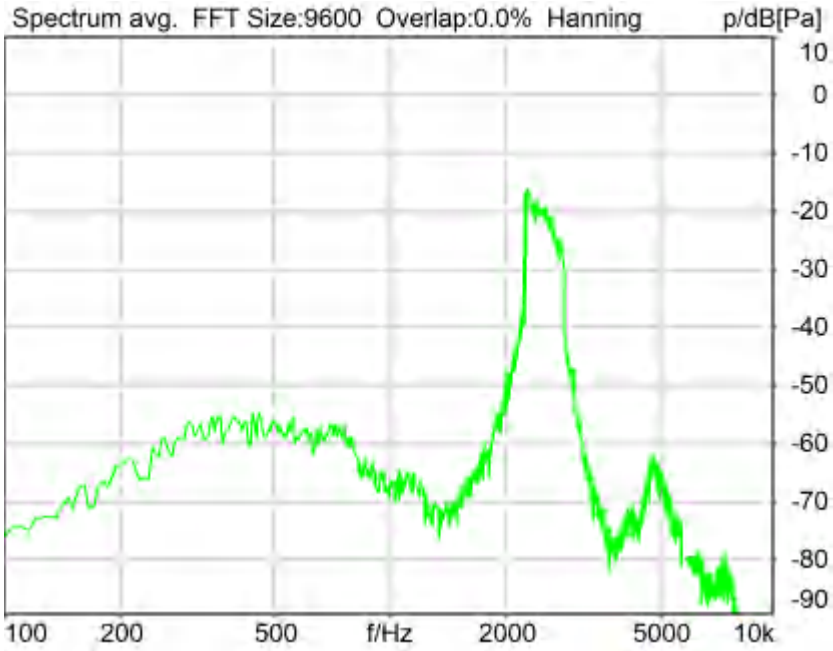
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.90 dB (5.69%) Ok

Ok

2024/1/25 17:35 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

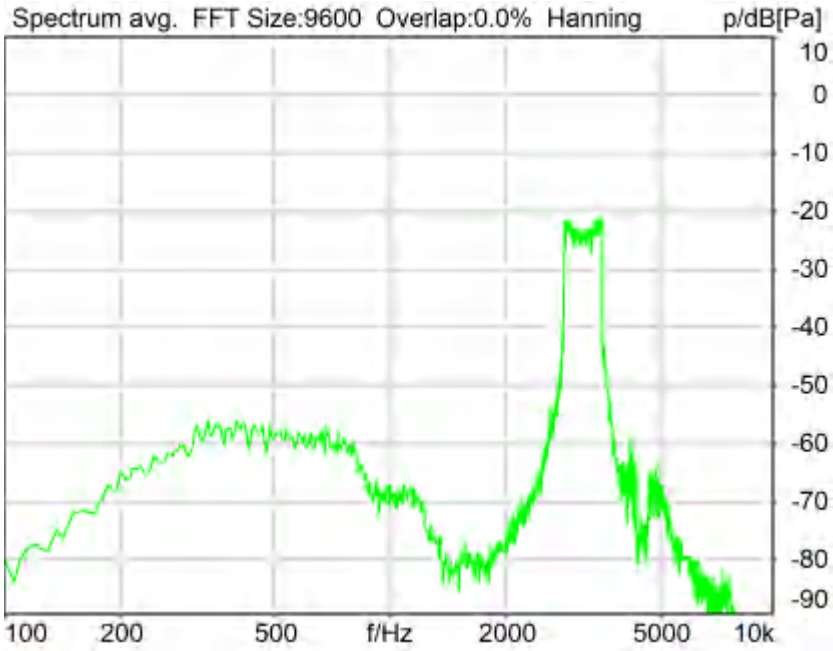
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.72 dB (3.66%) Ok

Ok

2024/1/25 17:35 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

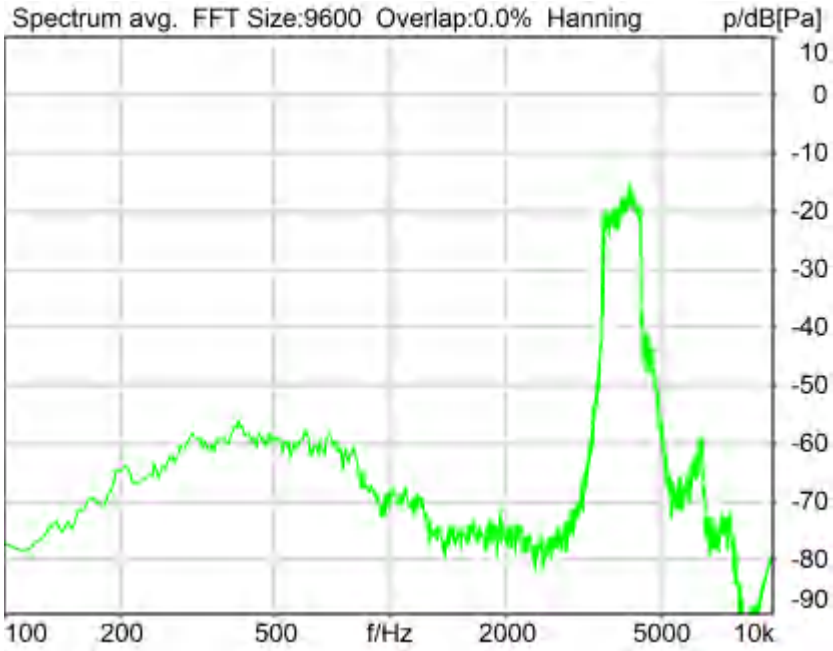
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.57 dB (4.69%) Ok

Ok

2024/1/25 17:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz

Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

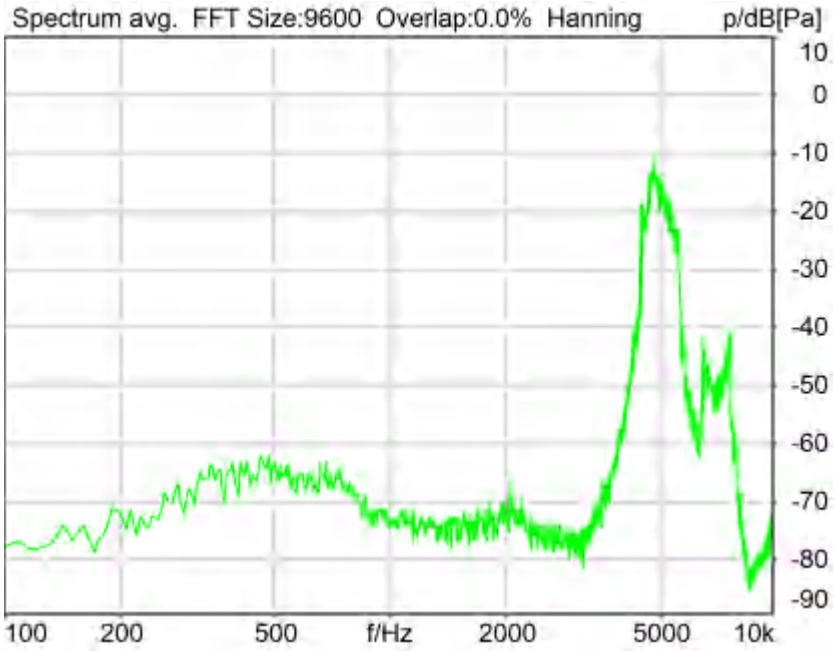
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.38 dB (5.38%) Ok

Ok

2024/1/25 17:36 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz

Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR
1	250Hz	23.78 dB
2	315Hz	25.72 dB

3	400Hz	29.02 dB
4	500Hz	29.18 dB
5	630Hz	28.00 dB
6	800Hz	25.32 dB
7	1000Hz	23.49 dB
8	1250Hz	21.82 dB
9	1600Hz	25.11 dB
10	2000Hz	23.24 dB
11	2500Hz	24.90 dB
12	3150Hz	28.72 dB
13	4000Hz	26.57 dB
14	5000Hz	25.38 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.82dB at 1250Hz.

2024/1/25 17:36 ACQUA

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 23.78 dB (6.47%) Ok

Ok

2024/1/25 17:20 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

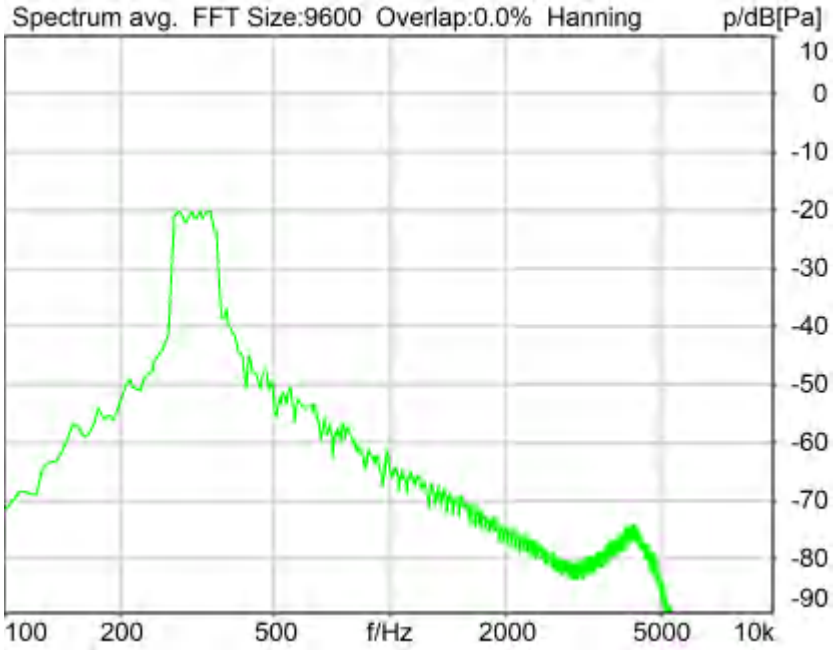
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.82 dB (5.12%) Ok

Ok

2024/1/25 17:20 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 29.11 dB (3.50%) Ok

Ok

2024/1/25 17:20 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1

Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))

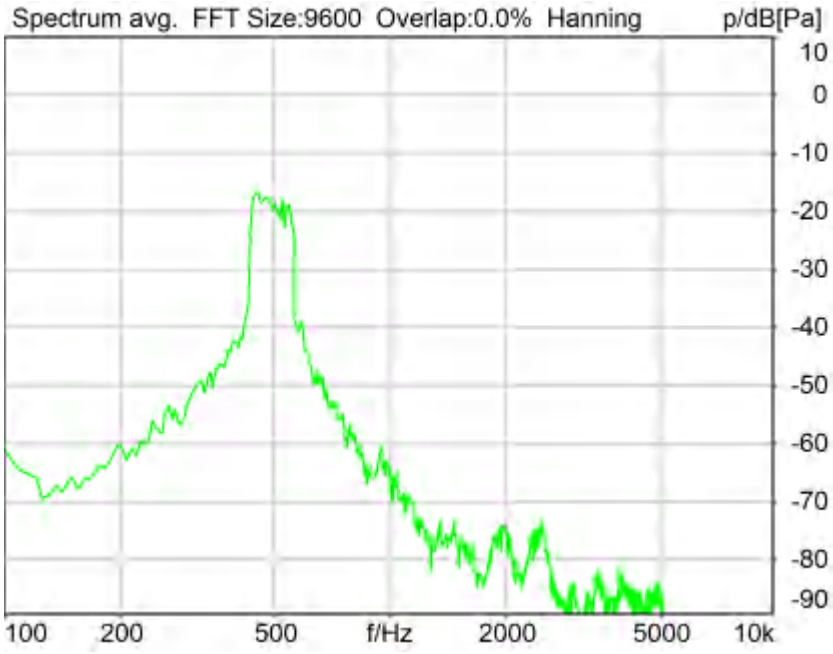
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.98 dB (3.56%) Ok

Ok

2024/1/25 17:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.52 dB (4.21%) Ok

Ok

2024/1/25 17:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

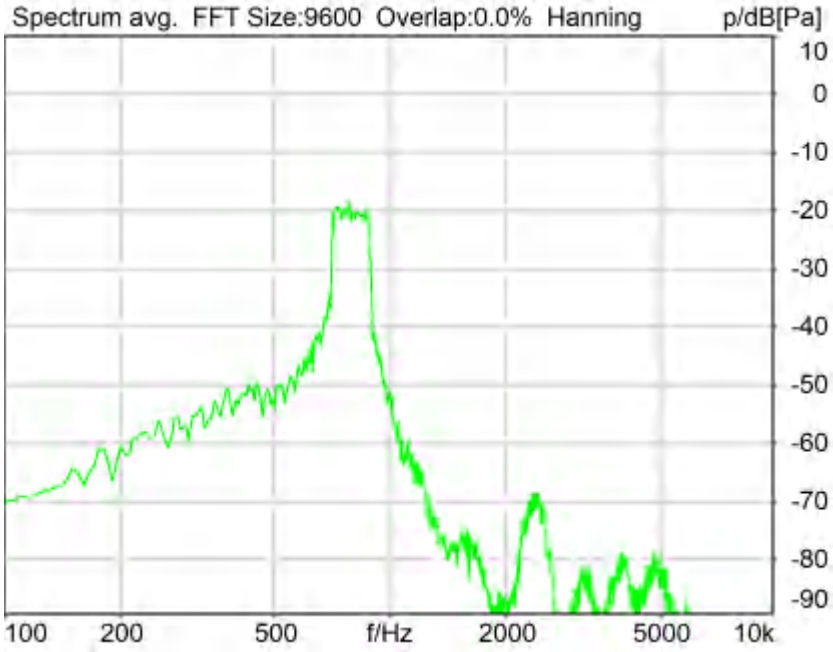
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.68 dB (5.20%) Ok

Ok

2024/1/25 17:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

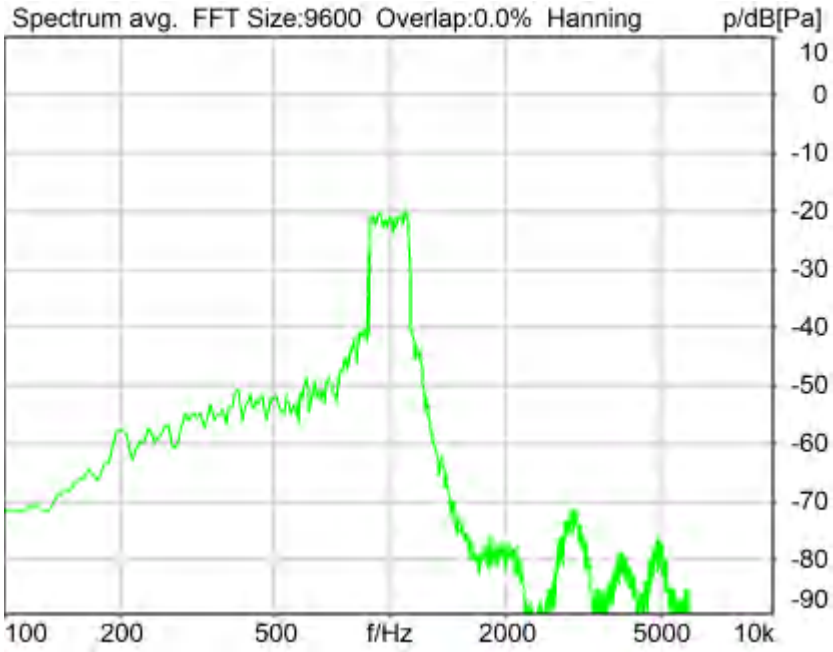
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.60 dB (6.60%) Ok

Ok

2024/1/25 17:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

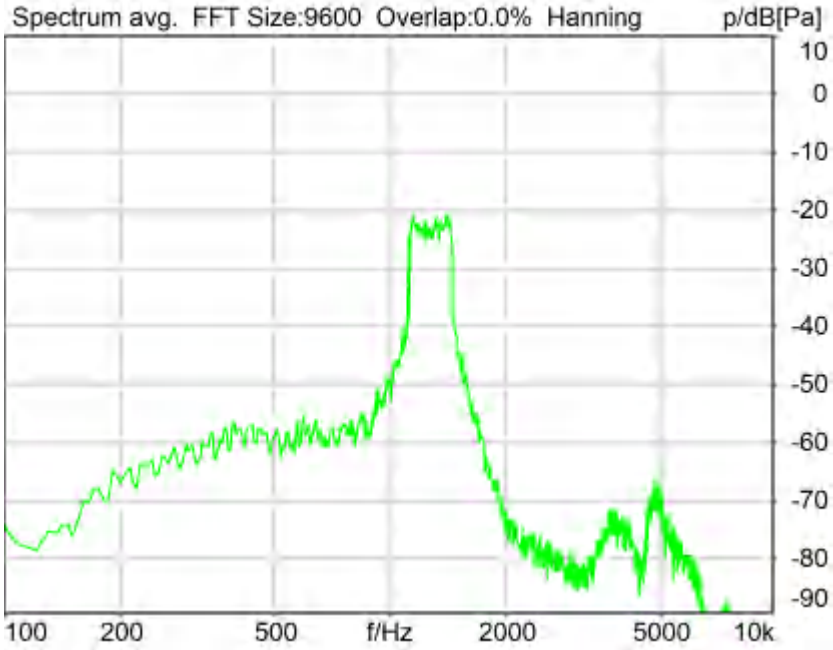
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB

Mic 1 Power Supply Off Mic 2 Power Supply Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.08 dB (7.87%) Ok

Ok

2024/1/25 17:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

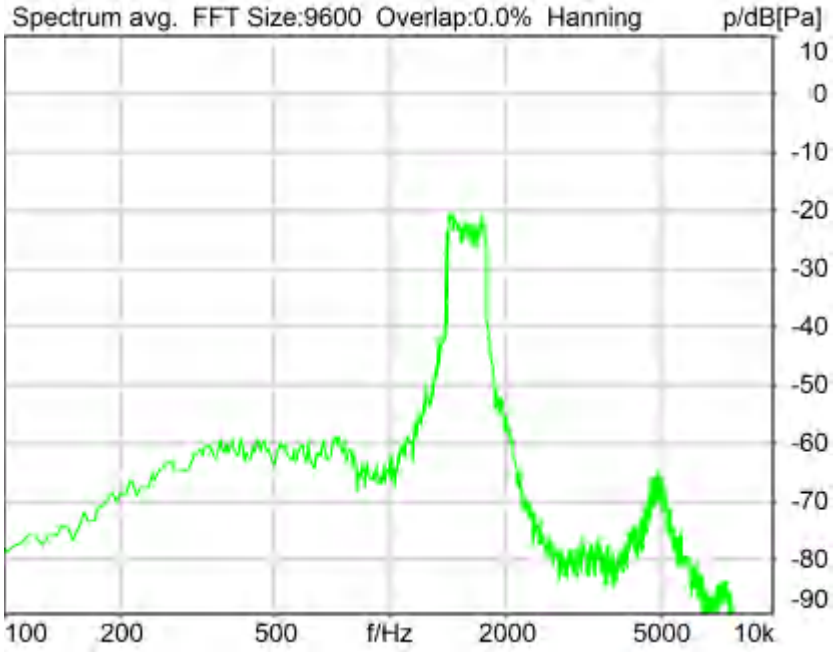
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.82 dB (5.74%) Ok

Ok

2024/1/25 17:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652

DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

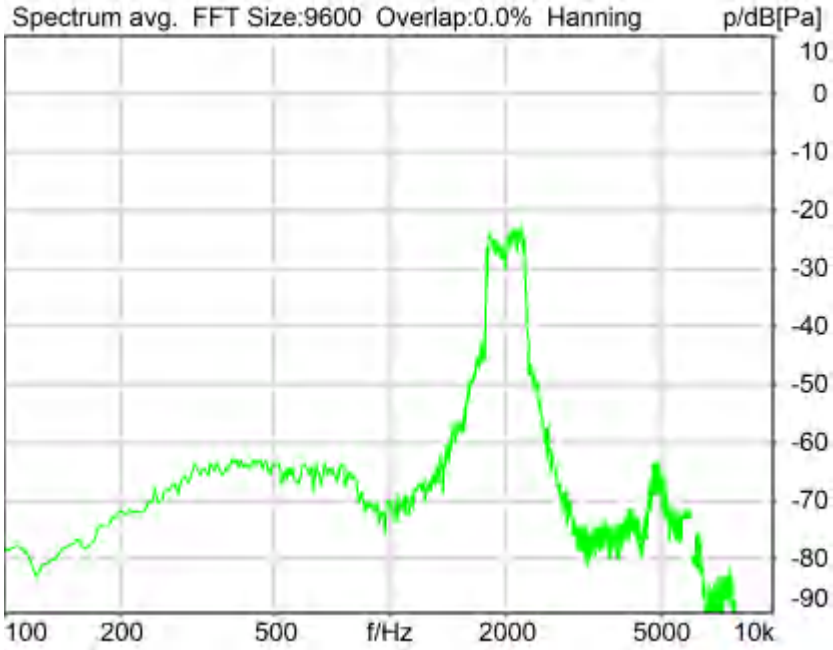
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.28 dB (7.69%) Ok

Ok

2024/1/25 17:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off

dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

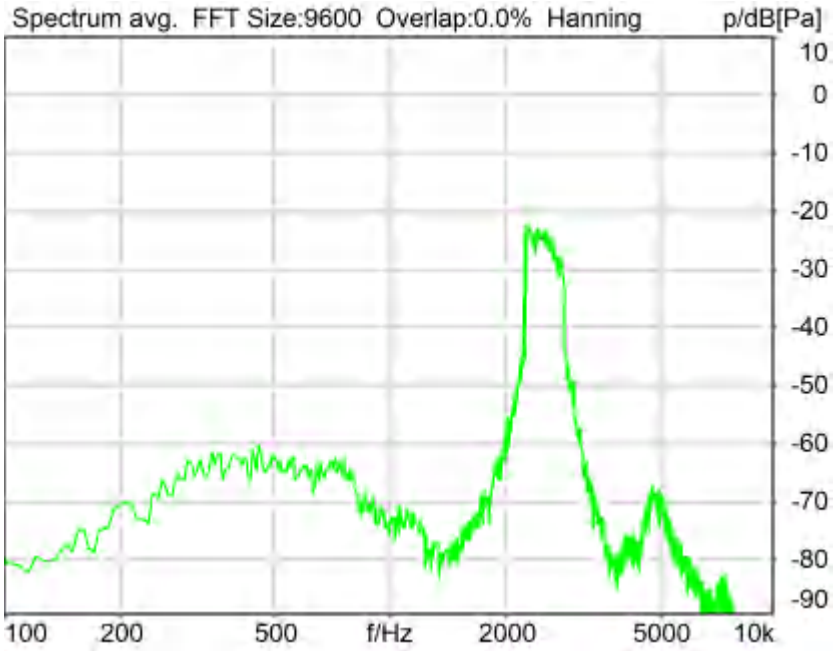
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.36 dB (5.39%) Ok

Ok

2024/1/25 17:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

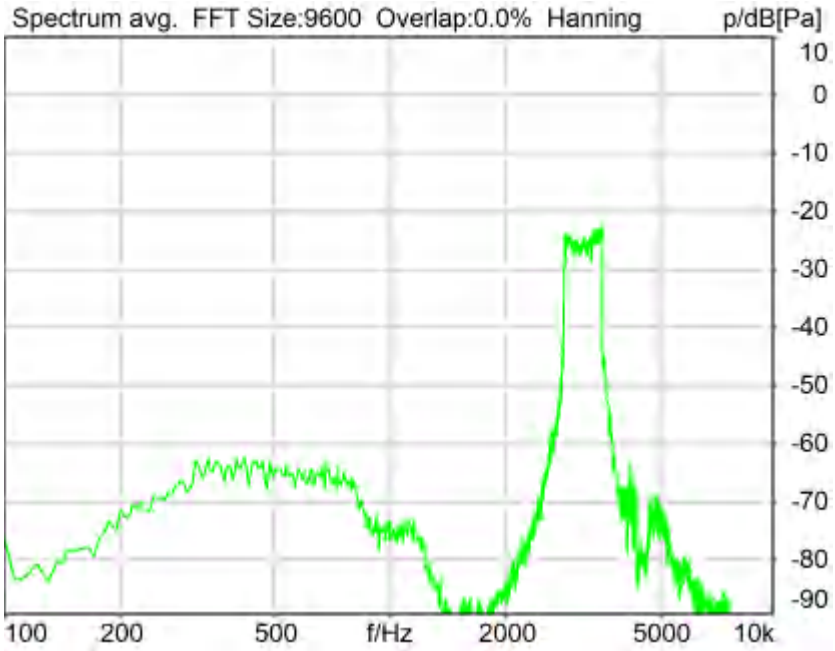
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.65 dB (3.29%) Ok

Ok

2024/1/25 17:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz

Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

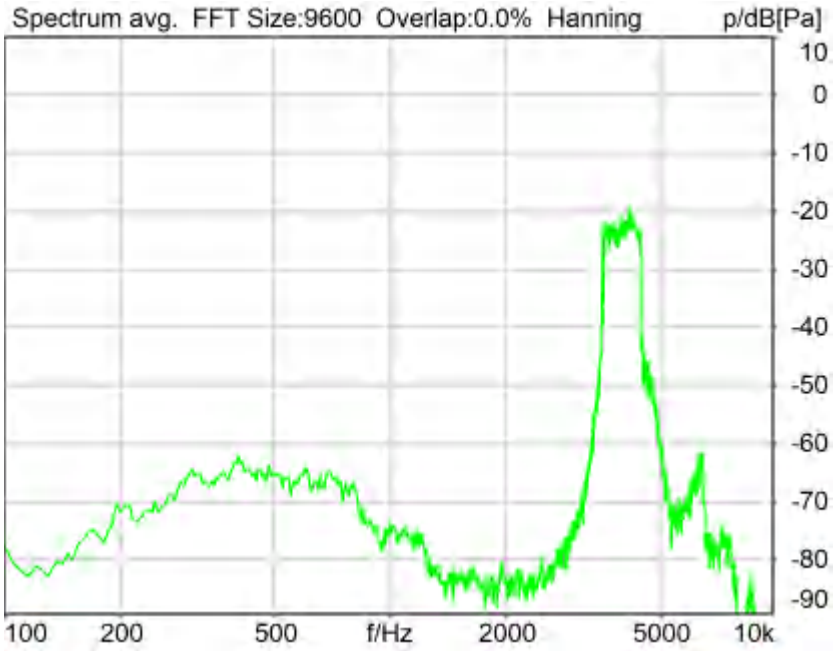
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.05 dB (4.44%) Ok

Ok

2024/1/25 17:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz

Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

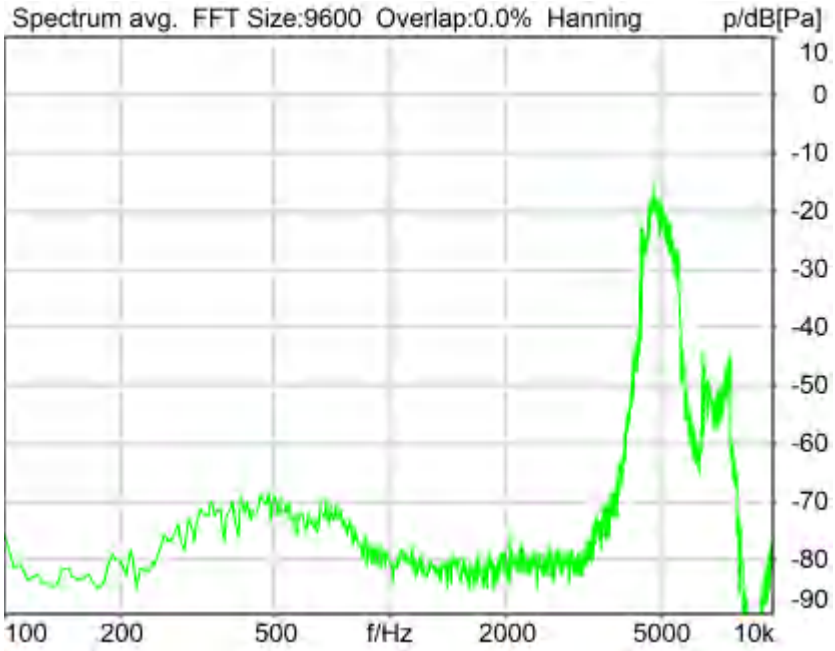
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.17 dB (5.51%) Ok

Ok

2024/1/25 17:25 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz

Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Region	Frequency	SDNR
1	250Hz	23.78 dB
2	315Hz	25.82 dB

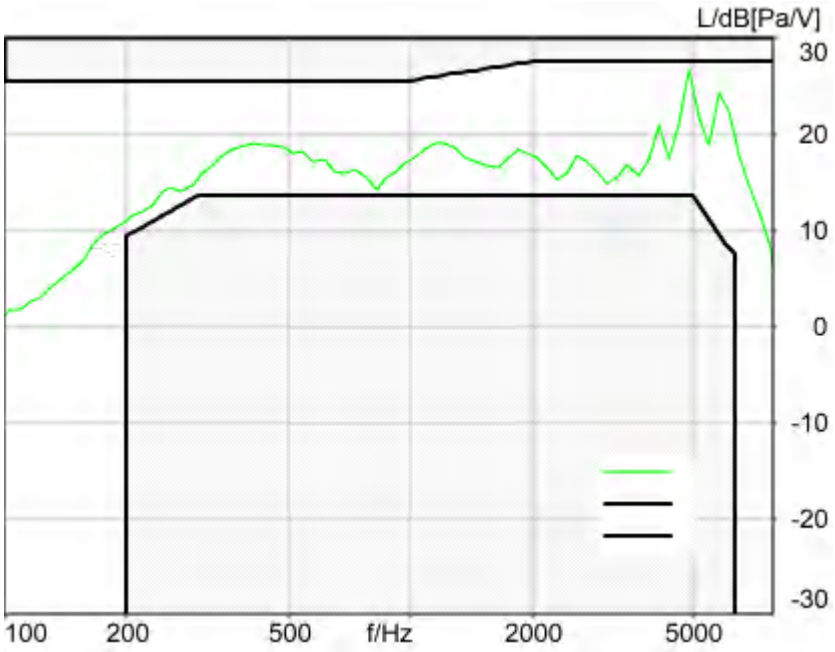
3	400Hz	29.11 dB
4	500Hz	28.98 dB
5	630Hz	27.52 dB
6	800Hz	25.68 dB
7	1000Hz	23.60 dB
8	1250Hz	22.08 dB
9	1600Hz	24.82 dB
10	2000Hz	22.28 dB
11	2500Hz	25.36 dB
12	3150Hz	29.65 dB
13	4000Hz	27.05 dB
14	5000Hz	25.17 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 22.08dB at 1250Hz.

2024/1/25 17:25 ACQUA

5.3 Frequency Response 8N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
0.83 dB at 4870.0 Hz Ok

Ok

2024/1/26 12:59 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

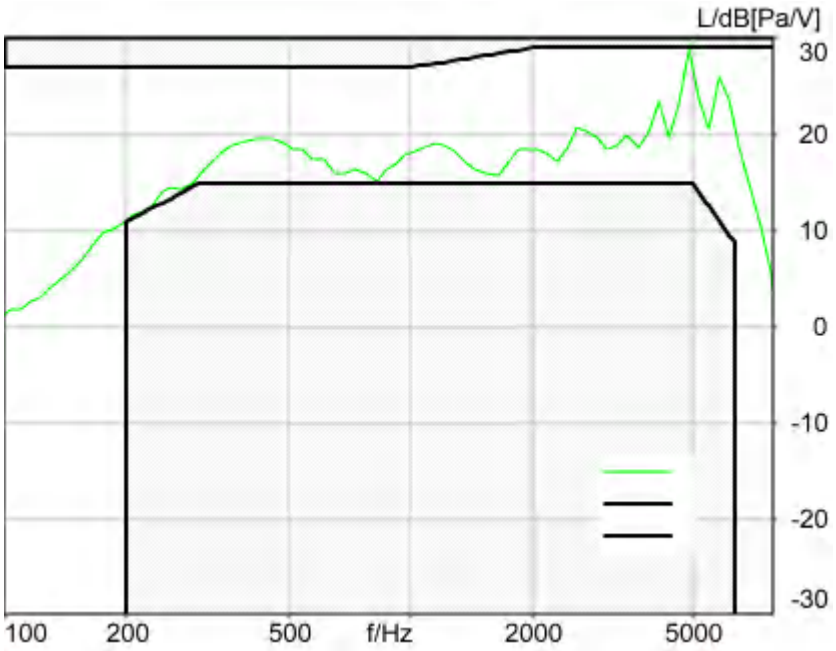
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
0.21 dB at 4870.0 Hz Ok

Ok

2024/1/26 13:00 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features

Compensate delay	126.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

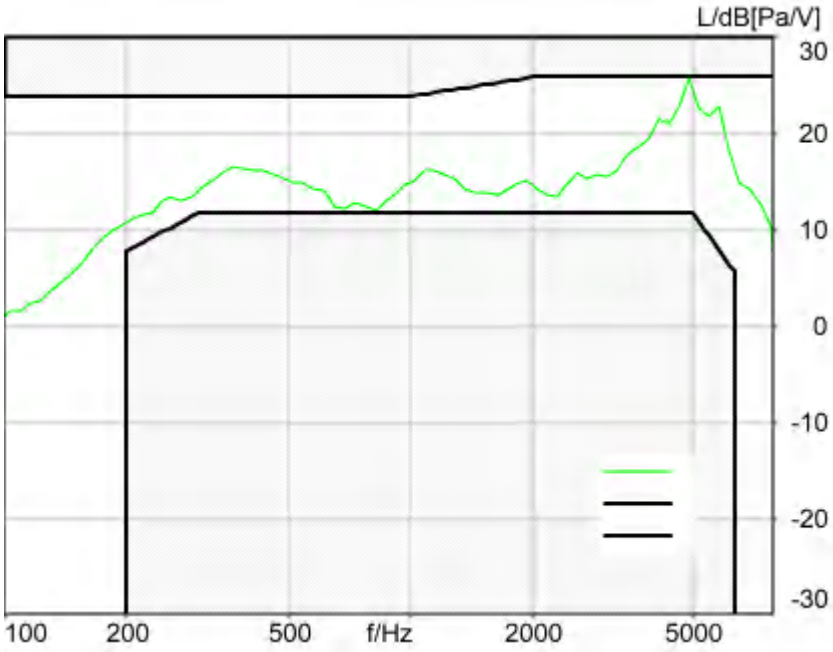
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
0.11 dB at 823.9 Hz Ok

Ok

2024/1/26 15:01 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 126.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:15
Responsible Person	audio

Status Overview

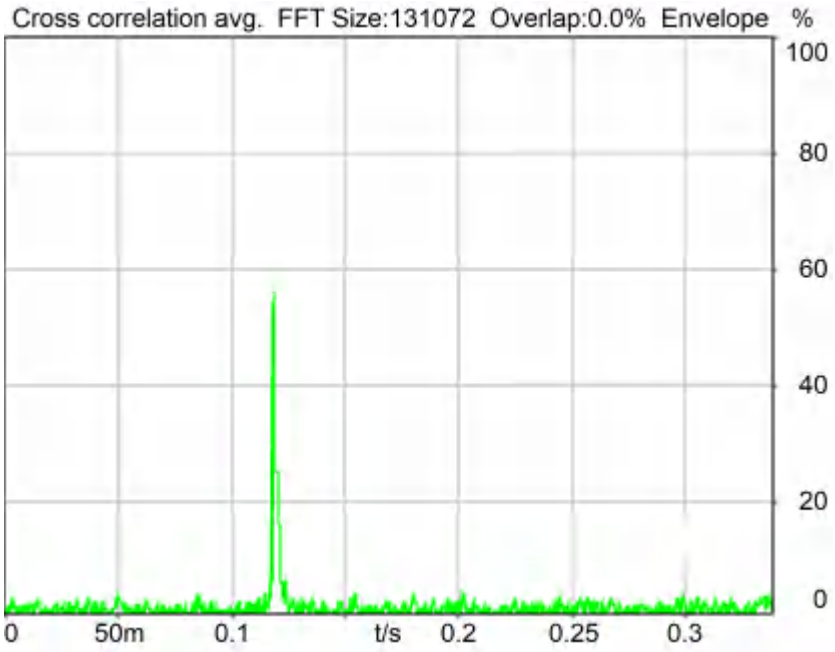
SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay NB	Done	Delay (Cross) [ms]	119.2	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.1a Receive Volume Control Performance 8N NB	Ok	Corrected Speech Level [dB[SPL]]	18.47	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.1b Receive Volume Control Performance 2N NB	Ok	Corrected Speech Level [dB[SPL]]	12.74	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.69	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.95	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 630 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.10	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.58	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.59	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	21.83	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.16	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.21	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.92	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.76	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.83	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 400 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.65	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	28.90	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise	Ok	Distortion (Noise) [dB],	27.89	339D NR

- 630 Hz NB		0.0 dB		n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 800 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.82	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	23.64	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1250 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	22.09	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 1600 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	24.85	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 2000 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	22.23	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 2500 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	25.38	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.2 RCV Distortion and Noise - 3150 Hz NB	Ok	Distortion (Noise) [dB], 0.0 dB	29.68	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	22.09	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.3 Frequency Response 8N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 1547.5 Hz	2.46	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.3 Frequency Response 8N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 2057.5 Hz	2.03	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.3 Frequency Response 2N FF HANB	Ok	Min. dist. to tolerance scheme [dB], 3657.5 Hz	1.98	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300
5.3 Frequency Response 2N DF HANB	Ok	Min. dist. to tolerance scheme [dB], 3445.5 Hz	0.59	339D NR n26_20_DFT-S-OFDM_EVS NB 9.6kbps_CH166300

Overall Receive Delay NB 5
5.1a Receive Volume Control Performance 8N NB 6
5.1b Receive Volume Control Performance 2N NB 8
5.2 RCV Distortion and Noise - 400 Hz NB 10
5.2 RCV Distortion and Noise - 500 Hz NB 12
5.2 RCV Distortion and Noise - 630 Hz NB 14
5.2 RCV Distortion and Noise - 800 Hz NB 16
5.2 RCV Distortion and Noise - 1000 Hz NB 18
5.2 RCV Distortion and Noise - 1250 Hz NB 20
5.2 RCV Distortion and Noise - 1600 Hz NB 22
5.2 RCV Distortion and Noise - 2000 Hz NB 24
5.2 RCV Distortion and Noise - 2500 Hz NB 26
5.2 RCV Distortion and Noise - 3150 Hz NB 28
Report - Receive Distortion and Noise (Conversational Gain) 30
5.2 RCV Distortion and Noise - 400 Hz NB 31
5.2 RCV Distortion and Noise - 500 Hz NB 33
5.2 RCV Distortion and Noise - 630 Hz NB 35
5.2 RCV Distortion and Noise - 800 Hz NB 37
5.2 RCV Distortion and Noise - 1000 Hz NB 39
5.2 RCV Distortion and Noise - 1250 Hz NB 41
5.2 RCV Distortion and Noise - 1600 Hz NB 43
5.2 RCV Distortion and Noise - 2000 Hz NB 45
5.2 RCV Distortion and Noise - 2500 Hz NB 47
5.2 RCV Distortion and Noise - 3150 Hz NB 49
Report - Receive Distortion and Noise (Conversational Gain) 51
5.3 Frequency Response 8N FF HANB 51
5.3 Frequency Response 8N DF HANB 54
5.3 Frequency Response 2N FF HANB 56
5.3 Frequency Response 2N DF HANB 58

Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 119.2 ms

2024/1/26 9:01 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: cssnb1b_r1s.dat
Level adj. Ch1 -90.0 dB
CSSnb1b_R1s.dat - CS-signal with special 1s random noise
NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2
Pause 0.5 s +
voiced signal + 4000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 4000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_NB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

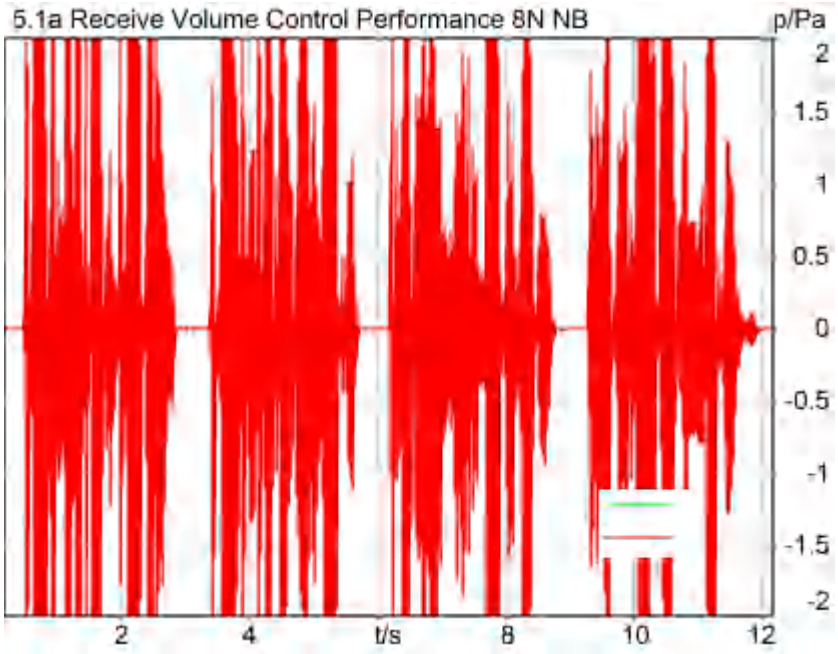
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 88.47 dB[SPL], Act.: 84.99%
Corrected Speech Level: 18.47 dB[SPL] Ok

Ok

2024/1/26 9:02 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	
15.90 dB			

Special Features

Show source signal	Source ch.2
Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

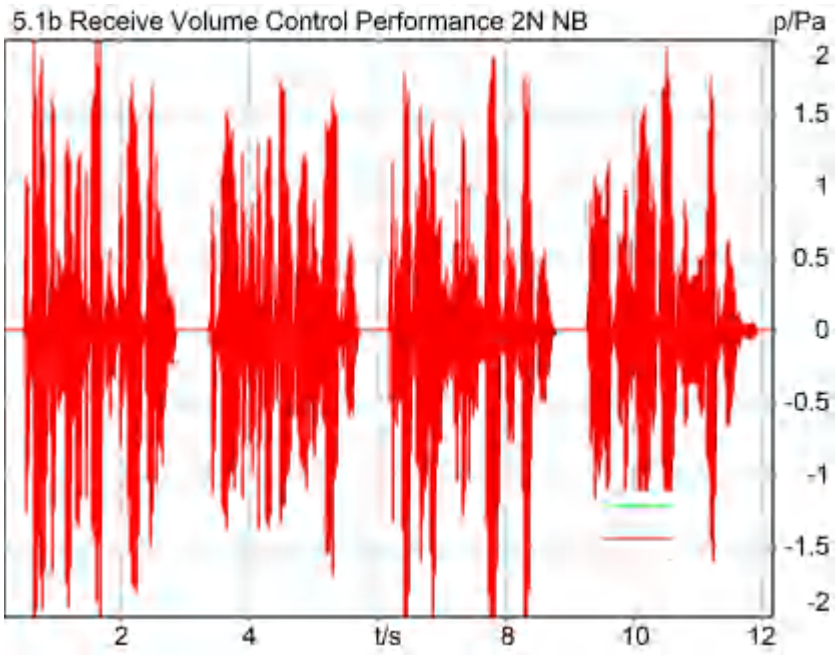
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Correction

X - 70

Speech Level RCV: 82.74 dB[SPL], Act.: 84.94%
Corrected Speech Level: 12.74 dB[SPL] Ok

Ok

2024/1/26 9:26 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Narrow Band	Margin (15.9dB nom)	

15.90 dB

Special Features
Show source signal Source ch.2
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

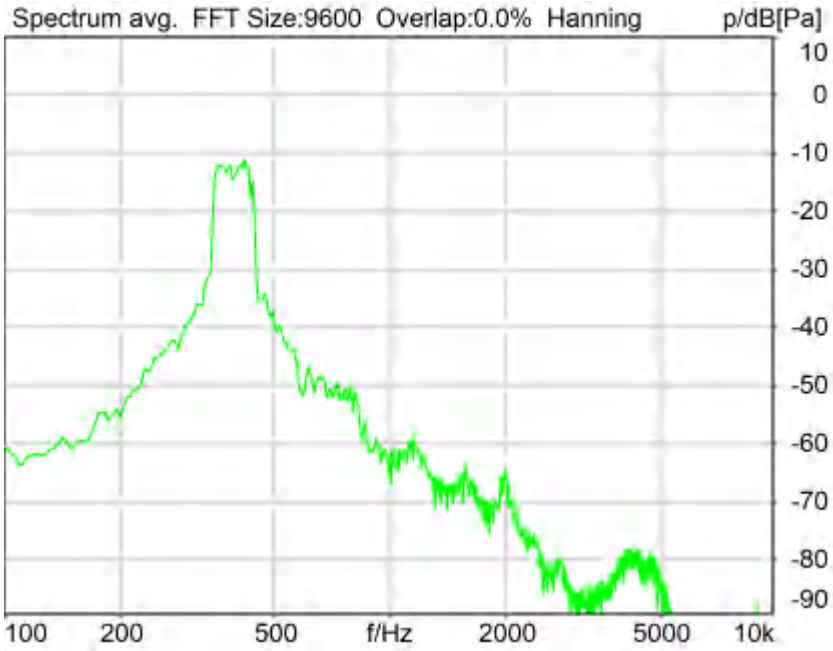
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.69 dB (3.68%) Ok

Ok

2024/1/26 9:02 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.95 dB (3.57%) Ok

Ok

2024/1/26 9:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.10 dB (3.94%) Ok

Ok

2024/1/26 9:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

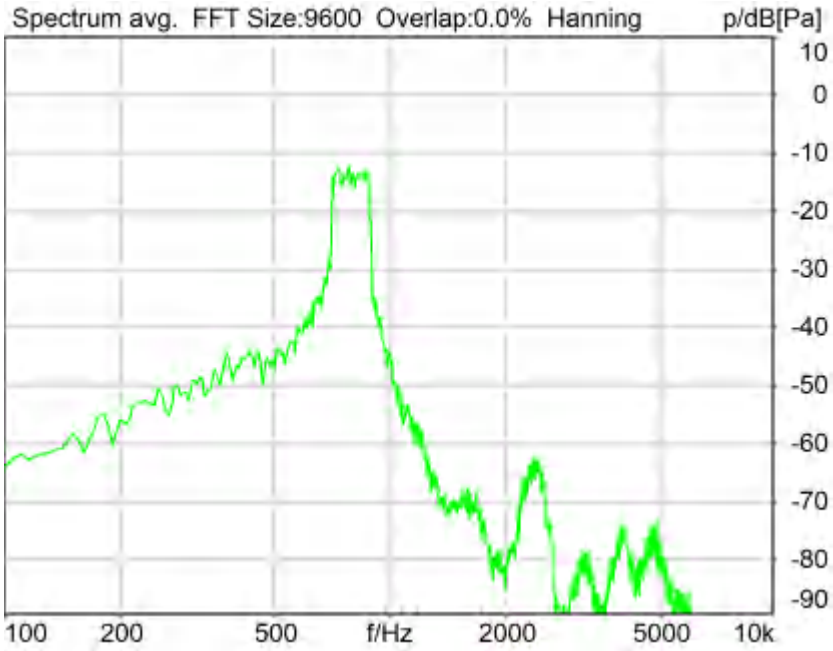
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.58 dB (5.26%) Ok

Ok

2024/1/26 9:03 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

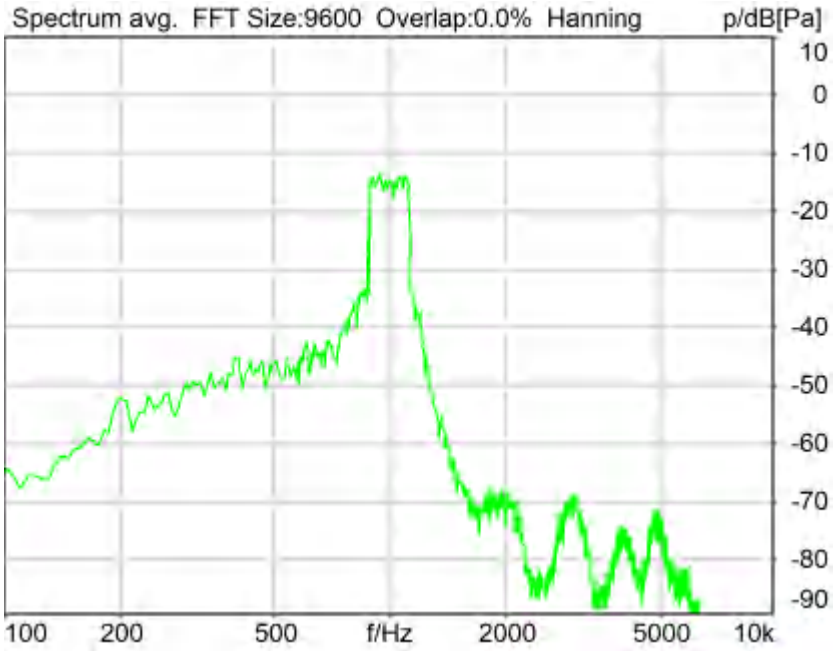
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.59 dB (6.62%) Ok

Ok

2024/1/26 9:04 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

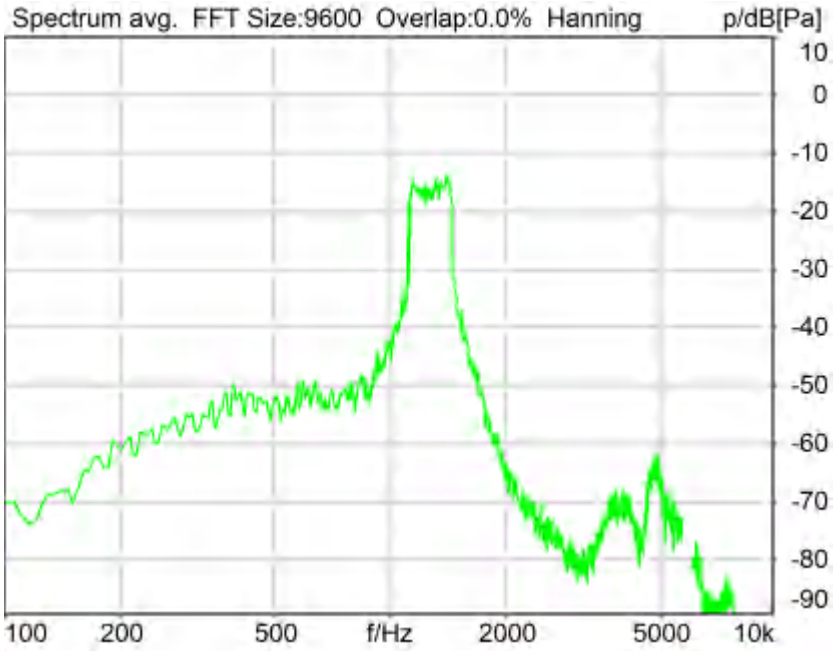
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 21.83 dB (8.10%) Ok

Ok

2024/1/26 9:04 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

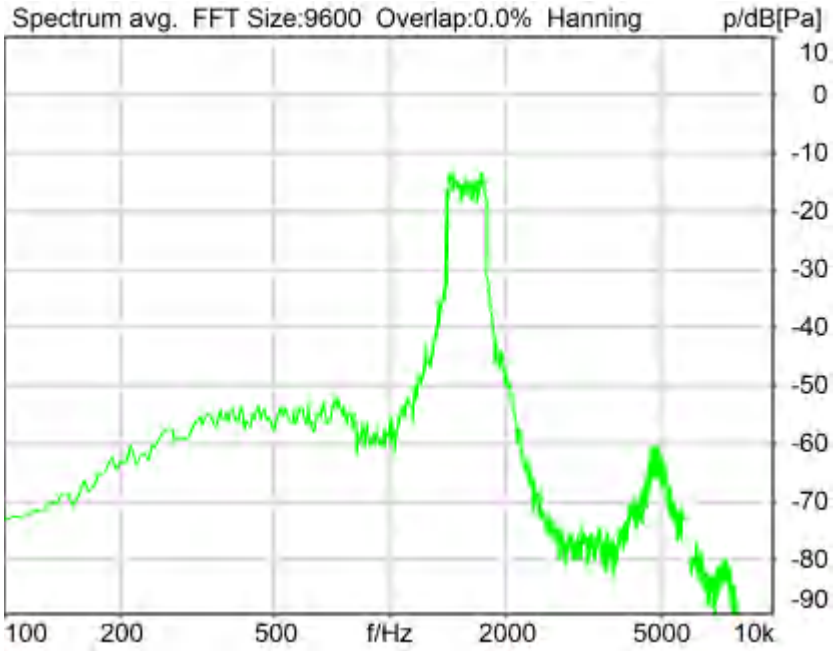
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.16 dB (5.52%) Ok

Ok

2024/1/26 9:05 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

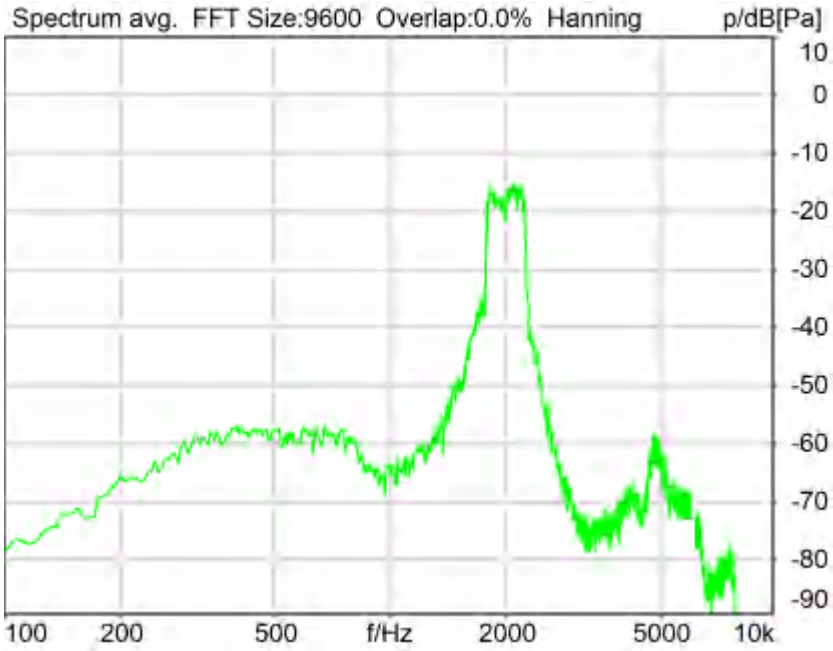
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.21 dB (6.91%) Ok

Ok

2024/1/26 9:05 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

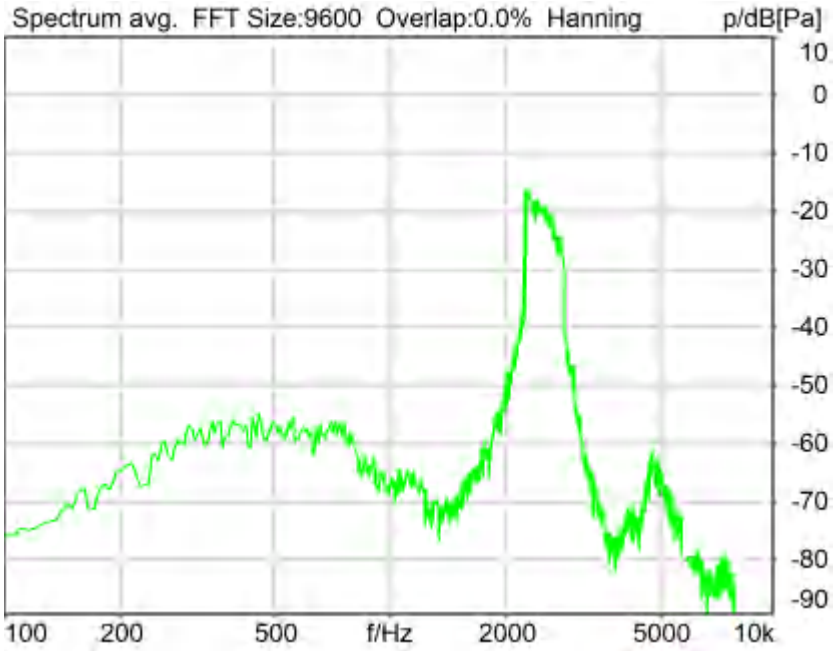
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.92 dB (5.67%) Ok

Ok

2024/1/26 9:05 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

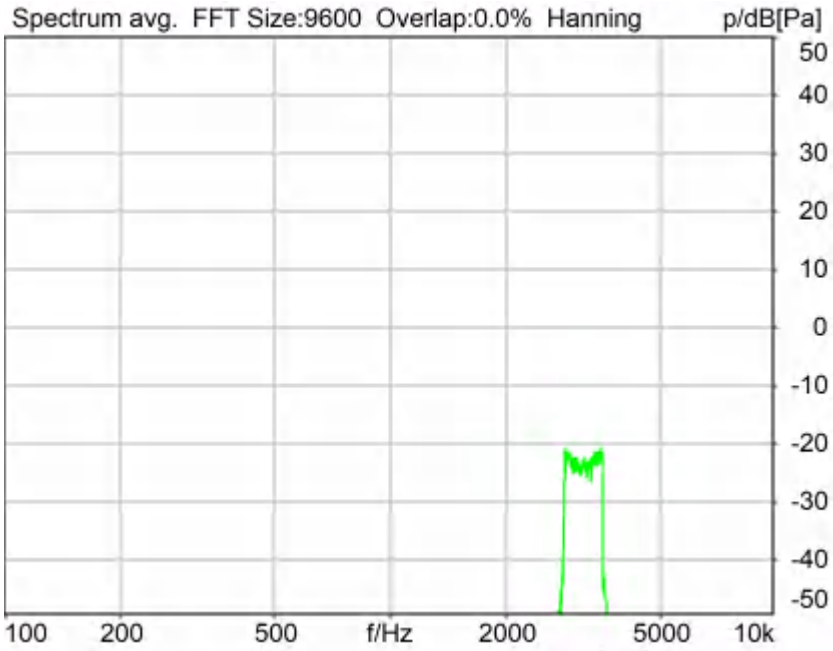
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.76 dB (3.65%) Ok

Ok

2024/1/26 9:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable	RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR

1	400Hz	28.69 dB
2	500Hz	28.95 dB
3	630Hz	28.10 dB
4	800Hz	25.58 dB
5	1000Hz	23.59 dB
6	1250Hz	21.83 dB
7	1600Hz	25.16 dB
8	2000Hz	23.21 dB
9	2500Hz	24.92 dB
10	3150Hz	28.76 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.83dB at 1250Hz.

2024/1/26 9:06 ACQUA

5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.65 dB (3.69%) Ok

Ok

2024/1/26 9:27 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

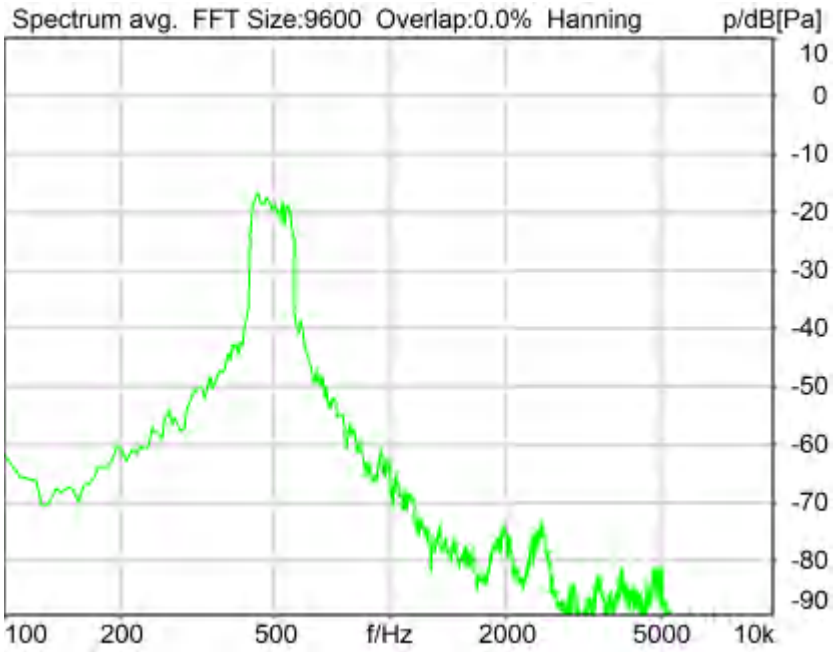
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.90 dB (3.59%) Ok

Ok

2024/1/26 9:27 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.89 dB (4.03%) Ok

Ok

2024/1/26 9:28 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

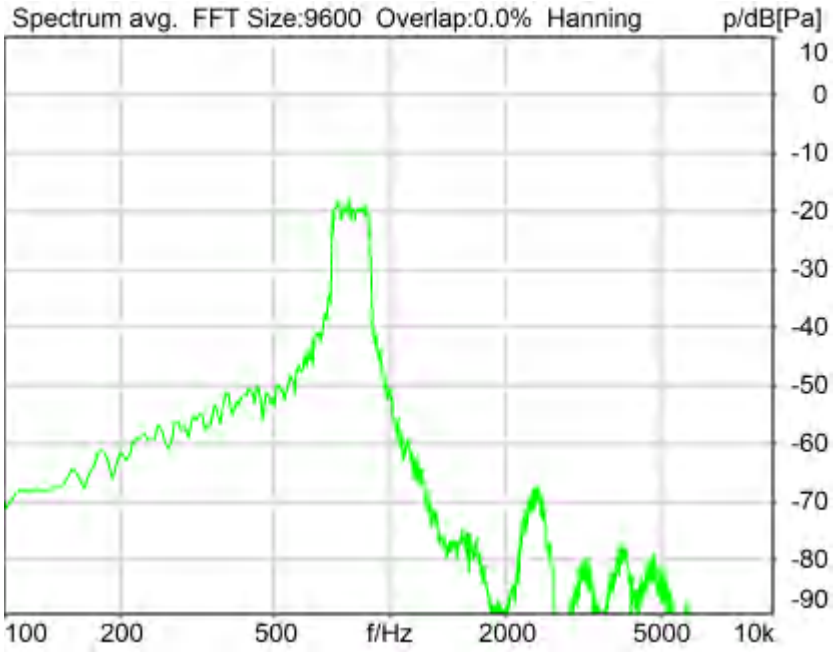
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.82 dB (5.12%) Ok

Ok

2024/1/26 9:28 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

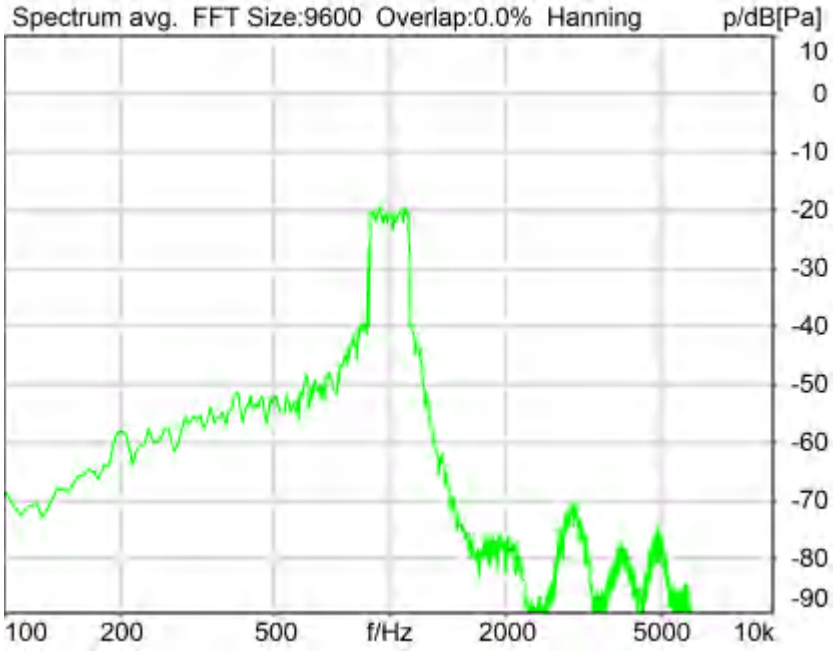
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.64 dB (6.57%) Ok

Ok

2024/1/26 9:28 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140

Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

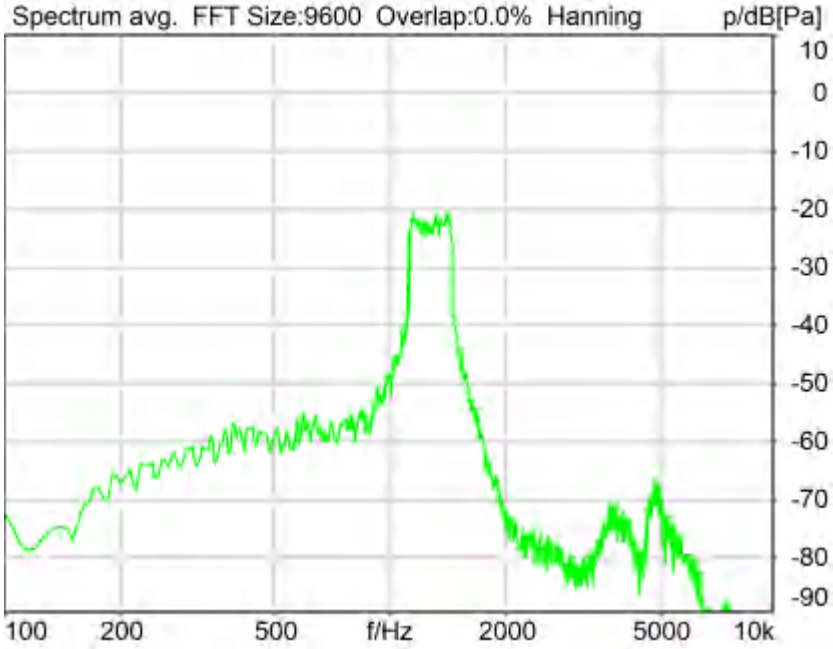
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.09 dB (7.86%) Ok

Ok

2024/1/26 9:29 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

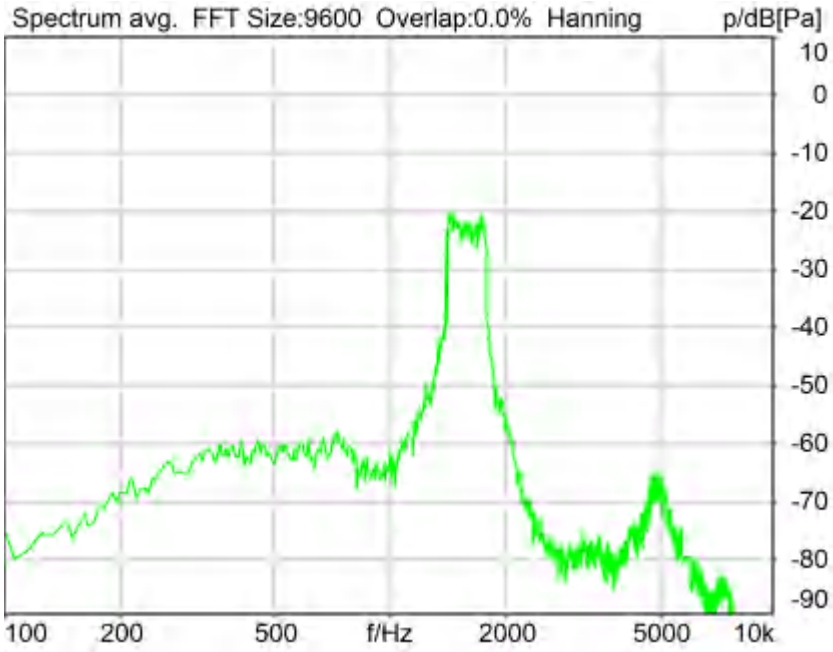
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.85 dB (5.72%) Ok

Ok

2024/1/26 9:29 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

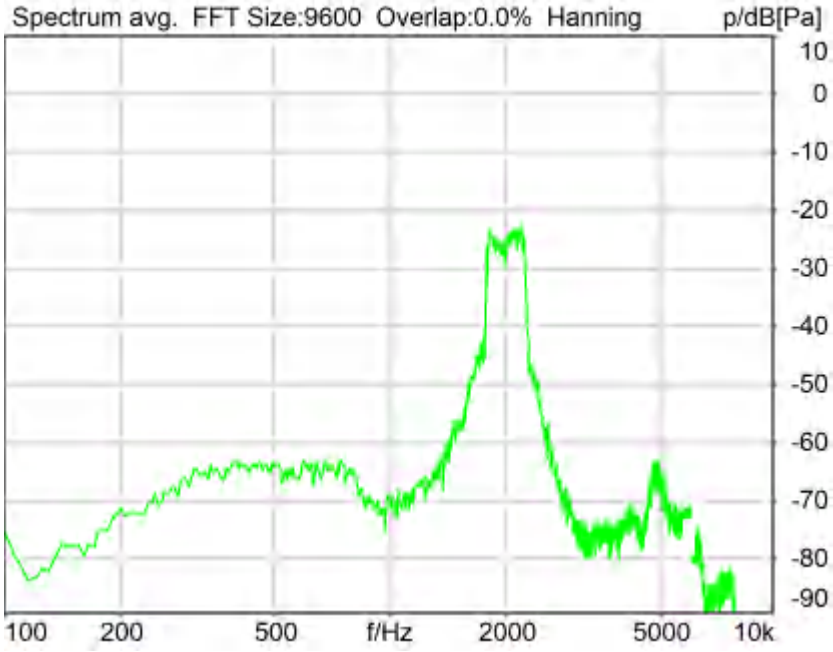
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.23 dB (7.74%) Ok

Ok

2024/1/26 9:30 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

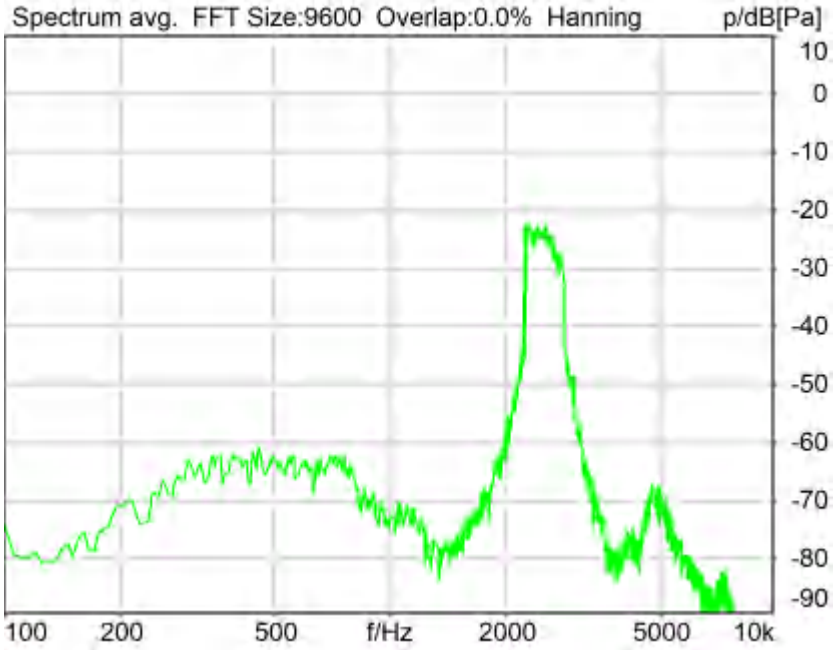
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.38 dB (5.38%) Ok

Ok

2024/1/26 9:30 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

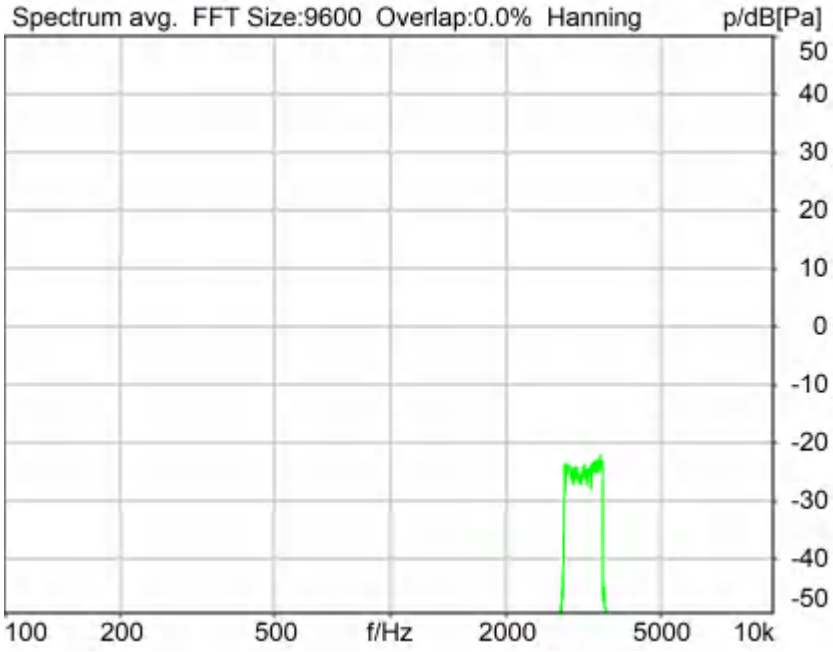
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.68 dB (3.28%) Ok

Ok

2024/1/26 9:30 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))
Store to variable RCVNB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

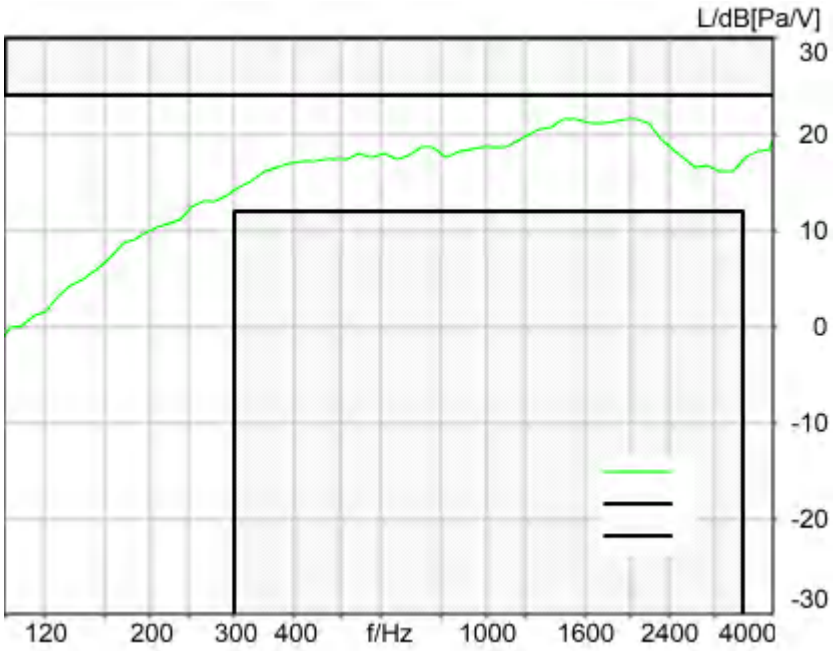
Region	Frequency	SDNR
1	400Hz	28.65 dB
2	500Hz	28.90 dB
3	630Hz	27.89 dB
4	800Hz	25.82 dB
5	1000Hz	23.64 dB
6	1250Hz	22.09 dB
7	1600Hz	24.85 dB
8	2000Hz	22.23 dB
9	2500Hz	25.38 dB
10	3150Hz	29.68 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 22.09dB at 1250Hz.

2024/1/26 9:30 ACQUA

5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.46 dB at 1547.5 Hz Ok

Ok

2024/1/26 9:07 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter

Mouth Eq. Ch.1:	HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features

Compensate delay	119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

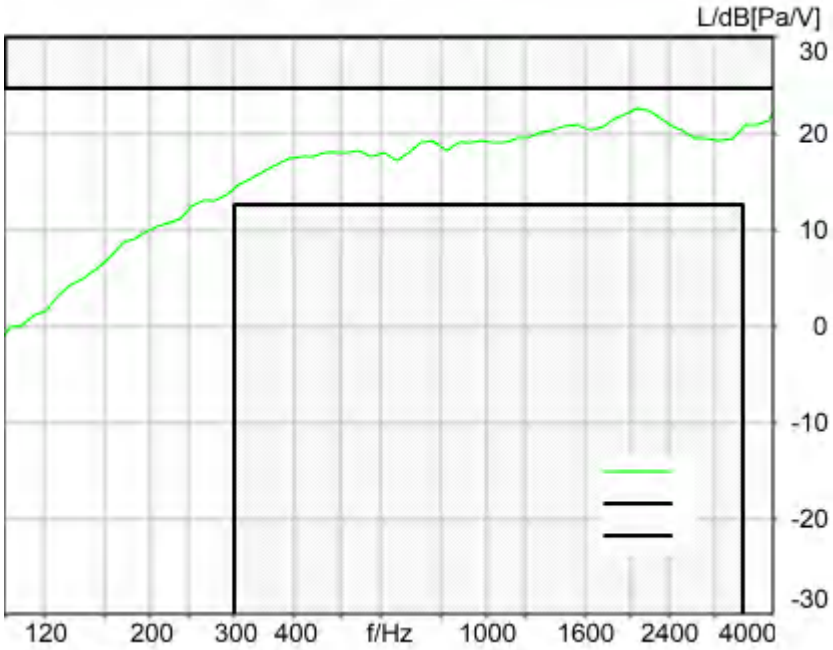
HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance
2.03 dB at 2057.5 Hz Ok

Ok

2024/1/26 9:07 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

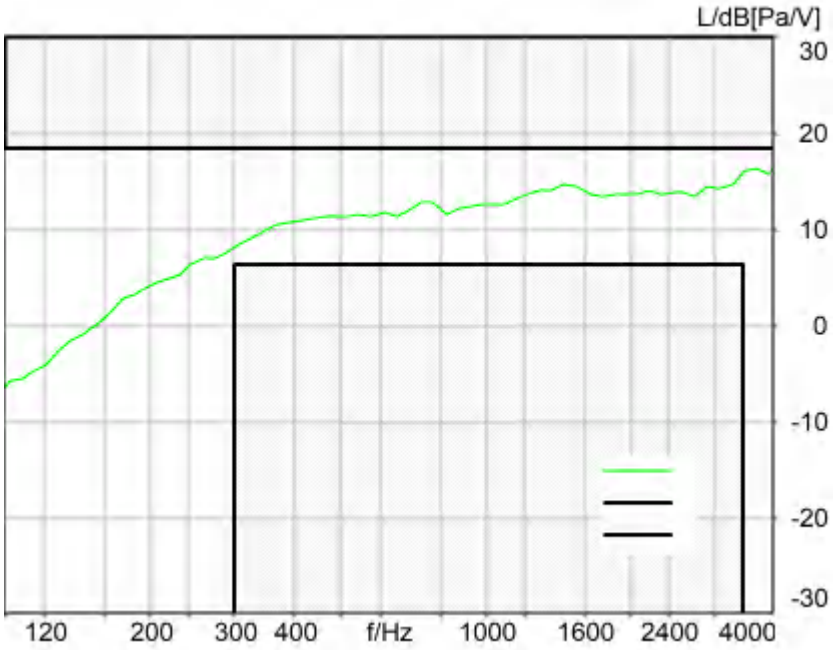
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance

1.98 dB at 3657.5 Hz Ok

Ok

2024/1/26 9:31 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat

Level adj. Ch1	-90.0 dB	Level adj. Ch2	-4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

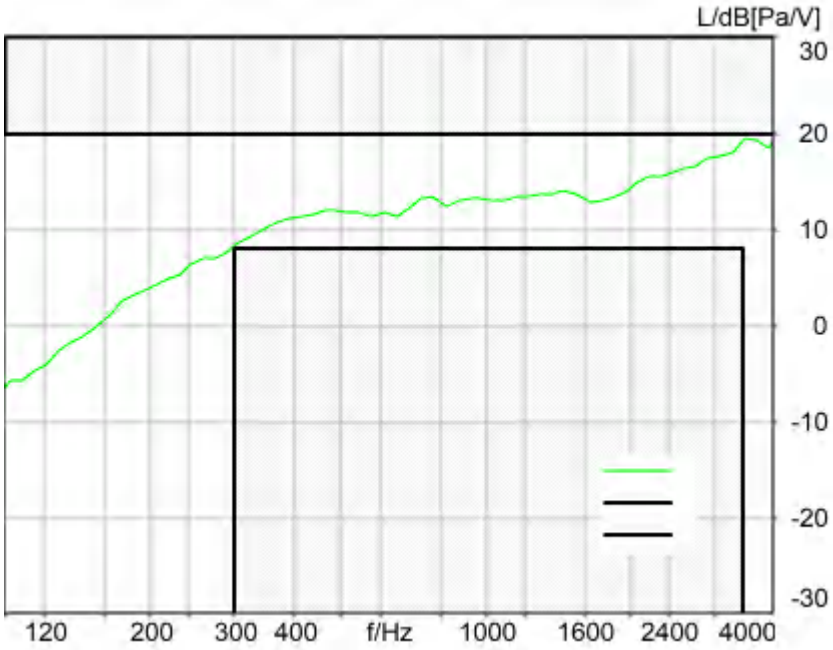
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance

0.59 dB at 3445.5 Hz Ok

Ok

2024/1/26 9:31 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_nb_r16.dat
Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +
Pause till end of file
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 4.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hanb.fft		
Tol. scheme file	521_rcv_frq_man_hanb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	4000.0 Hz

Special Features
Compensate delay 119.2000 ms (D_RCV_NB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out

In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Measurement Protocol

Measurement Object	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
Project	SN339D

Project	TIA-5050 (2018-01)
Report Generation Date	2024/2/5 17:16
Responsible Person	audio

Status Overview

SMD	Status	Single Value Description	Single Value	Object
Overall Receive Delay WB	Done	Delay (Cross) [ms]	119.6	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.1a Receive Volume Control Performance 8N WB	Ok	Corrected Speech Level [dB[SPL]]	18.53	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.1b Receive Volume Control Performance 2N WB	Ok	Corrected Speech Level [dB[SPL]]	12.71	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.39	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.11	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.64	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.87	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.12	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.64	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.57	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	21.82	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.13	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.22	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.94	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.74	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	26.48	339D NR n26_20_DFT-S-OFDM_EVS_ WB 13.2kbps_CH166300
5.2 RCV Distortion and	Ok	Distortion (Noise)	25.26	339D NR

Noise - 5000 Hz WB		[dB], 0.0 dB		n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	21.82	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.48	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 315 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.13	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 400 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.70	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	28.97	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 630 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.88	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 800 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.81	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	23.63	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1250 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.08	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 1600 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	24.84	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 2000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	22.22	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 2500 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.37	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 3150 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	29.66	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 4000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	27.10	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.2 RCV Distortion and Noise - 5000 Hz WB	Ok	Distortion (Noise) [dB], 0.0 dB	25.18	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
Report - Receive Distortion and Noise (Conversational Gain)	Ok	Minimum SDNR [dB], (occured at 1250Hz)	22.08	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.3 Frequency Response 8N FF	Ok	Min. dist. to tolerance scheme [dB], 3058.6 Hz	1.04	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.3 Frequency Response 8N	Ok	Min. dist. to tolerance	0.63	339D NR

DF		scheme [dB], 4870.0 Hz		n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.3 Frequency Response 2N FF	Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	0.01	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300
5.3 Frequency Response 2N DF	Not Ok	Min. dist. to tolerance scheme [dB], 4870.0 Hz	-0.75	339D NR n26_20_DFT-S-OFDM_EVS_WB 13.2kbps_CH166300

Overall Receive Delay WB	6
5.1a Receive Volume Control Performance 8N WB	7
5.1b Receive Volume Control Performance 2N WB	9
5.2 RCV Distortion and Noise - 250 Hz WB	11
5.2 RCV Distortion and Noise - 315 Hz WB	13
5.2 RCV Distortion and Noise - 400 Hz WB	15
5.2 RCV Distortion and Noise - 500 Hz WB	17
5.2 RCV Distortion and Noise - 630 Hz WB	19
5.2 RCV Distortion and Noise - 800 Hz WB	21
5.2 RCV Distortion and Noise - 1000 Hz WB	23
5.2 RCV Distortion and Noise - 1250 Hz WB	25
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5.2 RCV Distortion and Noise - 2000 Hz WB	58
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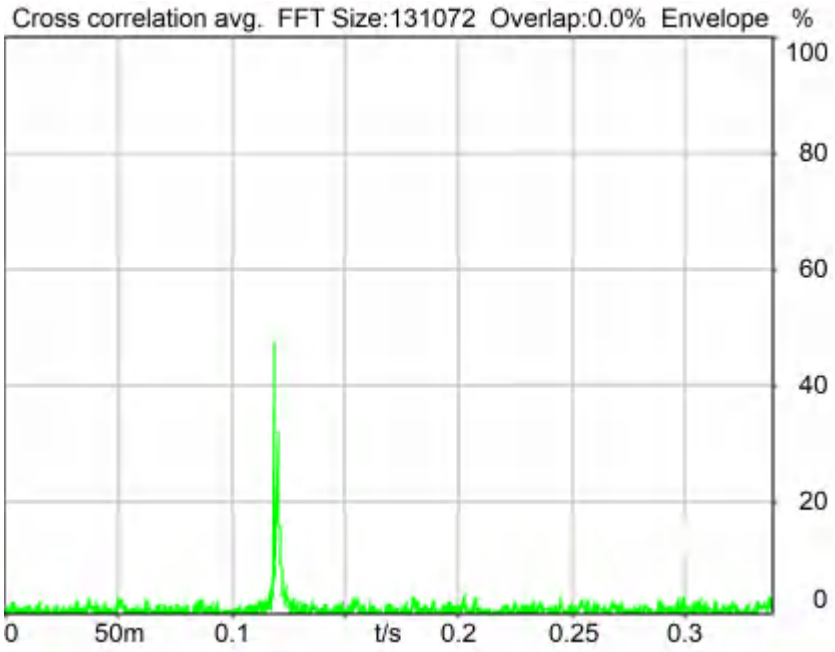
Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 119.6 ms

2024/1/26 9:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: csswb1b_r1s.dat
WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2
Pause 0.5 s +
voiced signal + 8000 Hz band limited random noise 1.0 s +
Pause till end of file
Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,
75 % overlap in frequency range of 100 to 8000 Hz

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.1: 0.00 dB
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Range start	550.00 ms	Range length	1950.00 ms
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	131072	Overlap	0 %
Window function.	Hanning	Smooth	Off
Delayed channel	None		
Valid range start	-1228.79 ms	Valid range end	1228.81 ms

Special Features

Show source signal	Source ch.2	Store to variable	D_RCV_WB

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

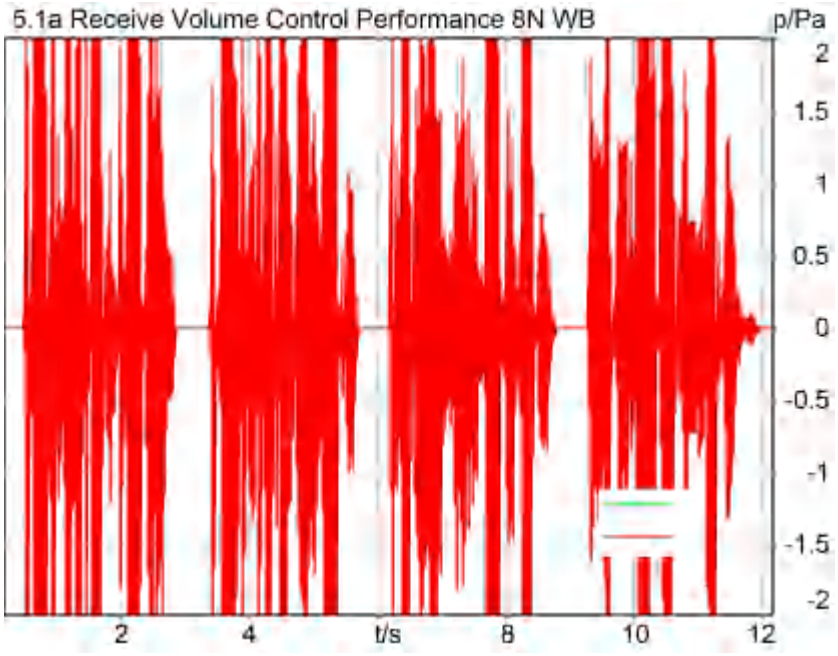
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 88.53 dB[SPL], Act.: 85.06%
Corrected Speech Level: 18.53 dB[SPL] Ok

Ok

2024/1/26 9:09 ACQUA 5.1.200

Limits

	lower
Run 1	18.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652

Bandpass filter	Super Wideband	Margin (15.9dB nom)	
15.90 dB			

Special Features

Show source signal	Source ch.2
Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

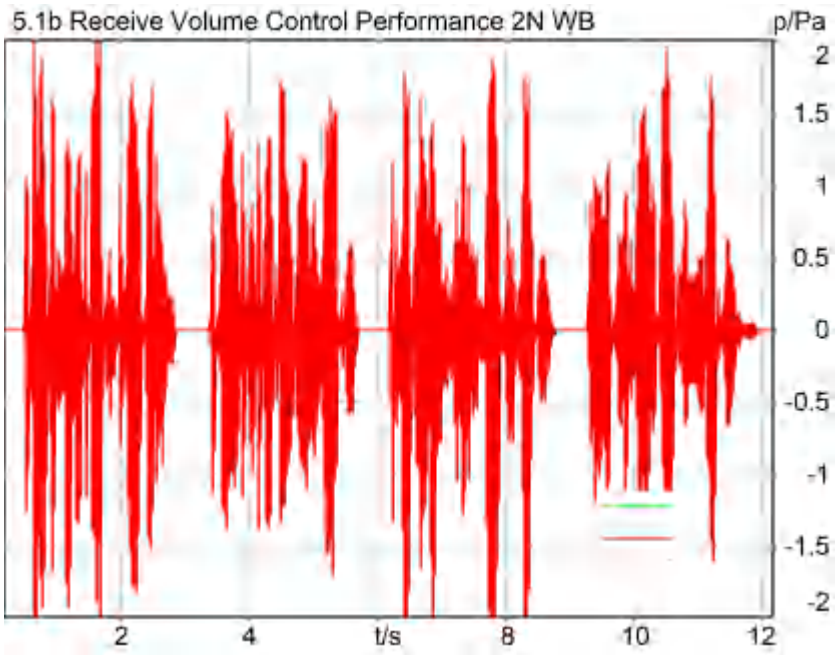
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



Correction

X - 70

Speech Level RCV: 82.71 dB[SPL], Act.: 84.91%
Corrected Speech Level: 12.71 dB[SPL] Ok

Ok

2024/1/26 9:18 ACQUA 5.1.200

Limits

	lower
Run 1	6.00 dB20uPa

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	200.00 ms	Range length	12000.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
Bandpass filter	Super Wideband	Margin (15.9dB nom)	

15.90 dB

Special Features
Show source signal Source ch.2
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

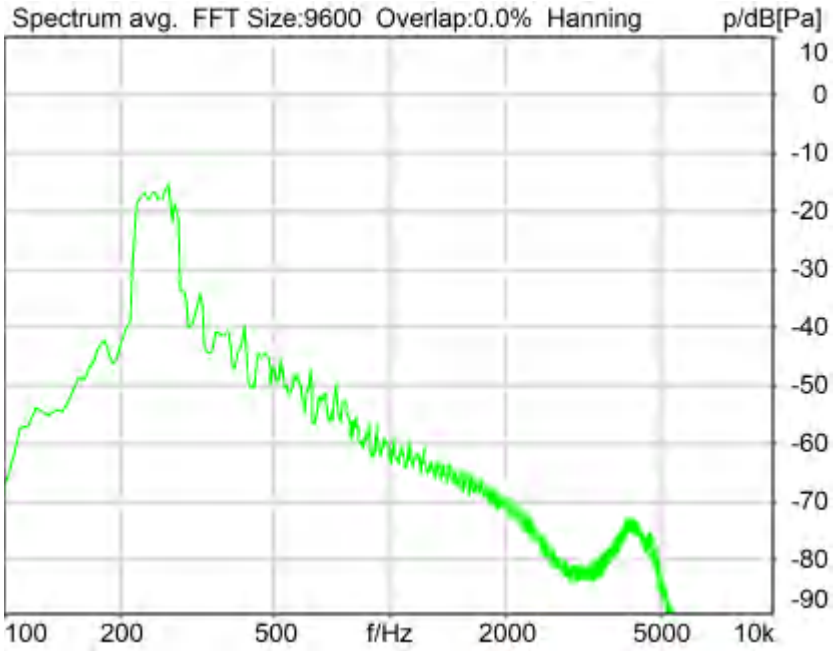
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.39 dB (6.77%) Ok

Ok

2024/1/26 9:09 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

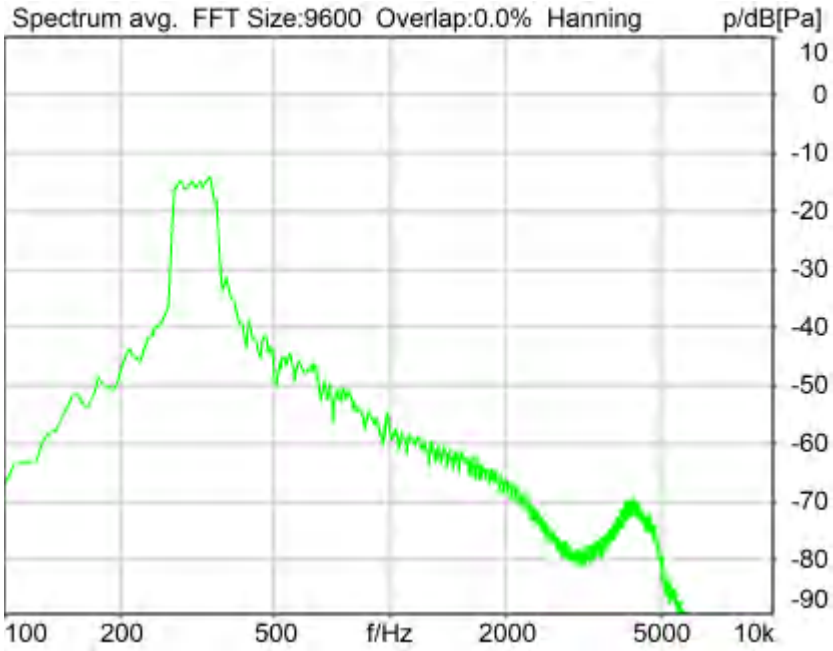
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.11 dB (5.55%) Ok

Ok

2024/1/26 9:09 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

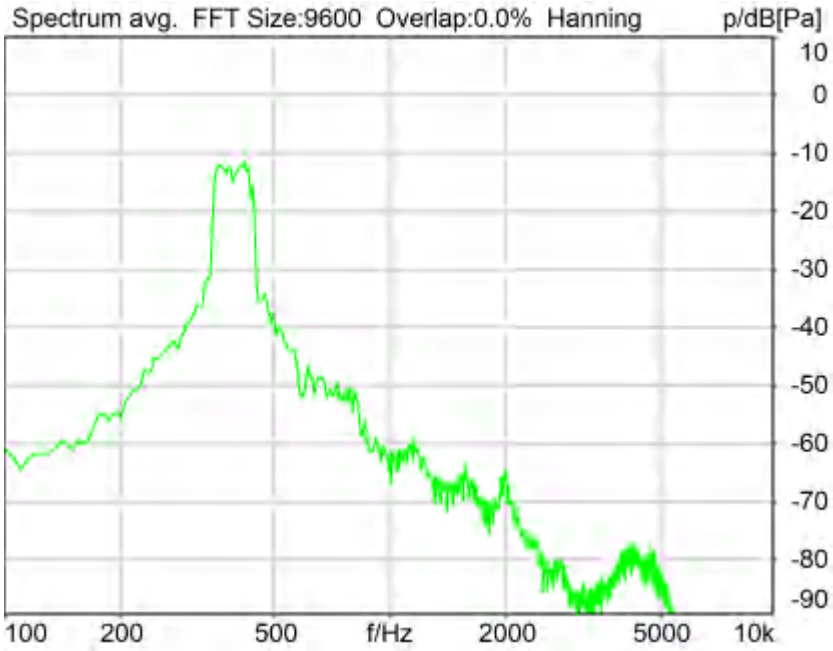
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.64 dB (3.70%) Ok

Ok

2024/1/26 9:10 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.87 dB (3.60%) Ok

Ok

2024/1/26 9:10 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 2 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Distortion (Noise) RCV (packed): 28.12 dB (3.93%) Ok

Ok

2024/1/26 9:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

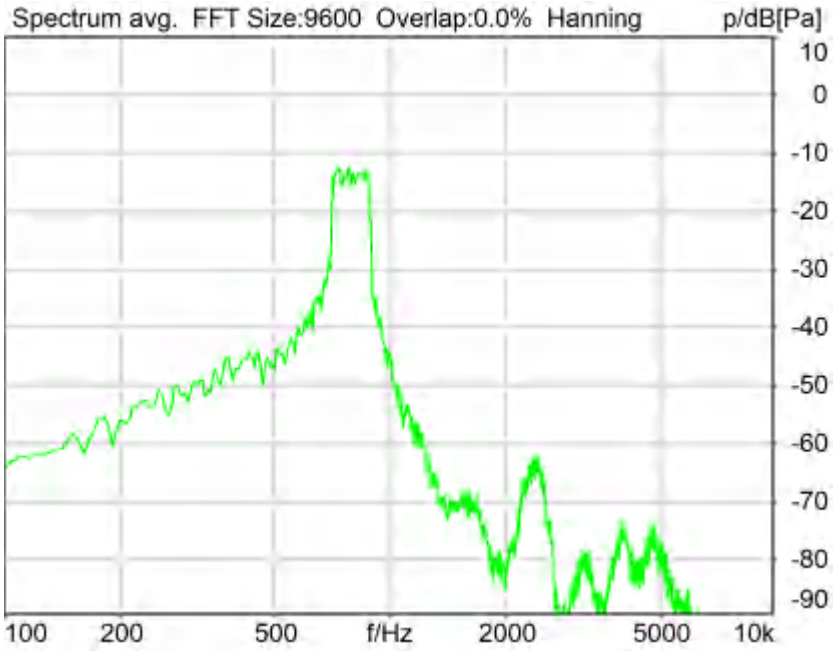
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.64 dB (5.23%) Ok

Ok

2024/1/26 9:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

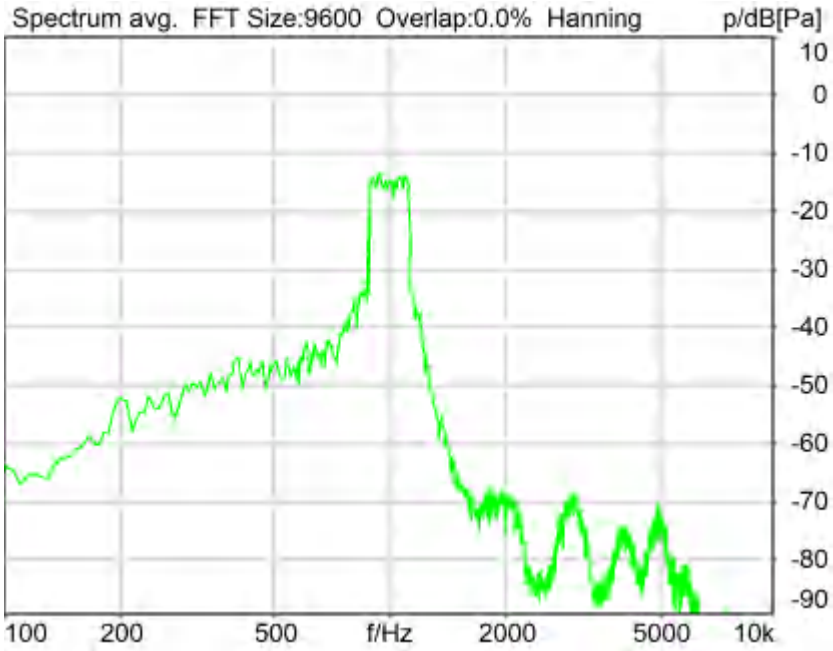
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.57 dB (6.63%) Ok

Ok

2024/1/26 9:11 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

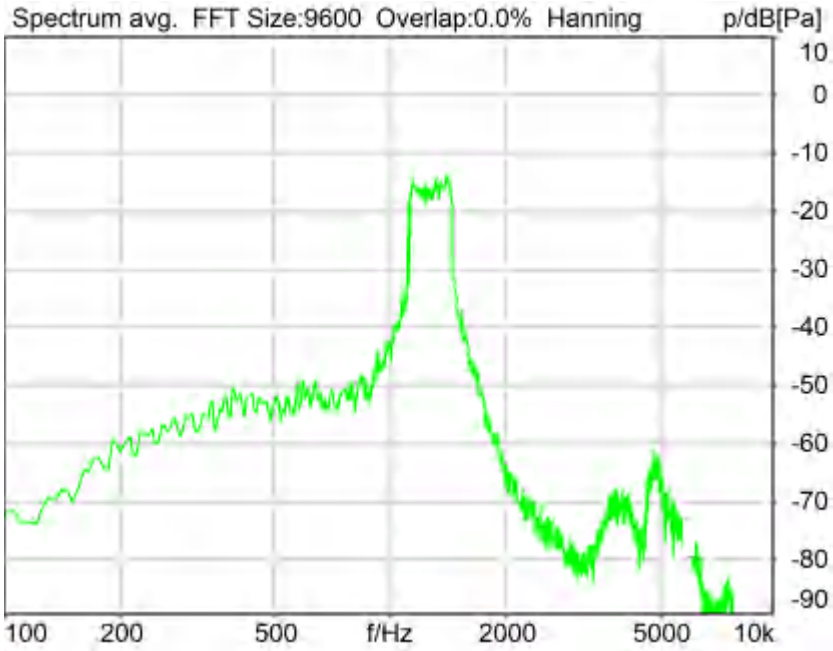
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 21.82 dB (8.11%) Ok

Ok

2024/1/26 9:12 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

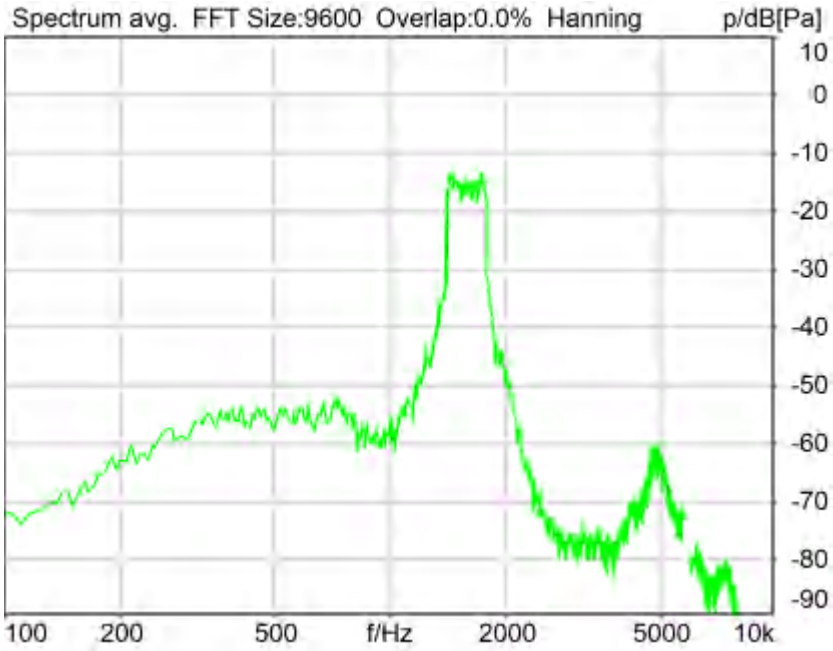
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.13 dB (5.54%) Ok

Ok

2024/1/26 9:12 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

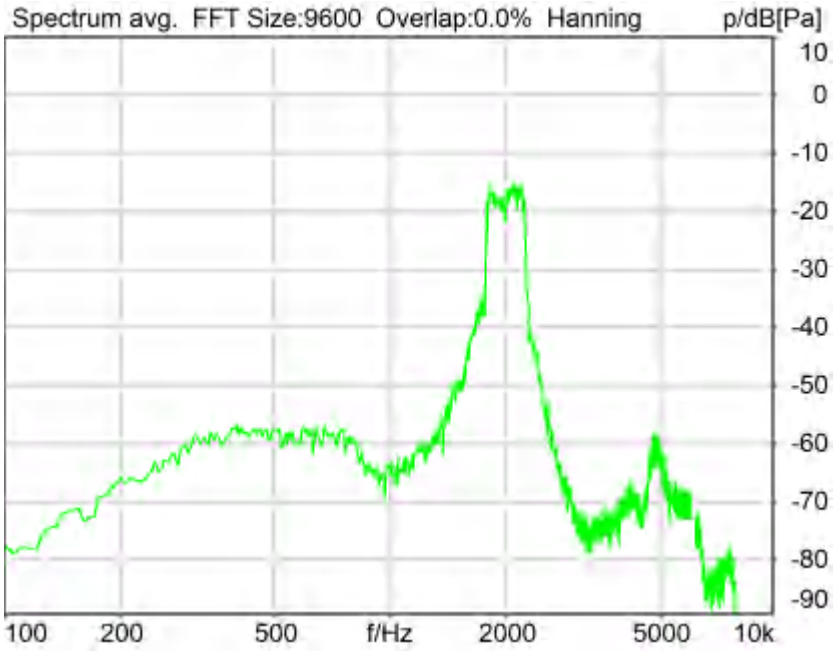
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.22 dB (6.91%) Ok

Ok

2024/1/26 9:13 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

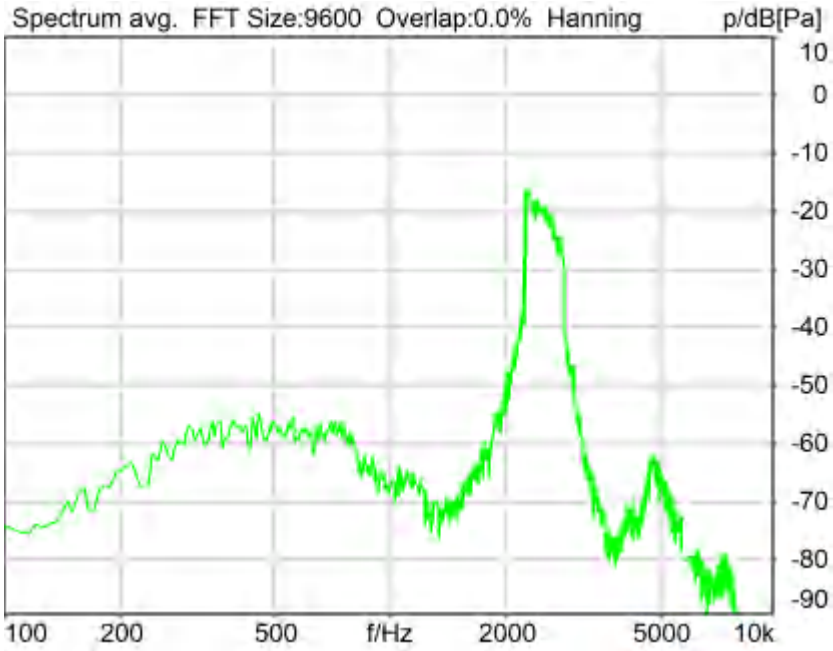
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.94 dB (5.66%) Ok

Ok

2024/1/26 9:13 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

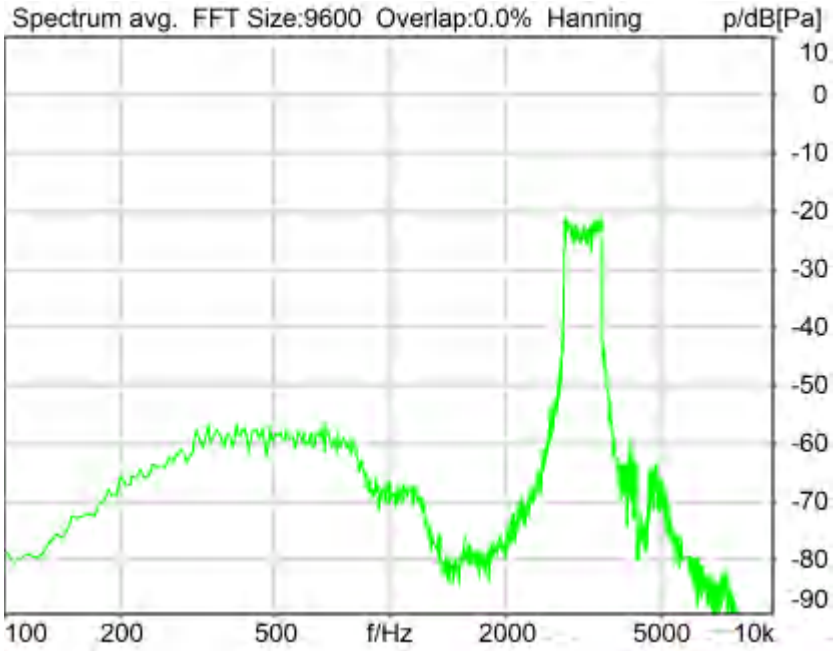
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.74 dB (3.65%) Ok

Ok

2024/1/26 9:13 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

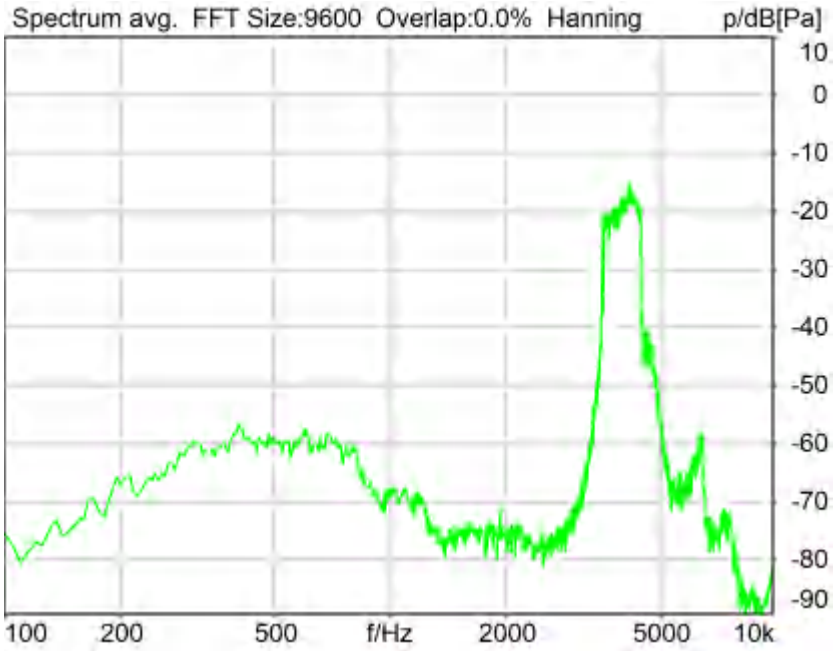
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.48 dB (4.75%) Ok

Ok

2024/1/26 9:14 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

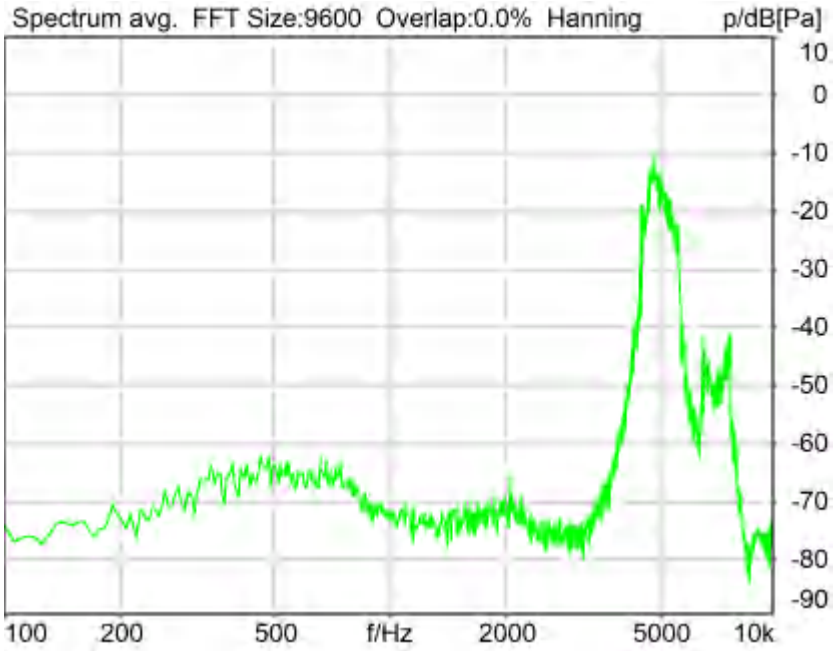
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.26 dB (5.46%) Ok

Ok

2024/1/26 9:14 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %

Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features

Compensate delay	119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable	RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---

labCORE Routing

Out Channel 1 ->	Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 ->	VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <-	VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <-	BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

Region	Frequency	SDNR

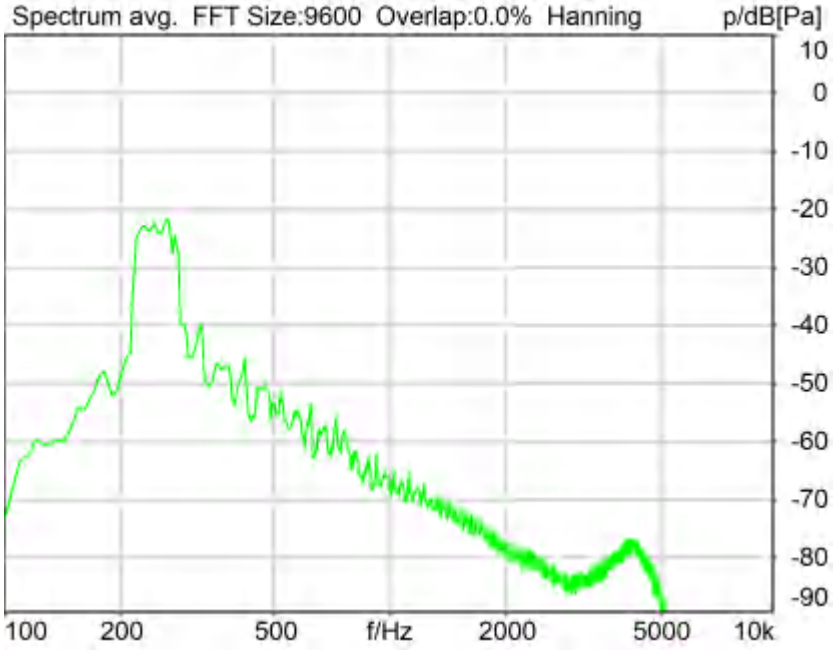
1	250Hz	23.39 dB
2	315Hz	25.11 dB
3	400Hz	28.64 dB
4	500Hz	28.87 dB
5	630Hz	28.12 dB
6	800Hz	25.64 dB
7	1000Hz	23.57 dB
8	1250Hz	21.82 dB
9	1600Hz	25.13 dB
10	2000Hz	23.22 dB
11	2500Hz	24.94 dB
12	3150Hz	28.74 dB
13	4000Hz	26.48 dB
14	5000Hz	25.26 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 21.82dB at 1250Hz.

2024/1/26 9:15 ACQUA

5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.48 dB (6.70%) Ok

Ok

2024/1/26 9:19 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_250hz_sr20dbm0_v02.dat.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	190.0 Hz	Stimulus max.	315.0 Hz
Analysis min.	20.0 Hz	Analysis max.	185.0 Hz
Analysis (2) min.	320.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

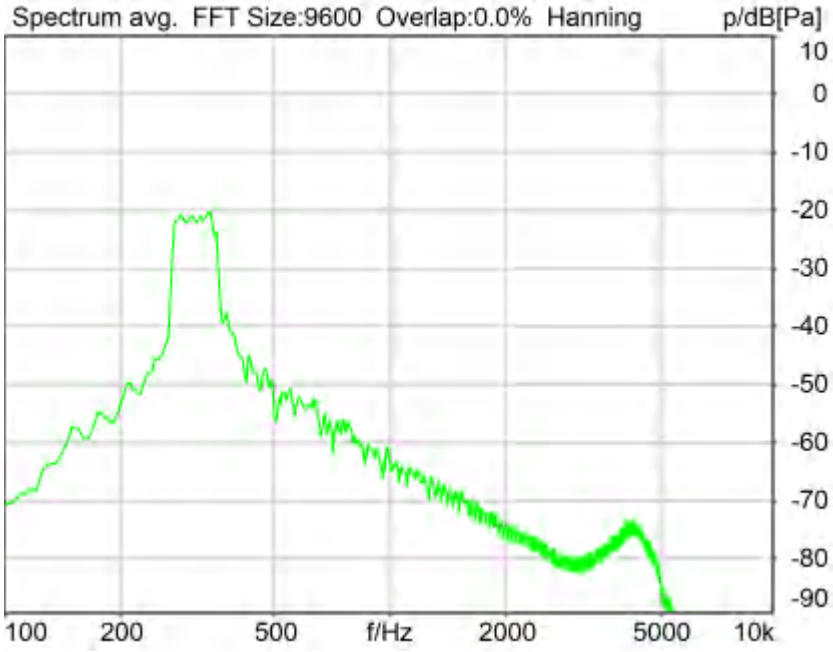
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.13 dB (5.54%) Ok

Ok

2024/1/26 9:19 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_315hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	245.0 Hz	Stimulus max.	390.0 Hz
Analysis min.	20.0 Hz	Analysis max.	240.0 Hz
Analysis (2) min.	395.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_315Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 3 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)			
RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)			
Block mode	Bypass		

Artificial Head Settings (HATS 1 (HMS II.3))			
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 28.70 dB (3.67%) Ok

Ok

2024/1/26 9:19 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_400hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	320.0 Hz	Stimulus max.	480.0 Hz
Analysis min.	20.0 Hz	Analysis max.	315.0 Hz
Analysis (2) min.	485.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_400Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

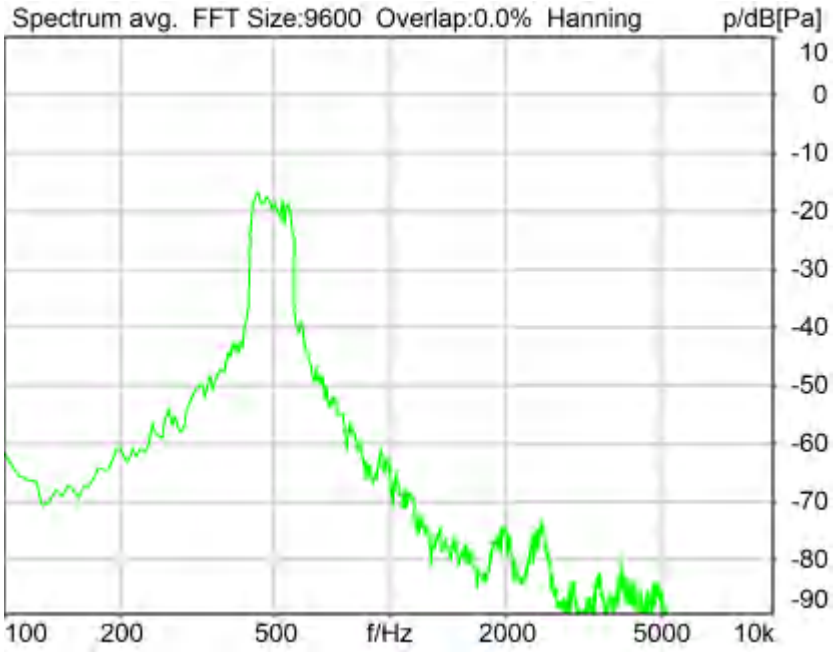
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.97 dB (3.56%) Ok

Ok

2024/1/26 9:20 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	410.0 Hz	Stimulus max.	595.0 Hz
Analysis min.	20.0 Hz	Analysis max.	405.0 Hz
Analysis (2) min.	600.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

Distortion (Noise) RCV (packed): 27.88 dB (4.04%) Ok

Ok

2024/1/26 9:20 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_630hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	525.0 Hz	Stimulus max.	745.0 Hz
Analysis min.	20.0 Hz	Analysis max.	520.0 Hz
Analysis (2) min.	750.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_630Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

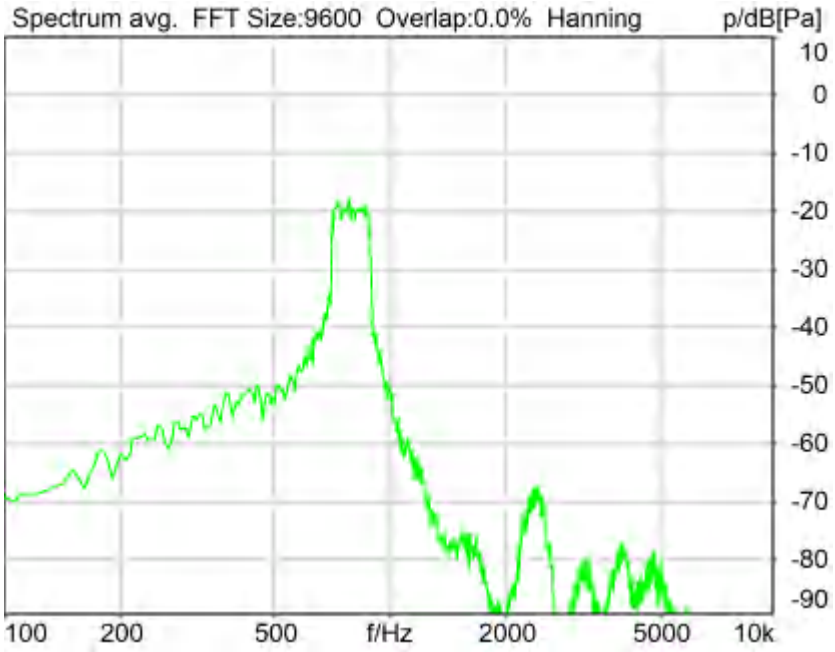
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.81 dB (5.12%) Ok

Ok

2024/1/26 9:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_800hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	675.0 Hz	Stimulus max.	925.0 Hz
Analysis min.	20.0 Hz	Analysis max.	670.0 Hz
Analysis (2) min.	930.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_800Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

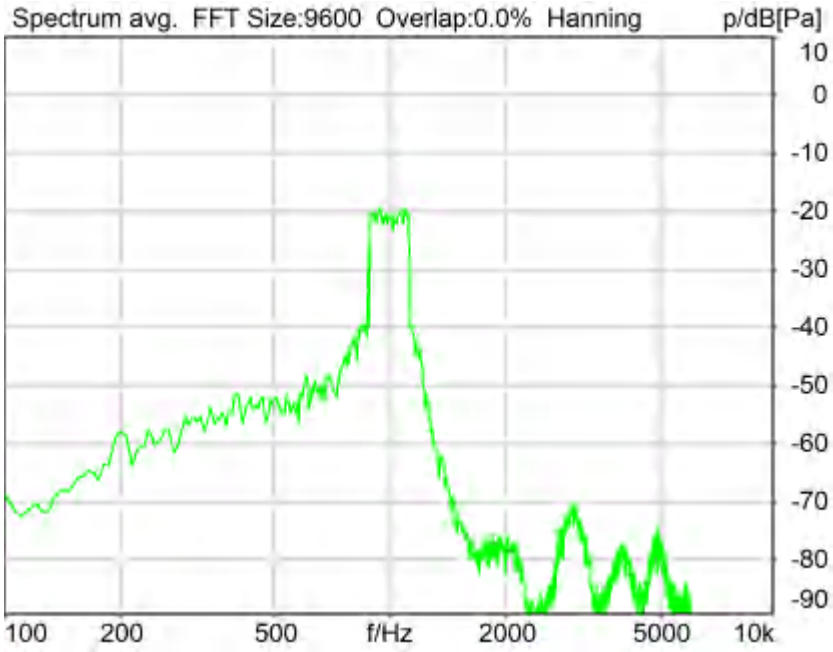
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 23.63 dB (6.58%) Ok

Ok

2024/1/26 9:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	855.0 Hz	Stimulus max.	1155.0 Hz
Analysis min.	20.0 Hz	Analysis max.	850.0 Hz
Analysis (2) min.	1160.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

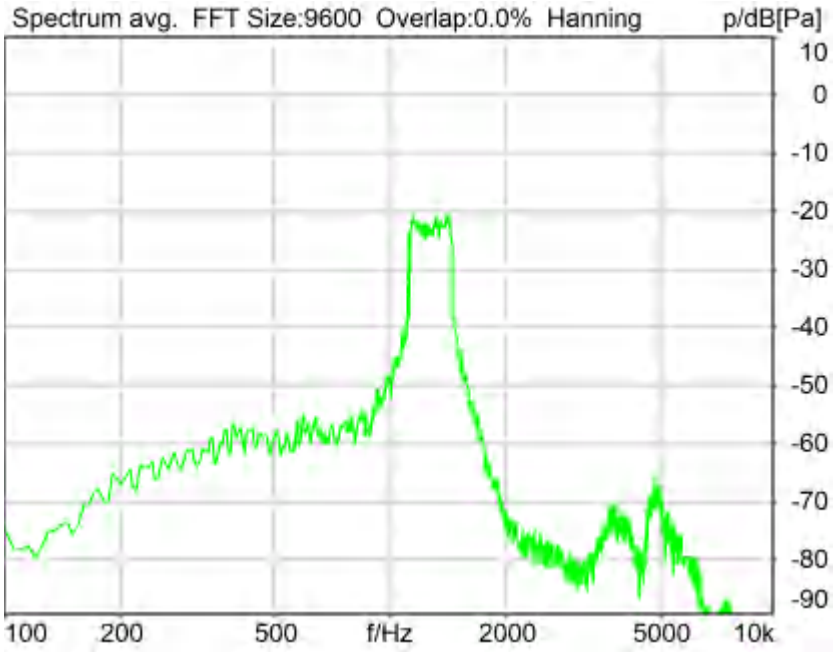
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.08 dB (7.87%) Ok

Ok

2024/1/26 9:21 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1250hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1085.0 Hz	Stimulus max.	1450.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1080.0 Hz
Analysis (2) min.	1455.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1250Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

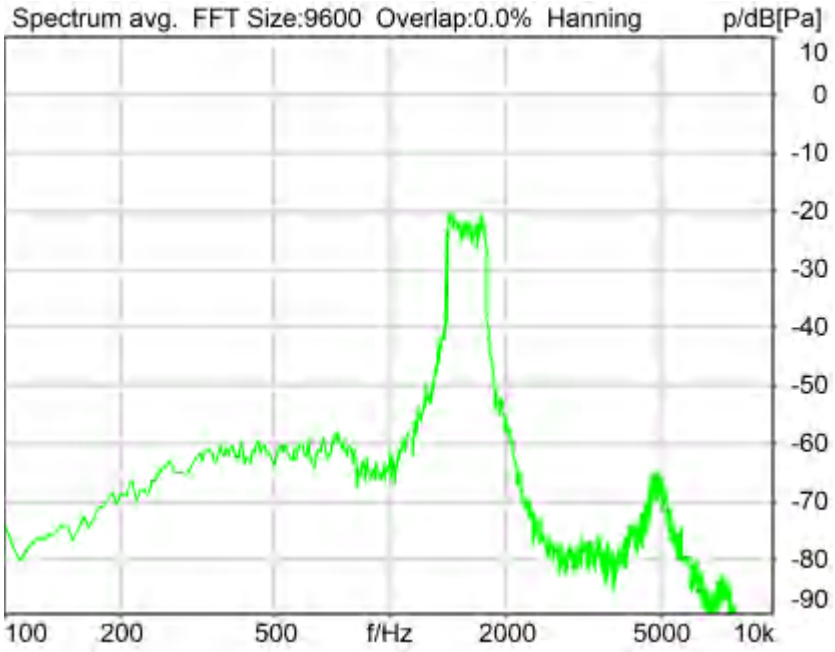
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 24.84 dB (5.73%) Ok

Ok

2024/1/26 9:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_1600hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1375.0 Hz	Stimulus max.	1815.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1370.0 Hz
Analysis (2) min.	1820.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_1600Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

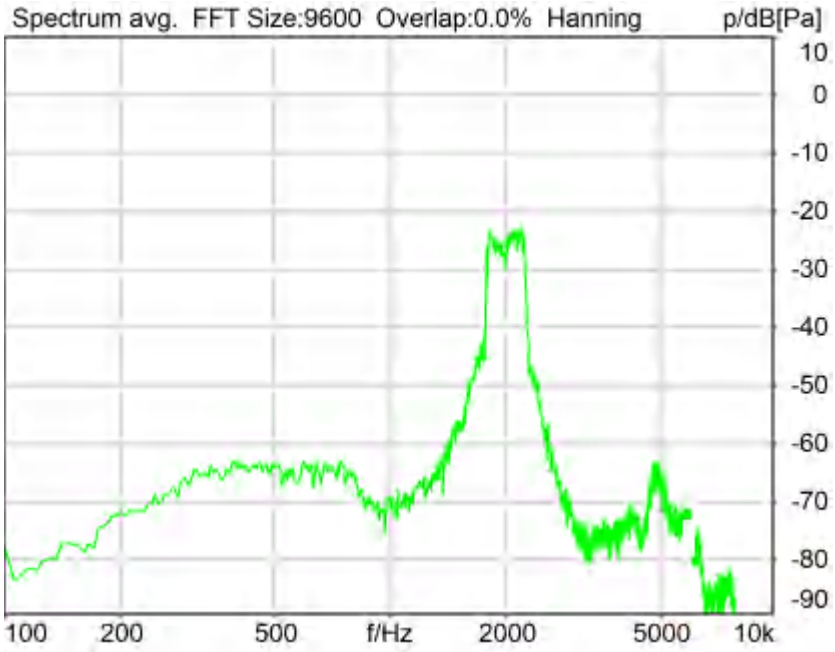
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 22.22 dB (7.74%) Ok

Ok

2024/1/26 9:22 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	1745.0 Hz	Stimulus max.	2275.0 Hz
Analysis min.	20.0 Hz	Analysis max.	1740.0 Hz
Analysis (2) min.	2280.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_2000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

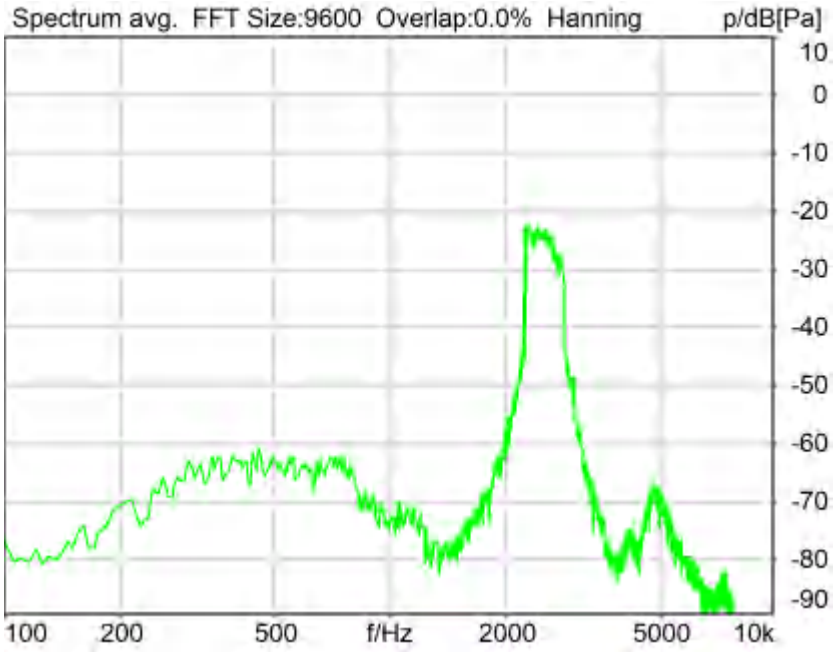
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.37 dB (5.39%) Ok

Ok

2024/1/26 9:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_2500hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2205.0 Hz	Stimulus max.	2855.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2200.0 Hz
Analysis (2) min.	2860.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_2500Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

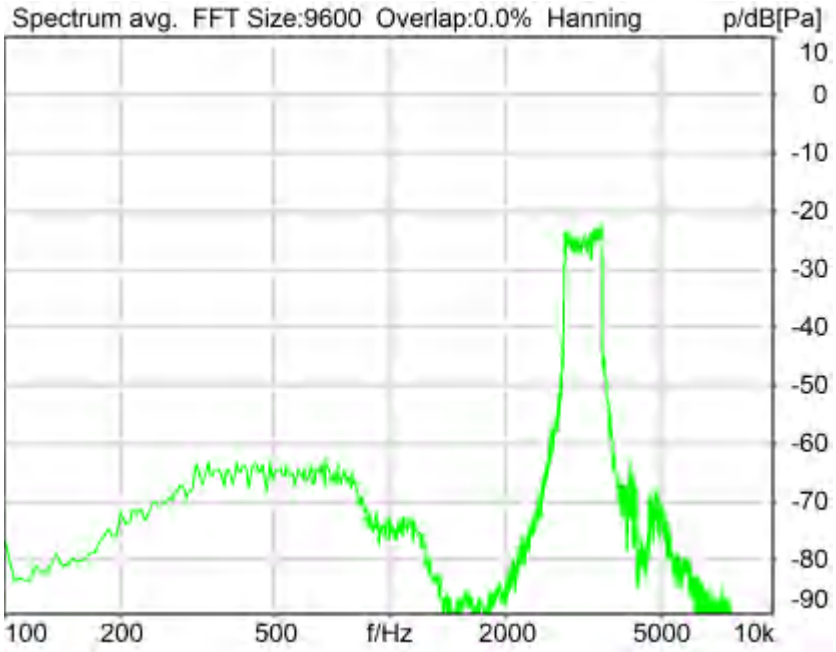
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.66 dB (3.29%) Ok

Ok

2024/1/26 9:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_3150hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	2785.0 Hz	Stimulus max.	3585.0 Hz
Analysis min.	20.0 Hz	Analysis max.	2780.0 Hz
Analysis (2) min.	3590.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_3150Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

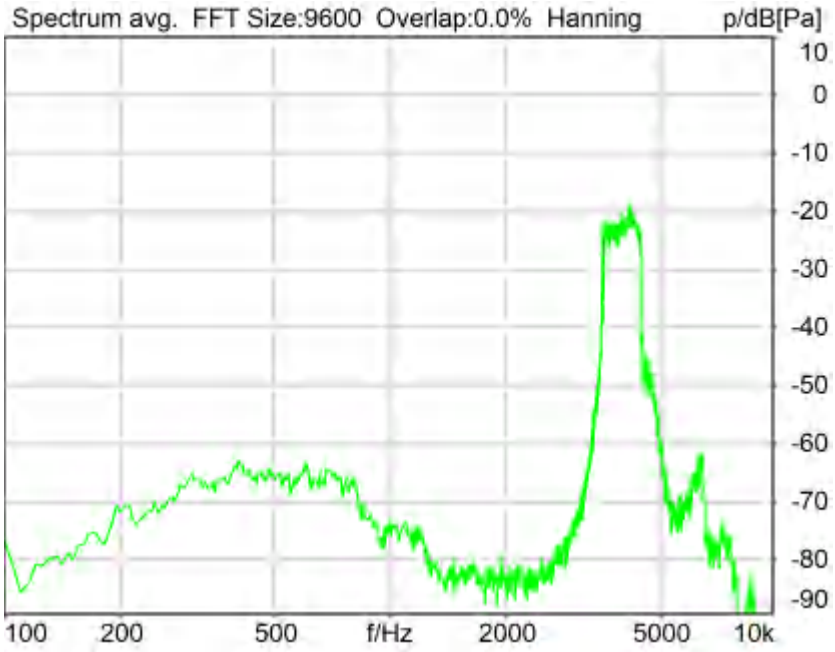
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.10 dB (4.41%) Ok

Ok

2024/1/26 9:23 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_4000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	3515.0 Hz	Stimulus max.	4500.0 Hz
Analysis min.	20.0 Hz	Analysis max.	3510.0 Hz
Analysis (2) min.	4505.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_4000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

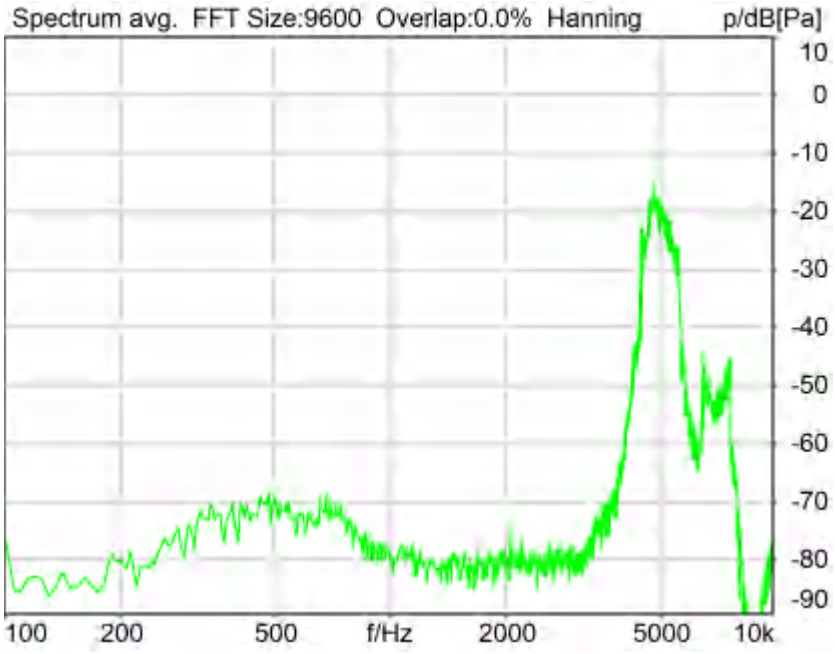
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.18 dB (5.51%) Ok

Ok

2024/1/26 9:24 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	20.00 dB

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: act_rpn_b250ms_5000hz_sr20dbm0_v02.dat
Level adj. Ch1 -90.0 dB

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	13550.00 ms	Range length	200.00 ms
Number of seq.	10	Sequence length	400.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	Transformation		
FFT size	9600	Overlap	0 %
Window function.	Hanning	Smooth	Off
dB weighting	A Weighting		
Stimulus min.	4430.0 Hz	Stimulus max.	5660.0 Hz
Analysis min.	20.0 Hz	Analysis max.	4425.0 Hz
Analysis (2) min.	5665.0 Hz	Analysis (2) max.	20000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))
Store to variable RCVWB10_5000Hz

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

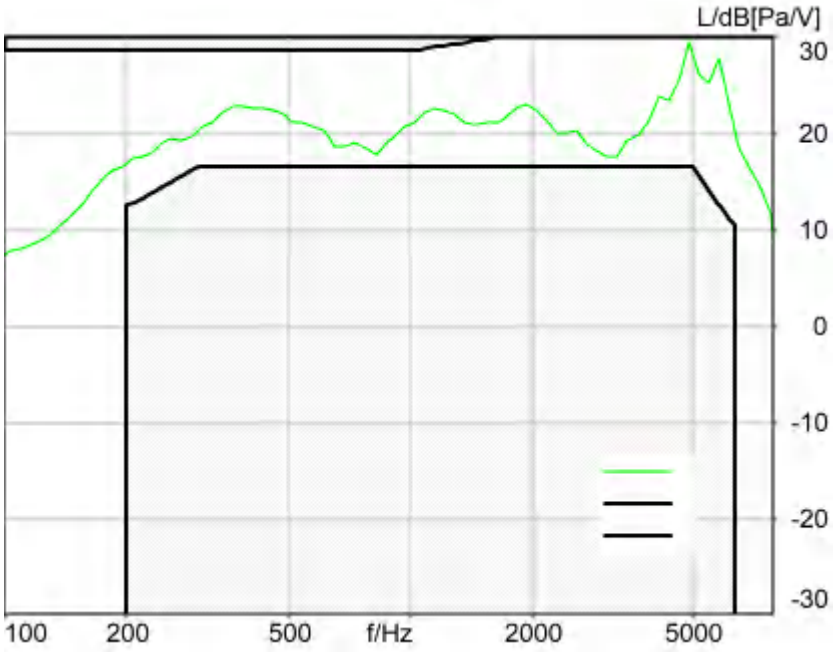
Region	Frequency	SDNR
1	250Hz	23.48 dB
2	315Hz	25.13 dB
3	400Hz	28.70 dB
4	500Hz	28.97 dB
5	630Hz	27.88 dB
6	800Hz	25.81 dB
7	1000Hz	23.63 dB
8	1250Hz	22.08 dB
9	1600Hz	24.84 dB
10	2000Hz	22.22 dB
11	2500Hz	25.37 dB
12	3150Hz	29.66 dB
13	4000Hz	27.10 dB
14	5000Hz	25.18 dB

All SDNRs were greater than 20.0 dB, requirement was met.
Smallest SDNR was 22.08dB at 1250Hz.

2024/1/26 9:24 ACQUA

5.3 Frequency Response 8N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
1.04 dB at 3058.6 Hz Ok

Ok

2024/1/26 15:08 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband

Absolute minimal distance

0.63 dB at 4870.0 Hz Ok

Ok

2024/1/26 15:08 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower

Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off

Polarisation Voltage	200V	Supply Voltage	±60V
Channel In 4 Settings			
Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)

Block mode	Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

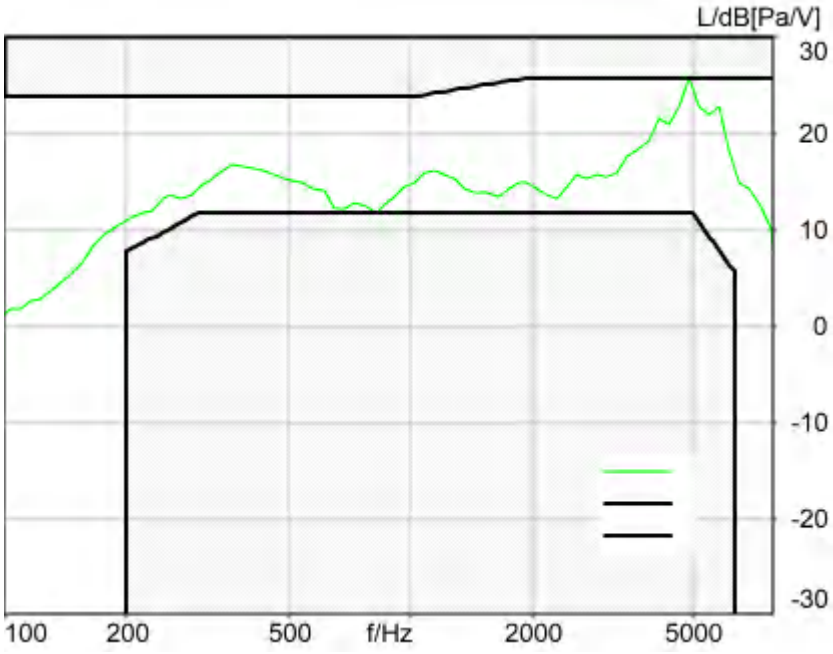
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

0.01 dB at 4870.0 Hz Ok

Ok

2024/1/26 15:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2ff_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

---
labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out

In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
---
Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter	;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2		
Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

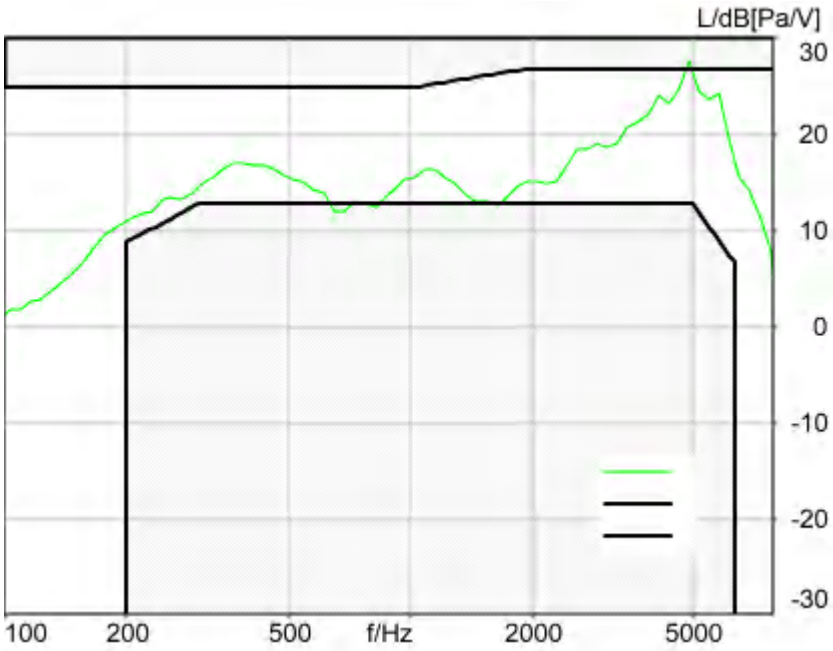
Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm
Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off

5.3 Frequency Response 2N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance
-0.75 dB at 4870.0 Hz Not Ok

Not Ok

2024/1/26 15:06 ACQUA 5.1.200
Unmodified HEAD acoustics Measurement Descriptor

Limits

	lower
Run 1	Fit into tolerance

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)
Database Version: 40_HAC_Suite_Rev03

Source: respmaleieee269_wb_r20_v01.dat
Level adj. Ch1 -90.0 dB
WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2
Pause 0.5 s +
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +
Pause till end of file
Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE_269-2010_Male_mono_48_kHz.wav"
Alteration:
0.2 s Pause added at the beginning of the file.
0.8 s Pause added at the and of the file.
filtered with 8.0 kHz low-pass filter
signal level changed

Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

Output Equalization/Filter
Mouth Eq. Ch.1: HATS 1 (HMS II.3)

Analysis

Direction	Out 2 -> In 2		
Range start	500.00 ms	Range length	11500.00 ms
Use FIR Filter	Ch2	FIR filter	drp2df_ieee1652
DRP/ERP Ch.1:	Off	DRP/ERP Ch.2:	Off
Frequency base	12th octave	DIN Row	Row A
Method	FFT		
FFT size	4096	Overlap	75 %
Window function.	Hanning		
Reference file	r521_rcv_frq_spee269_hawb.fft		
Tol. scheme file	521_rcv_frq_man_hawb.tol	Min. freq. for tol.	100.0 Hz
Auto adjust	Centrate	Max. freq. for tol.	8000.0 Hz

Special Features
Compensate delay 119.6000 ms (D_RCV_WB, Delay (Cross))

labCORE Settings

labCORE Serial	77000207	Nickname	
Firmware	3.4.17	Sync Source	Internal
Clock Pitch	0.00 ppm		

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labCORE Routing
Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker
Out Channel 2 -> VoIP 1 -> Radio Tester 1 (CMW500) RF In/Out
In Channel 1 <- VoIP In/Out 1 <- Radio Tester 1 (CMW500) RF In/Out
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right
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Microphone Settings (Mic Amp. (Slot 6))
Channel In 1 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 2 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	20Hz
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 3 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

Channel In 4 Settings

Range	114 dB[SPL] @ 12.5 mV/Pa	Highpass	Off
Polarisation Voltage	200V	Supply Voltage	±60V

VoIP Settings (VoIP)

RTP Connection	Streaming	SIP Connection	Unavailable
SIP Reg. State	Unregistered	Jitterbuffer Length	140
Jitter Buffer Reset	On Playback	Enabled Codec	EVS/16000/1
Packet Length	20	Encoder Parameter	

;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2
FMTP Parameter
;max-red=0;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2;evs-mode-switch=1;br=5.9-13.2;bw=nb-swb;ch-aw-recv=2

Impairment Mode	Off	Impairment Type	Off

BEQ Settings (BEQ Filter 1)
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.	12306613	Pinna Type	Type 3.3

HIB Settings

HIB Name	60020095	Serial	60020095
HIB Mode	Mobile Measurement	Impedance	32 Ohm

Gain out 1	-40.00 dB	Gain out 2	0.00 dB
Gain in 1	0.00 dB	Gain in 2	0.00 dB
Mic 1 Power Supply	Off	Mic 2 Power Supply	Off