

CAICT No. 24T04Z102681-002

EF3DV3 - SN:4060

May 23, 2024

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
0911	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
0912	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
		5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	±9.6
0914	AAC	5G NR (DFT-S-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6
0915	AAD		5G NR FR1 TDD	5.87	±9.6
0916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)		5.86	±9.6
10918	AAE	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		
0919	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
10923	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10925	AAC	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10928		5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10929	AAD		5G NR FR1 FDD	5.52	±9.6
0930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10932	AAC	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)			±9.6
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	
10936	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	±9.6
10940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
10945	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10945	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10947		5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 KHz)	5G NR FR1 FDD	5.94	±9.6
10948	AAC		5G NR FR1 FDD	5.87	±9.6
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)			-
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	±9.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	±9.6
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	±9.6
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	±9.6
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	±9.6
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	±9.6
10959	-	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	±9.6
10960		5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	±9.6
10961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±9.6
10962	-	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
10962	-	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 KHz)	5G NR FR1 TDD	9.55	±9.6
10963	1	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 Hz)	5G NR FR1 TDD	9.29	±9.6
	-		5G NR FR1 TDD	9.37	±9.6
10965	-	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9.6
10966	_	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9.6
10967	_	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)			
10968		5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	±9.6
10972		5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD		±9.6
10973	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±9.6
10974	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD		±9.6
10978		ULLA BDR	ULLA	1.16	±9.6
10979		ULLA HDR4	ULLA	8.58	±9.6
10980	-	ULLA HDR8	ULLA	10.32	±9.6
10981		ULLA HDRp4	ULLA	3.19	±9.6
	Innn	ULLA HDRp8	ULLA	3.43	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10983	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10983	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10984	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10985	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10986	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10987	AAB	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10988	AAD	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±9.6
	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64 QAM, 15 KHz)	5G NR FR1 FDD	8.46	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 KHz)	5G NR FR1 FDD	8.76	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 KHz)	5G NR FR1 FDD	8.95	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	±9.6
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	±9.6
11012	AAB	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11013	AAB	IEEE 802.11be (320 MHz, MCS1, 35pc duty cycle)	WLAN	8.45	±9.6
11014	AAB	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11015	AAB	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAB	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11021	AAB	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11022	AAB	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11023	AAB	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11024	AAB	IEEE 802.11be (320 MHz, MCS12, 55pc duty cycle)	WLAN	8.37	±9.6
11025		IEEE 802.11be (320 MHz, MCS13, 39pc duty cycle)	WLAN	8.39	±9.6

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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ANNEX E DIPOLE CALIBRATION CERTIFICATE

Dipole 835 MHz

eughausstrasse 43, 8004 Zurich,	Switzenand	Mindahahahar Sona so	Swiss Calibration Service
Accredited by the Swiss Accreditation The Swiss Accreditation Service Multilateral Agreement for the rec	is one of the signatorie		Accreditation No.: SCS 0108
Client CTTL Beijing			CD835V3-1023_Aug24
CALIBRATION C	ERTIFICATE		Contraction of the second
Dbject	CD835V3 - SN: 1	023	
Calibration procedure(s)	QA CAL-20.v7		
	Calibration Proce	dure for Validation Sources in air	
Calibration date:	August 16, 2024		
	•	onal standards, which realize the physical unit	
he measurements and the uncerta	ainties with confidence p	robability are given on the following pages and	d are part of the certificate.
he measurements and the uncerta	ainties with confidence p	robability are given on the following pages and	d are part of the certificate.
		robability are given on the following pages and y facility: environment temperature $(22 \pm 3)^{\circ}$ C	
All calibrations have been conducte	ed in the closed laborator		
All calibrations have been conducte Calibration Equipment used (M&TE	ed in the closed laborator	y facility: environment temperature (22 ± 3)°C	c and humidity < 70%.
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards	ed in the closed laborator		
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2	ed in the closed laborator critical for calibration)	y facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.)	c and humidity < 70%. Scheduled Calibration
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91	ed in the closed laborator critical for calibration) ID # SN: 104778	y facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037)	c and humidity < 70%. Scheduled Calibration Mar-25
	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036)	C and humidity < 70%. Scheduled Calibration Mar-25 Mar-25
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037)	c and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Mar-25
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k)	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046)	C and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047)	c and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Mar-25
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID #	y facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) Check Date (in house)	C and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards Power meter Agilent 4419B	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID # SN: GB42420191	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036)(04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) <u>Check Date (in house)</u> 09-Oct-09 (in house check Nov-23)	C and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check In house check: Nov-24
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards Power meter Agilent 4419B Power sensor HP E4412A	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID # ID # SN: GB42420191 SN: US38485102	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036)(04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) <u>Check Date (in house)</u> 09-Oct-09 (in house check Nov-23) 05-Jan-10 (in house check Nov-23)	C and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check In house check: Nov-24 In house check: Nov-24
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID # SN: GB42420191 SN: US38485102 SN: US37295597	y facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) Check Date (in house) 09-Oct-09 (in house check Nov-23) 05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23)	2 and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Nov-24
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID # SN: GB42420191 SN: GB42420191 SN: US38485102 SN: US37295597 SN: 837633/005	y facility: environment temperature (22 ± 3)°C <u>Cal Date (Certificate No.)</u> 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-040407) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) <u>Check Date (in house)</u> 09-Oct-09 (in house check Nov-23) 09-Oct-09 (in house check Nov-23) 10-Jan-19 (in house check Nov-23)	2 and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Nov-24 In house check: Nov-24 In house check: Nov-24
All calibrations have been conducte Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Probe EF3DV3 DAE4 Secondary Standards Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06	ed in the closed laborator critical for calibration) ID # SN: 104778 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013 SN: 781 ID # SN: GB42420191 SN: US38485102 SN: US37295597	y facility: environment temperature (22 ± 3)°C Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 28-Dec-23 (No. EF3-4013_Dec23) 16-Feb-24 (No. DAE4-781_Feb24) Check Date (in house) 09-Oct-09 (in house check Nov-23) 05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23)	2 and humidity < 70%. Scheduled Calibration Mar-25 Mar-25 Mar-25 Mar-25 Dec-24 Feb-25 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Nov-24
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS)



Schweizerischer Kalibrierdienst S С S

Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

References

ANSI-C63 19-2019 (ANSI-C63 19-2011) [1] American National Standard, Methods of Measurement of Compatibility between Wireless Communications **Devices and Hearing Aids**

Methods Applied and Interpretation of Parameters:

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

- Coordinate System: y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1], the measurement planes (probe sensor center) are selected to be at a distance of 15 mm above the top metal edge of the dipole arms.
- Measurement Conditions: Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- Antenna Positioning: The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy
- Feed Point Impedance and Return Loss: These parameters are measured using a Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles
- E-field distribution: E field is measured in the x-y-plane with an isotropic E-field probe with 100 mW forward power to the antenna feed point. In accordance with [1], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 15 mm (in z) above the metal top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any nonparallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, in the plane above the dipole surface.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: CD835V3-1023_Aug24

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	835 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 835 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	112.6 V/m = 41.03 dBV/m
Maximum measured above low end	100 mW input power	109.9 V/m = 40.82 dBV/m
Averaged maximum above arm	100 mW input power	111.3 V/m ± 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
800 MHz	17.2 dB	41.3 Ω - 9.3 jΩ
835 MHz	26.2 dB	51.9 Ω + 4.6 jΩ
880 MHz	16.5 dB	62.3 Ω - 11.7 jΩ
900 MHz	16.3 dB	53.0 Ω - 15.6 jΩ
945 MHz	26.4 dB	46.9 Ω + 3.5 jΩ

3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

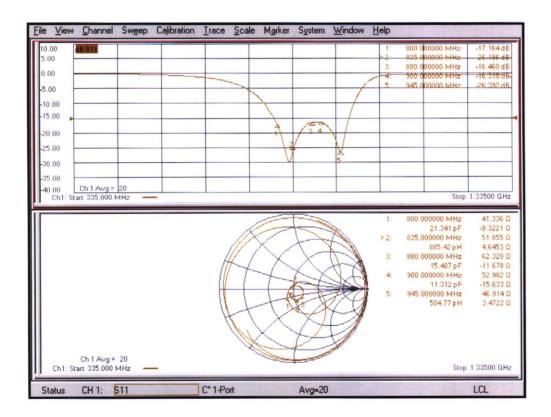
Certificate No: CD835V3-1023_Aug24

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Impedance Measurement Plot



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DASY5 E-field Result

Date: 16.08.2024

Test Laboratory: SPEAG Lab2

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN: 1023

 $\begin{array}{l} \mbox{Communication System: UID 0 - CW ; Frequency: 835 MHz} \\ \mbox{Medium parameters used: } \sigma = 0 \mbox{S/m}, \mbox{ϵ_r} = 1; \mbox{ρ} = 0 \mbox{kg/m^3} \\ \mbox{Phantom section: } RF \mbox{Section} \\ \mbox{Measurement Standard: } DASY5 (IEEE/IEC/ANSI C63.19-2011) \\ \end{array}$

DASY52 Configuration:

- Probe: EF3DV3 SN4013; ConvF(1, 1, 1) @ 835 MHz; Calibrated: 28.12.2023
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 16.02.2024
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole E-Field measurement @ 835MHz/E-Scan - 835MHz d=15mm/Hearing Aid Compatibility Test (41x361x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm Device Reference Point: 0, 0, -6.3 mm Reference Value = 221.0 V/m; Power Drift = 0.02 dB Applied MIF = 0.00 dB RF audio interference level = 41.03 dBV/m Emission category: M3

	Grid 2 M3 40.82 dBV/m	Grid 3 M3 40.74 dBV/m
	Grid 5 M4 36.22 dBV/m	Grid 6 M4 36.19 dBV/m
Grid 7 M3	Grid 8 M3	Grid 9 M3

40.69 dBV/m 41.03 dBV/m 40.96 dBV/m -2.03 -4.06 -6.08 -8.11

0 dB = 112.6 V/m = 41.03 dBV/m

Certificate No: CD835V3-1023_Aug24

-10.14

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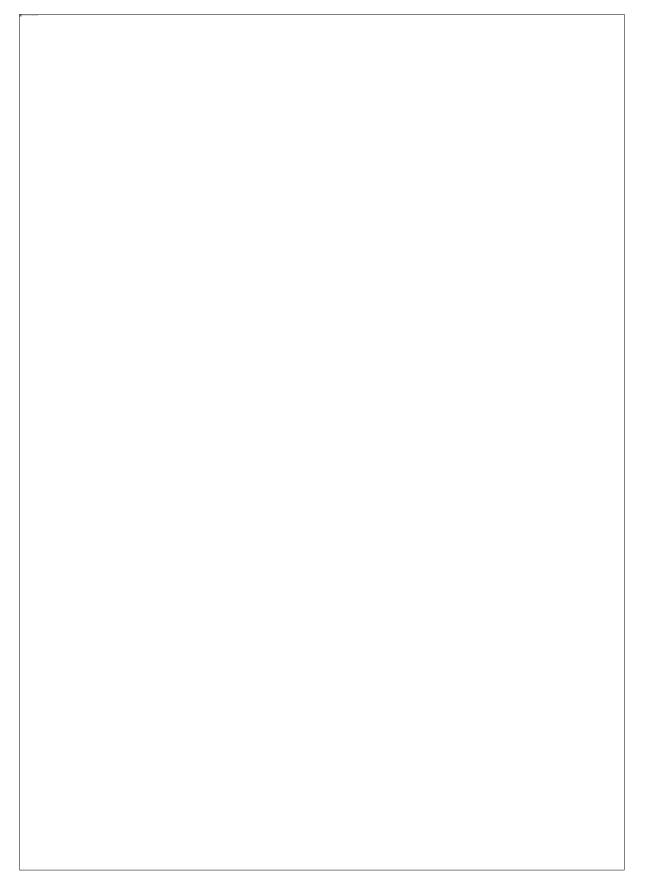


Dipole 1880 MHz

eughausstrasse 43, 8004 Zurich,		C S	Servizio svizzero di taratura Swiss Calibration Service Accreditation No.: SCS 0108
he Swiss Accreditation Service i	s one of the signatories		
Iultilateral Agreement for the rec	ognition of calibration	certificates	
CITL Beijing		Certificate No.	CD1880V3-1018_Aug24
CALIBRATION C	ERTIFICATE		
Dbject	CD1880V3 - SN:	1018	
Calibration procedure(s)	QA CAL-20.v7 Calibration Proce	dure for Validation Sources in air	
	Calibration 1 1000		
Calibration date:	August 16, 2024		
		onal standards, which realize the physical unit obability are given on the following pages and	
All calibrations have been conducte	d in the closed laborator	y facility: environment temperature (22 \pm 3)°C	and humidity < 70%.
Calibration Equipment used (M&TE	critical for calibration)		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91 Power sensor NRP-Z91	SN: 103244 SN: 103245	26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037)	Mar-25 Mar-25
Reference 20 dB Attenuator	SN: BH9394 (20k)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch combination	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25
Probe EF3DV3	SN: 4013	28-Dec-23 (No. EF3-4013_Dec23)	Dec-24
DAE4	SN: 781	16-Feb-24 (No. DAE4-781_Feb24)	Feb-25
	ID #	Check Date (in house)	Scheduled Check
Secondary Standards			In house all all black Of
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Nov-23)	In house check: Nov-24
Power meter Agilent 4419B Power sensor HP E4412A	SN: GB42420191 SN: US38485102	05-Jan-10 (in house check Nov-23)	In house check: Nov-24
Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A	SN: GB42420191 SN: US38485102 SN: US37295597	05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23)	In house check: Nov-24 In house check: Nov-24
Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06	SN: GB42420191 SN: US38485102	05-Jan-10 (in house check Nov-23)	In house check: Nov-24
Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06	SN: GB42420191 SN: US38485102 SN: US37295597 SN: 837633/005	05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23) 10-Jan-19 (in house check Nov-23)	In house check: Nov-24 In house check: Nov-24 In house check: Nov-24
Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06 Network Analyzer Agilent E8358A	SN: GB42420191 SN: US38485102 SN: US37295597 SN: 837633/005 SN: US41080477	05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23) 10-Jan-19 (in house check Nov-23) 31-Mar-14 (in house check Oct-22)	In house check: Nov-24 In house check: Nov-24 In house check: Nov-24 In house check: Oct-24
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Power meter Agilent 4419B Power sensor HP E4412A Power sensor HP 8482A RF generator R&S SMT-06 Network Analyzer Agilent E8358A Calibrated by: Approved by:	SN: GB42420191 SN: US38485102 SN: US37295597 SN: 837633/005 SN: US41080477 Name Leif Klysner	05-Jan-10 (in house check Nov-23) 09-Oct-09 (in house check Nov-23) 10-Jan-19 (in house check Nov-23) 31-Mar-14 (in house check Oct-22) Function Laboratory Technician	In house check: Nov-24 In house check: Nov-24 In house check: Nov-24 In house check: Oct-24 Signature Seif Magaa Source Issued: August 20, 2024











Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 1880 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	88.2 V/m = 38.91 dBV/m
Maximum measured above low end	100 mW input power	87.1 V/m = 38.80 dBV/m
Averaged maximum above arm	100 mW input power	87.7 V/m ± 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
1730 MHz	27.4 dB	54.4 Ω + 0.1 jΩ
1880 MHz	21.6 dB	54.9 Ω + 7.3 jΩ
1900 MHz	22.6 dB	56.6 Ω + 4.3 jΩ
1950 MHz	31.9 dB	52.6 Ω - 0.1 jΩ
2000 MHz	19.8 dB	47.4 Ω + 9.7 jΩ

3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

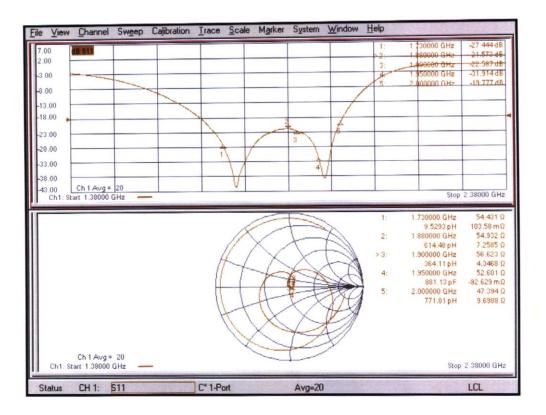
Certificate No: CD1880V3-1018_Aug24

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Impedance Measurement Plot



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DASY5 E-field Result

Date: 16.08.2024

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1018

Communication System: UID 0 - CW ; Frequency: 1880 MHz Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³ Phantom section: RF Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

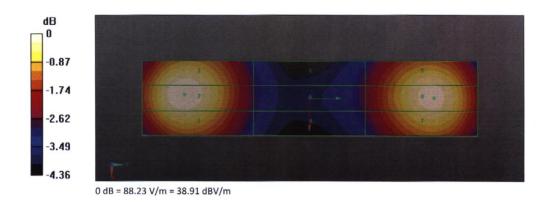
- Probe: EF3DV3 SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 28.12.2023
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 16.02.2024
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole E-Field measurement @ 1880MHz/E-Scan - 1880MHz d=15mm/Hearing Aid Compatibility Test (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm Reference Value = 153.2 V/m; Power Drift = 0.01 dB Applied MIF = 0.00 dB RF audio interference level = 38.91 dBV/m Emission category; M2

MIF scaled E-field

Grid 1 M2	Grid 2 M2	Grid 3 M2
38.59 dBV/m	38.91 dBV/m	38.83 dBV/m
Grid 4 M2	Grid 5 M2	Grid 6 M2
36.14 dBV/m	36.27 dBV/m	36.21 dBV/m
Grid 7 M2	Grid 8 M2	Grid 9 M2
38.59 dBV/m	38.8 dBV/m	38.64 dBV/m



Certificate No: CD1880V3-1018_Aug24

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Dipole 2600 MHz

be Swiss Accreditation Service is one of the signatories to the EA utiliaiteral Agreement for the recognition of calibration certificates lient CTLL Beijing CALIBRATION CERTIFICATE bejert CD2600V3 - SN: 1017 albration procedure(s) QA CAL-20.V7 Calibration Procedure for Validation Sources in air albration procedure(s) QA CAL-20.V7 Calibration Procedure for Validation Sources in air albration date: August 16, 2024 his calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI), the measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. allbration Ray Exercised (MATE critical for calibration) Scheduled Calibration imary Standards D # Calibration Certificate No.) Scheduled Calibration over sensor NRP-291 SN: 104778 26-Mar-24 (No. 217-0406) Mar-25 over sensor NRP-291 SN: 104278 26-Mar-24 (No. 217-0406) Mar-25 ever sensor NRP-291 SN: 104278 26-Mar-24 (No. 217-0406) Mar-25 ever sensor NRP-291 SN: 104278 26-Mar-24 (No. 217-04046) Mar-25 ever sensor NRP-291 SN: 105244 26-Mar-24 (No. 217-04046) Mar	ccredited by the Swiss Accreditat	h, Switzerland	The find with the second second	Servizio svizzero di taratura Swiss Calibration Service Accreditation No.: SCS 0108
Beijing CALIBRATION CERTIFICATE bbjert CD2600V3 - SN: 1017 Calibration Procedure for Validation Sources in air Calibration Certificate documents the traceability to national standards, which realize the physical units of measurements (SI). he measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. alibration Equipment used (M&TE critical for calibration) trimary Standards 10 # Cal Date (Certificate No.) Scheduled Calibration trimary Standards 10 # Cal Date (Certificate No.) Scheduled Calibration trimary Standards 10 # Cal Date (Certificate No.) Scheduled Calibration were sensor NRP-291 SN: 104778 28-Mar-24 (No. 217-04037) Mar-25 Schedule Check Nov-23 (No. 157-40437) Mar-25 SN: 104778 28-Mar-24 (No. 217-04037) Mar-25 SN: 10478 <th>he Swiss Accreditation Service</th> <th>e is one of the signatorie</th> <th></th> <th>Acceleration No.: 505 0100</th>	he Swiss Accreditation Service	e is one of the signatorie		Acceleration No.: 505 0100
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Calibration Laboratory of Schmid & Partner

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizerischer Kalibrierdienst Service suisse d'étalonnage С Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

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Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

References

- ANSI-C63.19-2019 (ANSI-C63.19-2011) [1]
 - American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

Methods Applied and Interpretation of Parameters:

- Coordinate System: y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1], the measurement planes (probe sensor center) are selected to be at a distance of 15 mm above the top metal edge of the dipole arms.
- Measurement Conditions: Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- Antenna Positioning: The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy
- Feed Point Impedance and Return Loss: These parameters are measured using a Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- E-field distribution: E field is measured in the x-y-plane with an isotropic E-field probe with 100 mW forward power to the antenna feed point. In accordance with [1], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 15 mm (in z) above the metal top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any nonparallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, in the plane above the dipole surface.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: CD2600V3-1017_Aug24

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	2600 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 2600 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	85.3 V/m = 38.62 dBV/m
Maximum measured above low end	100 mW input power	84.5 V/m = 38.53 dBV/m
Averaged maximum above arm	100 mW input power	84.9 V/m ± 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
2450 MHz	24.3 dB	44.3 Ω + 1.0 jΩ
2550 MHz	22.1 dB	56.9 Ω + 4.7 jΩ
2600 MHz	20.0 dB	60.5 Ω - 3.5 jΩ
2650 MHz	19.1 dB	55.1 Ω - 10.5 jΩ
2750 MHz	15.7 dB	41.2 Ω - 12.2 jΩ

3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

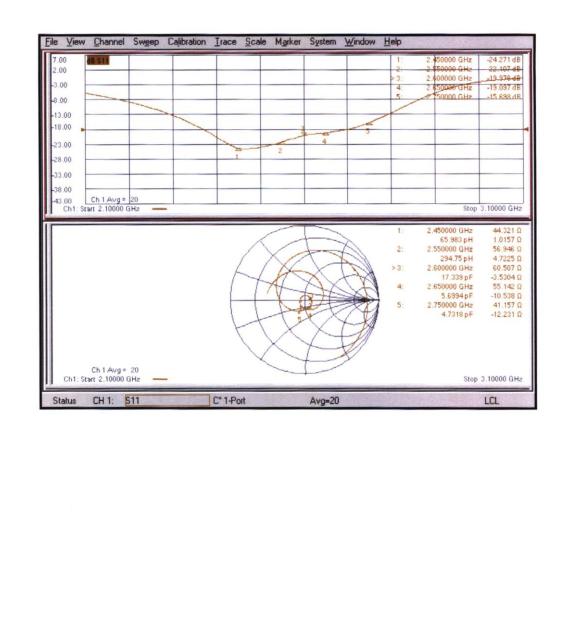
After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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Impedance Measurement Plot







DASY5 E-field Result

Date: 16.08.2024

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 2600 MHz; Type: CD2600V3; Serial: CD2600V3 - SN: 1017

Communication System: UID 0 - CW ; Frequency: 2600 MHz Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m³ Phantom section: RF Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

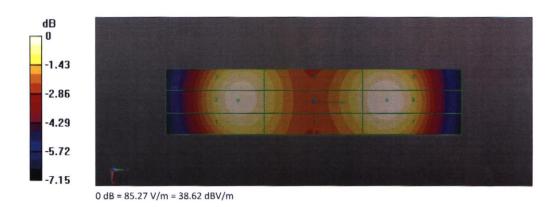
- Probe: EF3DV3 SN4013; ConvF(1, 1, 1) @ 2600 MHz; Calibrated: 28.12.2023
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 16.02.2024
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole E-Field measurement @ 2600MHz/E-Scan - 2600MHz d=15mm/Hearing Aid Compatibility Test (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm Reference Value = 138.7 V/m; Power Drift = -0.00 dB Applied MIF = 0.00 dB RF audio interference level = 38.62 dBV/m Emission category: M2

MIF scaled E-field

Grid 1 M2	Grid 2 M2	Grid 3 M2
38.25 dBV/m	38.53 dBV/m	38.42 dBV/m
Grid 4 M2	Grid 5 M2	Grid 6 M2
37.77 dBV/m	37.97 dBV/m	37.89 dBV/m
Grid 7 M2	Grid 8 M2	Grid 9 M2
38.37 dBV/m	38.62 dBV/m	38.5 dBV/m



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Certificate No: CD2600V3-1017_Aug24

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