APPENDIX G: CALIBRATION CERTIFICATES

Calibration Laboratory of

PC Test

Client

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

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

Certificate No: D750V3-1034_May21

1

Issued: May 12, 2021

CALIBRATION CERTIFICATE

Object	D750V3 - SN:103	34 MARANA AND AND AND AND AND AND AND AND AND	VATU
Calibration procedure(s)	QA CAL-05.v11 Calibration Proce	dure for SAR Validation Sources	V AI M 6 1 2 between 0.7-3 GHz
Calibration date:	May 11, 2021		✓ AT M 12/7/2022 ✓ YW 5/22/2023
		onal standards, which realize the physical unit robability are given on the following pages and	s of measurements (SI).
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22 ± 3)°C	and humidity < 70%.
Calibration Equipment used (M&TE	critical for calibration)		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe EX3DV4	SN: 7349	28-Dec-20 (No. EX3-7349_Dec20)	Dec-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21
	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Techniclan	J.Kthe
Approved by:	Katja Pokovic	Technical Manager	, AUG

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

S

Schweizerischer Kalibrierdienst Service suisse d'étalonnage С

S Swiss Calibration Service

Accreditation No.: SCS 0108

Servizio svizzero di taratura

Calibration Laboratory of

Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst

S Service suisse d'étalonnage С

Servizio svizzero di taratura

S **Swiss Calibration Service**

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)". March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. 0 No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power. ø
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna 6 connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Accreditation No.: SCS 0108

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.6 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.64 W/kg ± 17.0 % (k=2)
	1	
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.41 W/kg

normalized to 1W

5.61 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

SAR for nominal Head TSL parameters

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.8 ± 6 %	0.97 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	8.91 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.48 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	5.88 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.5 Ω - 0.7 jΩ
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.0 Ω - 4.3 jΩ
Return Loss	- 27.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.034 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 11.05.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

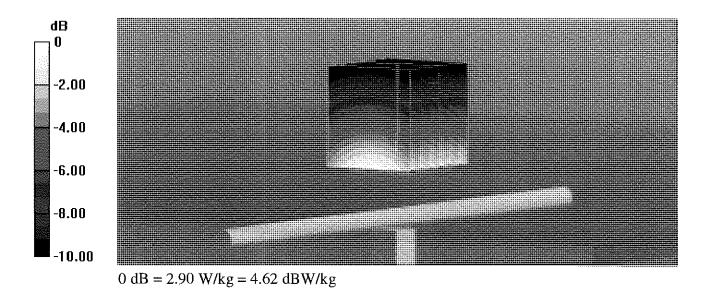
Communication System: UID 0 - CW; Frequency: 750 MHz Medium parameters used: f = 750 MHz; $\sigma = 0.90$ S/m; $\varepsilon_r = 42.6$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(10.11, 10.11, 10.11) @ 750 MHz; Calibrated: 28.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 59.83 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 3.28 W/kg **SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.41 W/kg** Smallest distance from peaks to all points 3 dB below = 18.9 mm Ratio of SAR at M2 to SAR at M1 = 65.8% Maximum value of SAR (measured) = 2.90 W/kg



Impedance Measurement Plot for Head TSL

File	⊻iew	<u>C</u> hannel	Sweep	Calibration	<u>Trace</u> <u>S</u> cal	e M <u>a</u> rker	System	<u>W</u> indow <u>F</u>	leip				
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10.1 5.0 0.0 5.0 -10 -15 -20 -25 -30 -35 -40		88 \$11 	20 VH2 mm					1: 750.		Hz		50.000 MHz	
Sta	atus	CH 1: [511		C* 1-Port		Avg=20 ()elay		ownerser www.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver.weaver	or any decision of the second	LCL	n ovviH

DASY5 Validation Report for Body TSL

Date: 11.05.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1034

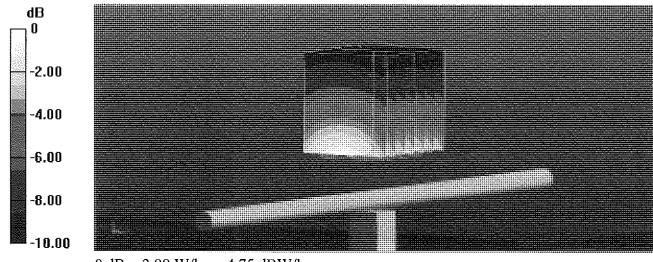
Communication System: UID 0 - CW; Frequency: 750 MHz Medium parameters used: f = 750 MHz; $\sigma = 0.97$ S/m; $\epsilon_r = 55.8$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(10.23, 10.23, 10.23) @ 750 MHz; Calibrated: 28.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 54.93 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 3.38 W/kg SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.48 W/kg Smallest distance from peaks to all points 3 dB below = 16 mm Ratio of SAR at M2 to SAR at M1 = 66.3% Maximum value of SAR (measured) = 2.99 W/kg



0 dB = 2.99 W/kg = 4.75 dBW/kg

Impedance Measurement Plot for Body TSL

File <u>V</u> iew	∙ <u>C</u> hannel	Sw <u>e</u> ep Calibr	ation <u>T</u> race <u>S</u> cale	• M <u>a</u> rker S <u>y</u> stem <u>y</u>	<u>Vindow H</u> elp	
	Ch I Awg = 2	20			: 750.000000 MHz 49.698 pF 50.000000 MHz	
[] Ch1: 9	itart 550.000 M					Stop 350.000 MHz
10,00 5,00 5,00 -10,00 -15,00 -20,00 -25,00 -30,00 -35,00 -40,00 -Ch1: 5	dB \$11				: 750.00000 MHz	-27.400 dB
Status	CH 1: §	11	C* 1-Port	Avg=20 D	elay	LCL



Element Materials Technology Morgan Hill 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.410.290.6652 / Fax +1.410.290.6654 http://www.element.com



Certification of Calibration

Object

D750V3 - SN: 1034

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

May 11, 2022

Extended Calibration date:

Description: SAR Validation Dipole at 750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	12/17/2021	Annual	12/17/2022	MY40000670
Agilent	E4438C	ESG Vector Signal Generator	3/24/2022	Annual	3/24/2023	MY45093678
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Anritsu	ML2495A	Power Meter	3/17/2022	Annual	3/17/2023	0941001
Anritsu	MA2411B	Pulse Power Sensor	3/2/2022	Annual	3/2/2023	1126066
Anritsu	MA2411B	Pulse Power Sensor	3/28/2022	Annual	3/28/2023	1339007
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670633
Agilent	85033E	3.5mm Standard Calibration Kit	7/7/2021	Annual	7/7/2022	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	3/19/2022	Annual	3/19/2023	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/7/2021	Annual	10/7/2022	1045
SPEAG	EX3DV4	SAR Probe	12/10/2021	Annual	12/10/2022	7490
SPEAG EX3DV4		SAR Probe	4/22/2022	Annual	4/22/2023	7532
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/17/2022	Annual	8/17/2023	1683
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	501

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Associate Compliance Engineer	AG
Approved By:	Kaitlin O'Keefe	Managing Director	ROK

Object:	Date Issued:	Page 2 of 5
D750V3 – SN: 1034	05/11/2022	Fage 2 01 5

DIPOLE CALIBRATION EXTENSION

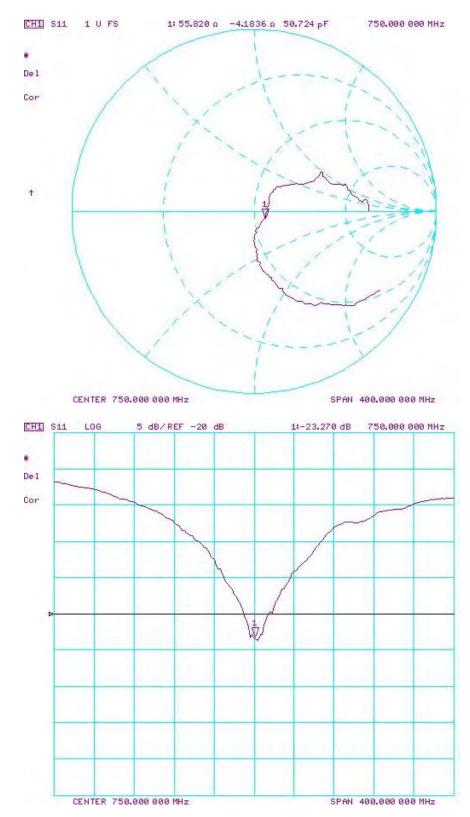
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

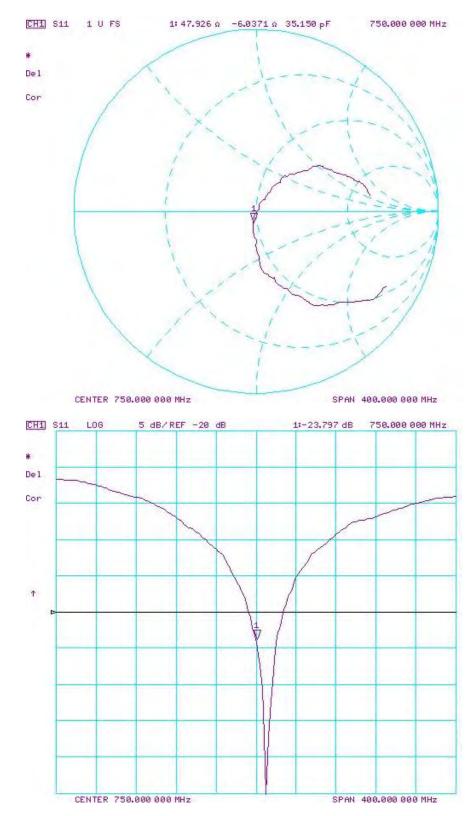
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 23.0 dBm	Measured Head SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 23.0 dBm	Measured Head	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real		Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary		Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/11/2021	5/11/2022	1.034	1.728	1.64	-5.09%	1.122	1.08	-3.74%	54.5	55.8	1.3	-0.7	-4.2	3.5	-27.2	-23.3	14.40%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 23.0 dBm	Measured Body SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/11/2021	5/11/2022	1.034	1.782	1.77	-0.67%	1.176	1.17	-0.51%	50	47.9	2.1	-4.3	-6	1.7	-27.4	-23.8	13.10%	PASS

Object:	Date Issued:	Page 3 of 5
D750V3 – SN: 1034	05/11/2022	Fage 5 01 5



Impedance & Return-Loss Measurement Plot for Head TSL

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Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Page 5 of 5
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Certification of Calibration

Object

D750V3 - SN: 1034

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

May 11, 2023

Extended Calibration date:

Description: SAR Validation Dipole at 750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/14/2022	Annual	6/14/2023	US39170118
Agilent	E4438C	ESG Vector Signal Generator	11/17/2022	Annual	11/17/2023	MY45093852
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Rohde & Schwarz	NRX	Power Meter	1/11/2023	Annual	1/11/2024	102583
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106562
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106559
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774685
Agilent	85033E	3.5mm Standard Calibration Kit	6/21/2022	Annual	6/21/2023	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	12/5/2022	Biennial	12/5/2024	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/16/2022	Annual	5/16/2023	1070
SPEAG	EX3DV4	SAR Probe	2/13/2023	Annual	2/13/2024	7427
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2023	Annual	2/15/2024	1403

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Compliance Engineer I	AC
Approved By:	Greg Snyder	Executive VP of Operations	Sugged Sal

Object:	Date Issued:	Page 1 of 4
D750V3 – SN: 1034	05/11/2023	Fage 1014

DIPOLE CALIBRATION EXTENSION

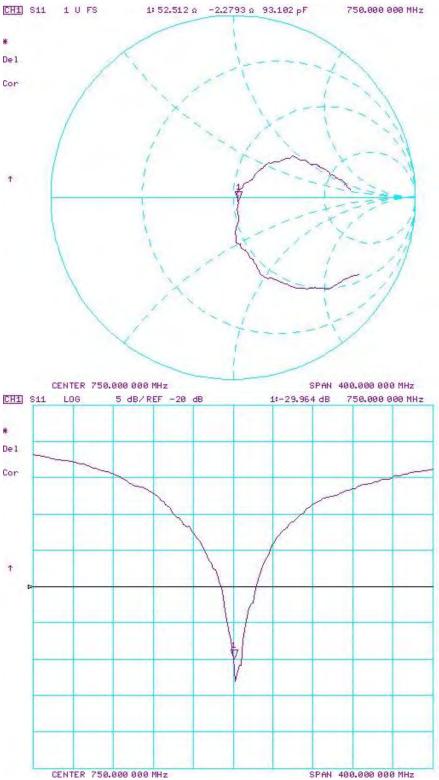
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

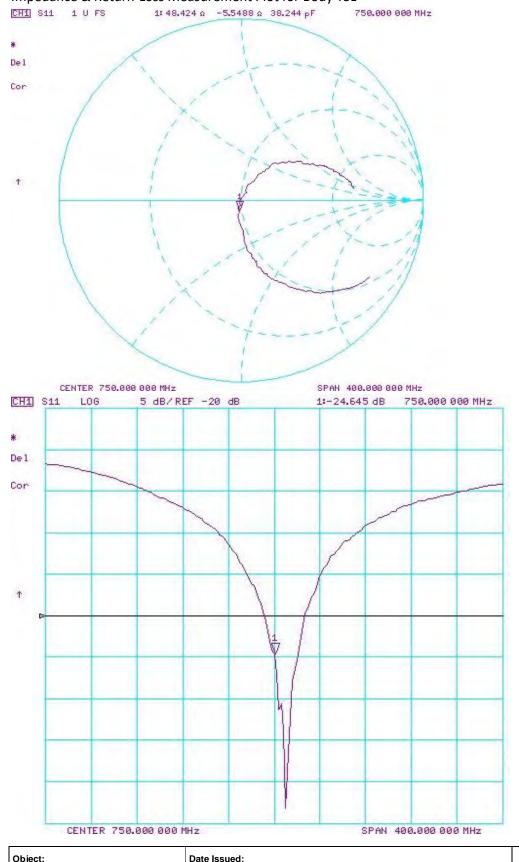
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 23.0 dBm	Measured Head SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 23.0 dBm	Measured Head	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real		Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary		Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/11/2021	5/11/2023	1.034	1.73	1.71	-1.04%	1.12	1.14	1.60%	54.5	52.5	2.0	-0.7	-2.3	1.6	-27.2	-30.0	-10.20%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 23.0 dBm	Measured Body SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/11/2021	5/11/2023	1.034	1.78	1.66	-6.85%	1.18	1.13	-3.91%	50.0	48.4	1.6	-4.3	-5.5	1.2	-27.4	-24.6	10.10%	PASS

Object:	Date Issued:	Page 2 of 4
D750V3 – SN: 1034	05/11/2023	Fage 2 014



Impedance & Return-Loss Measurement Plot for Head TSL

Object:	Date Issued:	Daga 2 of 4
D750V3 – SN: 1034	05/11/2023	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object: Date Issued: Page 4 of 4 D750V3 – SN: 1034 05/11/2023

Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland

Element

Client



Schweizerischer Kalibrierdienst S

- Service suisse d'étalonnage
- С Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

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

Certificate No: D835V2-4d040_May22

CALIBRATION CERTIFICATE

Object	D835V2 - SN:4d040					
Calibration procedure(s)	QA CAL-05.v11 Calibration Proce	dure for SAR Validation Sources	between 0.7-3 GHz			
Calibration date:	May 16, 2022		✓ YW 5/24/2023			
This 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. All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.						
Calibration Equipment used (M&TE	critical for calibration)					
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration			
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23			
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23			
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23			
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23			
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23			
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22			
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23			
Secondary Standards	ID #	Check Date (in house)	Scheduled Check			
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22			
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22			
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	in house check: Oct-22			
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22			
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22			
Collibrated bur	Name	Function	Signature			
Calibrated by:	Aidonia Georgiadou	Laboratory Technician	AZ			
Approved by:	Sven Kühn	Technical Manager	S.L			
This calibration certificate shall not	be reproduced except in	full without written approval of the laboratory	Issued: May 17, 2022			

Calibration Laboratory of

Glossarv

Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland





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Swiss Calibration Service

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

Accreditation No.: SCS 0108

oroooary.	
TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the 0 center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled 8 phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power. ø
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	na Anna Anna Anna Anna Anna Anna Anna A
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.7 ± 6 %	0.92 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	FT 10 10 40	······································

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.50 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.79 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.62 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.38 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	0.97 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.79 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	annitha an
SAR measured	250 mW input power	1.63 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.50 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.8 Ω - 1.6 jΩ
Return Loss	- 34.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.7 Ω - 6.8 jΩ
Return Loss	- 22.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.393 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
· · ·	SFEAG

DASY5 Validation Report for Head TSL

Date: 16.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d040

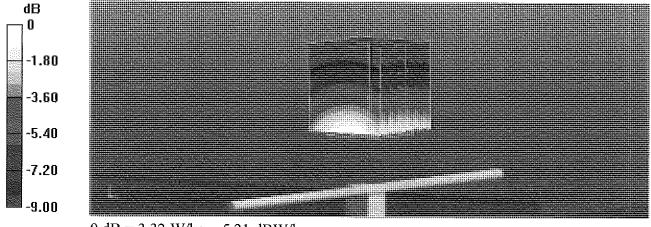
Communication System: UID 0 - CW; Frequency: 835 MHz Medium parameters used: f = 835 MHz; $\sigma = 0.92$ S/m; $\epsilon_r = 40.7$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(9.69, 9.69, 9.69) @ 835 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 63.68 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 3.80 W/kg **SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.62 W/kg** Smallest distance from peaks to all points 3 dB below = 17 mm Ratio of SAR at M2 to SAR at M1 = 65.8% Maximum value of SAR (measured) = 3.32 W/kg



0 dB = 3.32 W/kg = 5.21 dBW/kg

Impedance Measurement Plot for Head TSL

File	Yiew	⊆hannel	Sw <u>e</u> ep	Calibration	Irace	Scale	M <u>a</u> rker	System	<u>W</u> indow	Help			
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	Ch1: Sta	nt 635.000 l	MH2					- -				Stop	1,03500 G Ha
40	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	38 \$11 Ch 1 Avg = rt 635,000 I	MHz							35.00000		Stop -	.867 dB
Sta	atus	CH 1: 💈	511		C* 1-Por	ţ		Avg=20	Delay				LCL

DASY5 Validation Report for Body TSL

Date: 16.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d040

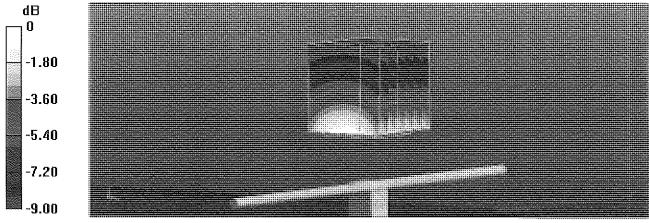
Communication System: UID 0 - CW; Frequency: 835 MHz Medium parameters used: f = 835 MHz; $\sigma = 0.97$ S/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(9.85, 9.85, 9.85) @ 835 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 58.41 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 3.60 W/kg SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.63 W/kg Smallest distance from peaks to all points 3 dB below = 15 mm Ratio of SAR at M2 to SAR at M1 = 68% Maximum value of SAR (measured) = 3.24 W/kg



0 dB = 3.24 W/kg = 5.11 dBW/kg

Impedance Measurement Plot for Body TSL

File	⊻iew	⊆hannel	Sw <u>e</u> ep	Calibration	Irace	<u>S</u> cale	M <u>a</u> rker	System	<u>W</u> indow	Help					
		Ch 1 Avg = rt 635.000 1							X	35.000 2 35.000	19.032	рF	-8 77. -	6.747 C .7995 C 717 mL 111.55 1	
		· · · · · · · · · · · · · · · · · · ·	MIN4										stop	1.03300.054	-
10.0 5.0 -5.0 -10 -15 -20 -25 -20 -25 -25 -20 -25 -20 -25 -20 -25 -20 -25 -20 -25 -20 -25 -25 -20 -25 -25 -25 -25 -25 -25 -25 -25 -25 -25	0 - 00	IR S11 Ch 1 Avg = rt 635.000	√Hг			······································				25,000				2.190 dE	
Sta	atus	CH 1:	511		C* 1-Por	t		Avg=20	Delay	mmesunormes	95191 <i>9433710</i> 47113-1930-1946			LCL	



Element Materials Technology (formerly PCTEST) 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.408.538.5600 http://www.element.com



Certification of Calibration

Object

D835V2 – SN: 4d040

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date: May 16, 2023

Description:

SAR Validation Dipole at 835 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/14/2022	Annual	6/14/2023	US39170118
Agilent	E4438C	ESG Vector Signal Generator	11/17/2022	Annual	11/17/2023	MY45093852
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Rohde & Schwarz	NRX	Power Meter	1/11/2023	Annual	1/11/2024	102583
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106562
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106559
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774685
Agilent	85033E	3.5mm Standard Calibration Kit	6/21/2022	Annual	6/21/2023	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	12/5/2022	Biennial	12/5/2024	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	8/15/2022	Annual	8/15/2023	1041
SPEAG	EX3DV4	SAR Probe	2/13/2023	Annual	2/13/2024	7427
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2023	Annual	2/15/2024	1403

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Compliance Engineer I	AC
Approved By:	Greg Snyder	Executive VP of Operations	Lugo Mal

Object:	Date Issued:	Page 1 of 4
D835V2 – SN: 4d040	05/16/2023	Page 1 of 4

DIPOLE CALIBRATION EXTENSION

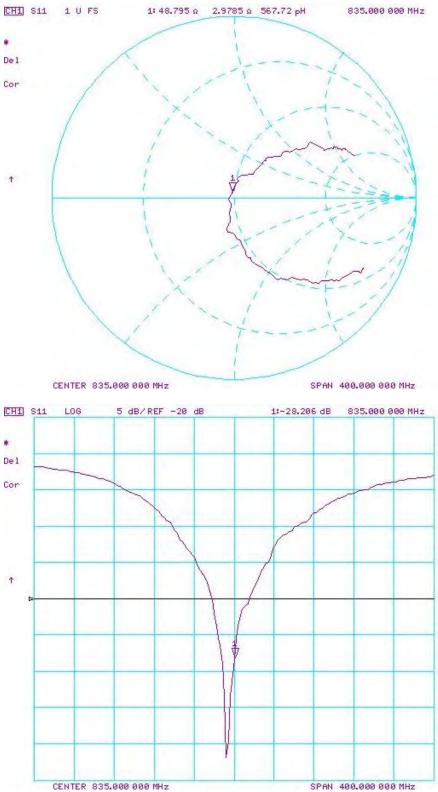
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

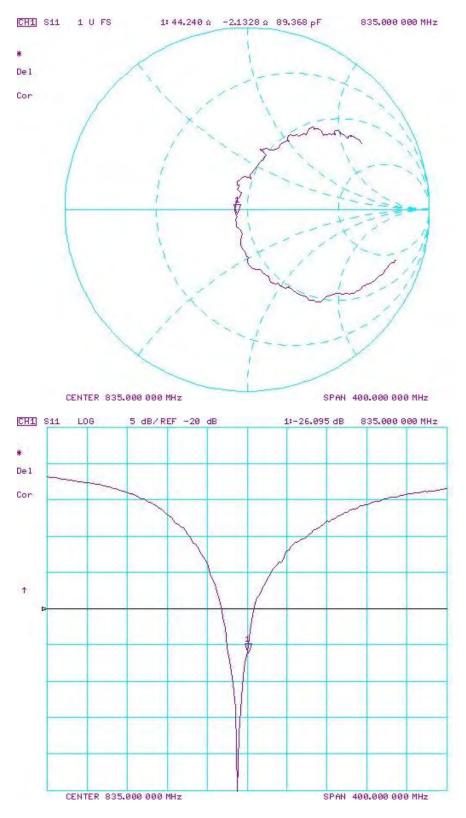
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 23.0 dBm	Measured Head SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 23.0 dBm	Measured Head SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real		Certificate Impedance Head (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/16/2022	5/16/2023	1.393	1.958	1.99	1.63%	1.28	1.31	2.66%	50.8	48.8	2.0	-1.6	3.0	4.6	-34.9	-28.2	19.20%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 23.0 dBm	Measured Body SAR (1g) W/kg @ 23.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 23.0 dBm	Measured Body SAR (10g) W/kg @ 23.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/16/2022	5/16/2023	1.393	1.958	2.00	2.15%	1.30	1.36	4.62%	46.7	44.2	2.5	-6.8	-2.1	4.7	-22.2	-26.1	-17.50%	PASS

Object:	Date Issued:	Page 2 of 4
D835V2 – SN: 4d040	05/16/2023	r age 2 01 4



Impedance & Re	eturn-Loss Measurement P	Plot for Head TSL
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Object:	Date Issued:	Dogo 2 of 4
D835V2 – SN: 4d040	05/16/2023	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Page / of /
D835V2 – SN: 4d040	05/16/2023	Page 4 of 4

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



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- C Service suisse d'étalonnage Servizio svizzero di taratura
- S Swiss Calibration Service

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Accreditation No.: SCS 0108

Client Element

Certificate No: D1900V2-5d131_Nov22

CALIBRATION CERTIFICATE

Object	D1900V2 - SN:50	1131	
Calibration procedure(s)	QA CAL-05.v11 Calibration Proce	dure for SAR Validation Source	s between 0.7-3 GHz
			12/6122
Calibration date:	November 16, 20	22	, - ,
This calibration certificate documer	nts the traceability to natio	onal standards, which realize the physical u	aite of measurements (SI)
		obability are given on the following pages a	
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22 ± 3)°	°C and humidity < 70%.
Calibration Equipment used (M&TE	critical for calibration)		
Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	31-Aug-22 (No. DAE4-601_Aug22)	Aug-23
Secondary Standards	ID#	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-22)	in house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24
	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
			F le

Approved by:

Technical Manager

Issued: November 17, 2022

ς,

Sven Kühn

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





S

Schweizerischer Kalibrierdienst

- C Service suisse d'étalonnage
 - Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.2 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.99 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.1 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 250 mW input power	5.20 W/kg

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.4 ± 6 %	1.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.0 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	40.2 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.0 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.4 Ω + 4.7 jΩ
Return Loss	- 24.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.4 Ω + 6.1 jΩ
Return Loss	- 23.8 dB

General Antenna Parameters and Design

Electrical Dalay (one disection)	
Electrical Delay (one direction)	1.204 ns
, , , , , , , , , , , , , , , , , , , ,	1.201113

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 16.11.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d131

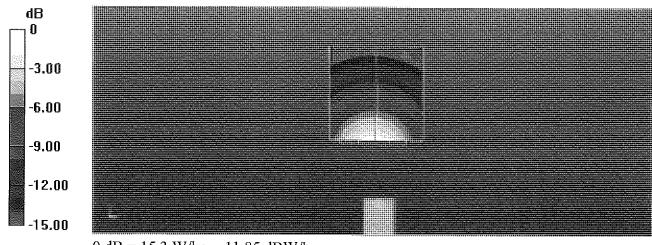
Communication System: UID 0 - CW; Frequency: 1900 MHz Medium parameters used: f = 1900 MHz; $\sigma = 1.38$ S/m; $\varepsilon_r = 39.2$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.43, 8.43, 8.43) @ 1900 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 31.08.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm 2/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 109.5 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 18.5 W/kg SAR(1 g) = 9.99 W/kg; SAR(10 g) = 5.2 W/kg Smallest distance from peaks to all points 3 dB below = 10 mm Ratio of SAR at M2 to SAR at M1 = 55% Maximum value of SAR (measured) = 15.3 W/kg



0 dB = 15.3 W/kg = 11.85 dBW/kg

Impedance Measurement Plot for Head TSL

	⊻iew <u>C</u> hannel	Sw <u>e</u> ep C	alibration	<u>T</u> race <u>S</u> cale	e M <u>a</u> rker	S <u>y</u> stem	<u>W</u> indow	Help		
	Ch 1 Avg ≂	20		A			8	1.900000 GH 396.90 p 1.900000 GH	H 4 Hz 56	i3.449 Ω I.7382 Ω 594 mU 51.323 °
C	Ch1: Start 1.70000					J			Stop	2.10000 GHz
10.00 5.00 0.00 -5.00 -10.0)					> `		1.900000 GH	12 -2	1.945 dB
		······································							And State of	
-15.0 -20.0 -25.0 -30.0 -35.0 -40.0	00 p	20								
-15.0 -20.0 -25.0 -30.0 -35.0 -40.0		GHz							Stop	2.10000 GHz

DASY5 Validation Report for Body TSL

Date: 16.11.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d131

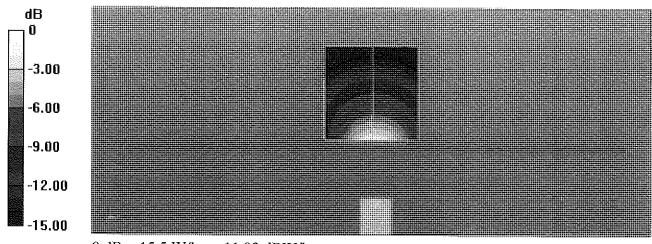
Communication System: UID 0 - CW; Frequency: 1900 MHz Medium parameters used: f = 1900 MHz; $\sigma = 1.51$ S/m; $\varepsilon_r = 52.4$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.42, 8.42, 8.42) @ 1900 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 31.08.2022
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 103.8 V/m; Power Drift = -0.05 dB Peak SAR (extrapolated) = 18.8 W/kg SAR(1 g) = 10.0 W/kg; SAR(10 g) = 5.24 W/kg Smallest distance from peaks to all points 3 dB below = 9.2 mm Ratio of SAR at M2 to SAR at M1 = 54.5% Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg = 11.92 dBW/kg

Impedance Measurement Plot for Body TSL

Eile V	iew <u>C</u> hannel	Sw <u>e</u> ep	Calibration	<u>T</u> race <u>S</u> cale	: Marker	S <u>y</u> stem	Window	Help	
				A				1.900000 GHz 514.00 pH 1.900000 GHz	6.1361 Ω
Ch'	= Ch 1 Avg 1: Start 1.70000	20 GHz			······································		10.000		Stop 2.10000 GHz
10,00 5,00	dB \$11					>	1	1.900000 CHz	-2\$.835 dB
0.00			f						
0.00 -5.00									
-5.00 -10.00 -15.00			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						· · · · · · · · · · · · · · · · · · ·
-5.00 -10.00	je								
-5.00 -10.00 -15.00 -20.00									
-5.00 -10.00 -15.00 -20.00 -25.00 -30.00 -35.00 -40.00	Ch 1 Avg =								Stop 2.10000 GHz

Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizerischer Kalibrierdienst

- S Service suisse d'étalonnage
- С Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

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

Certificate No: D2450V2-750_May22

Element Client

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:75	50	VATM 6/1/22
Calibration procedure(s)	QA CAL-05.v11 Calibration Procee	dure for SAR Validation Sources	- (
			✓ YW 5/22/2023
Calibration date:	May 11, 2022		
This calibration cartificate documen	its the traceshility to notio	nal standarda which rapilita the physical unit	
		nal standards, which realize the physical uni obability are given on the following pages and	
All calibrations have been conducte	d in the closed laboratory	y facility: environment temperature (22 ± 3)°C	c and humidity < 70%.
Calibration Equipment used (M&TE	critical for calibration)		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349 Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23
Secondary Standards	ID#	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22
·	Name	Function	Signature
Calibrated by:	Aidonia Georgiadou	Laboratory Technician	AT2P
Approved by:	Sven Kühn	Technical Manager	SIF

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Issued: May 12, 2022

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst

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Glossary:

wideed g	
TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)". October 2020,
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled 0 phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power. 0
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna 0 connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	***************************************
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.2 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.6 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.20 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.5 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.5 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	50.5 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	23.9 ₩/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.8 Ω + 8.1 jΩ	
Return Loss	- 21.0 dB	

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.8 Ω + 8.7 jΩ
Return Loss	- 21.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.153 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
	J JFLAG

DASY5 Validation Report for Head TSL

Date: 11.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750

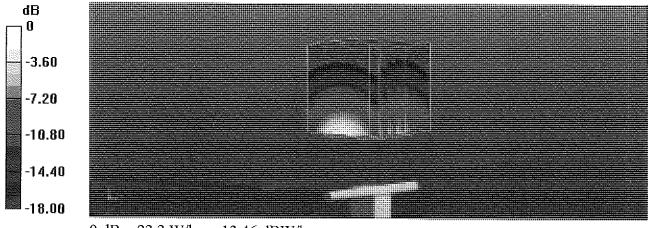
Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; $\sigma = 1.85$ S/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 116.5 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 26.8 W/kg SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.2 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 50% Maximum value of SAR (measured) = 22.2 W/kg



0 dB = 22.2 W/kg = 13.46 dBW/kg

Impedance Measurement Plot for Head TSL

<u>Eile View Channel Swe</u> ep Calibra	on <u>T</u> race <u>S</u> cale Marker System <u>W</u> indow <u>H</u> elp
Ch 1 Avg = 20	1: 2.450000 GHz 54.753 Ω 527.78 pH 8.1248 Ω 2.450000 GHz 89.589 mU 55.235 °
Ch1: Start 2,25000 GHz	Stop 2.65000 GHz
10.00 68 511 5.00 0.00 5.00	> 1: 2.450000 CHz -20.955 dB
10.00 15.00 20.00	
-25.00 30.00 -35.00	
40.00 Ch 1 Avg = 20 Ch 1: Start 2.25000 GHz	Stop 2.65000 GHz
Status CH 1: S11	C [*] 1-Poit Avg=20 Delay

DASY5 Validation Report for Body TSL

Date: 11.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:750

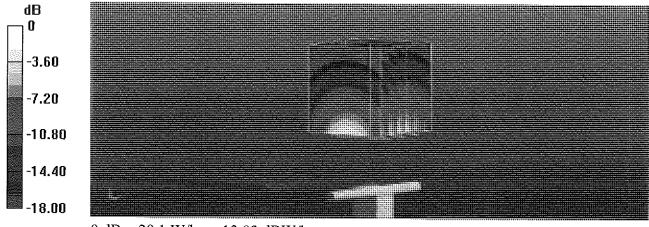
Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; $\sigma = 2.02$ S/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.12, 8.12, 8.12) @ 2450 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 106.7 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 24.3 W/kg SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.04 W/kg Smallest distance from peaks to all points 3 dB below = 8.9 mm Ratio of SAR at M2 to SAR at M1 = 54% Maximum value of SAR (measured) = 20.1 W/kg



0 dB = 20.1 W/kg = 13.03 dBW/kg

Impedance Measurement Plot for Body TSL

		A	XXX		1	2.450000 562.1 2.450000	9 pH	85.	i0,764).6542 .904 m 80.04)
Ch 1 Avg = h1: Start 2.25000			·····					Stop	2.65000 0
	 			.> 1	2	.450000 (<u>GHz</u>	-2	.320 c
)				> 1	2	450000 (-2	.320 (



Element Materials Technology Morgan Hill 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.410.290.6652 / Fax +1.410.290.6654 http://www.element.com



Certification of Calibration

Object

D2450V2 - SN: 750

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extended Calibration date:

May 11, 2023

Description:

SAR Validation Dipole at 2450 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/14/2022	Annual	6/14/2023	US39170118
Agilent	E4438C	ESG Vector Signal Generator	11/17/2022	Annual	11/17/2023	MY45093852
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Rohde & Schwarz	NRX	Power Meter	1/11/2023	Annual	1/11/2024	102583
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106562
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106559
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774685
Agilent	85033E	3.5mm Standard Calibration Kit	6/21/2022	Annual	6/21/2023	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	0 Torque Wrench		Biennial	12/5/2024	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit		Annual	8/15/2023	1041
SPEAG	EX3DV4	SAR Probe	2/13/2023	Annual	2/13/2024	7427
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2023	Annual	2/15/2024	1403

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Compliance Engineer I	AC
Approved By:	Greg Snyder	Executive VP of Operations	Lugo Mark

Object:	Date Issued:	Page 1 of 4
D2450V2 – SN: 750	05/11/2023	Page 1 of 4

DIPOLE CALIBRATION EXTENSION

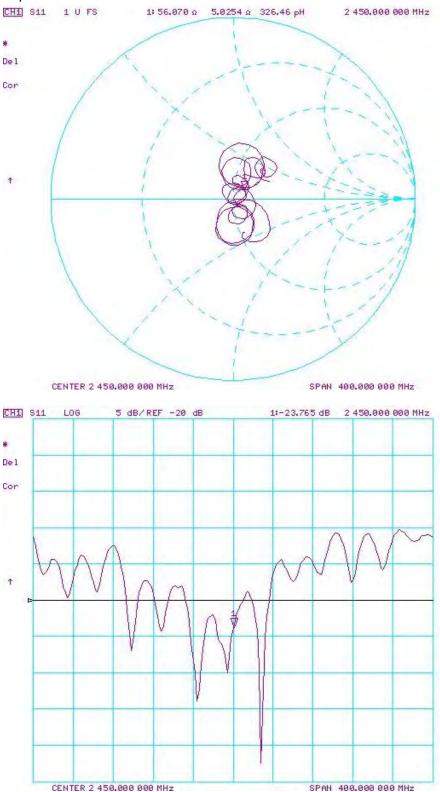
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

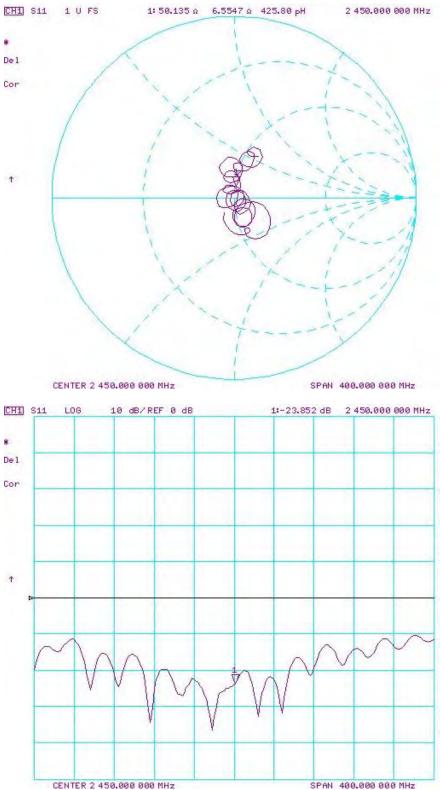
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real		Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary		Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/11/2022	5/11/2023	1.153	5.26	4.89	-7.03%	2.45	2.28	-6.94%	54.8	56.1	1.3	8.1	5	3.1	-21	-23.8	-13.20%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/11/2022	5/11/2023	1.153	5.05	4.76	-5.74%	2.39	2.26	-5.44%	50.8	50.1	0.7	8.7	6.6	2.1	-21.3	-23.9	-12.00%	PASS

Object:	Date Issued:	Page 2 of 4
D2450V2 – SN: 750	05/11/2023	Page 2 of 4



Impedance	ce &	Retu	rn-Loss Measu	irement F	Plot for	Head TS	L
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Object:	Date Issued:	Page 3 of 4
D2450V2 – SN: 750	05/11/2023	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Page 4 of 4	
D2450V2 – SN: 750	05/11/2023	Page 4 of 4	

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Certificate No: D2600V2-1042_May22

Accreditation No.: SCS 0108

Element Client

ALIBRATION CERTIFICATE C

Object	D2600V2 - SN:10	042	VATM
Calibration procedure(s)	QA CAL-05.v11 Calibration Proce	dure for SAR Validation Sources	s between 0.7-3 GHz
Calibration date:	May 11, 2022		✓ YW 5/22/2023
		onal standards, which realize the physical uni obability are given on the following pages an	
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22 ± 3)°C	C and humidity < 70%.
Calibration Equipment used (M&TE	E critical for calibration)		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22
	Name	Function	Signature
Calibrated by:	Aldonia Georgladou	Laboratory Technician	AIZ7
Approved by:	Sven Kühn	Technical Manager	
rippidecu by.		rechnical Manager	Ser
			lssued: May 12, 2022
This calibration certificate shall not	be reproduced except in	full without written approval of the laboratory.	

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Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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Servizio svizzero di taratura

S Swiss Calibration Service

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

Glossarv:

tissue simulating liquid
sensitivity in TSL / NORM x,y,z
not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

c) DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled 8 phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power. 0
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Accreditation No.: SCS 0108

Measurement Conditions

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.6 ± 6 %	2.02 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm 3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	55.8 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.9 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.1 ± 6 %	2.20 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.6 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	53.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	24.0 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.5 Ω - 8.9 jΩ
Return Loss	- 20.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.2 Ω - 7.2 jΩ	
Return Loss	- 20.2 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

- 1		
	Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 11.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1042

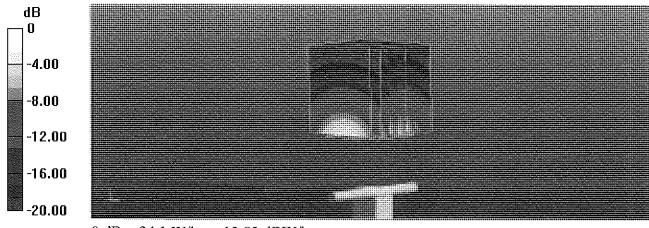
Communication System: UID 0 - CW; Frequency: 2600 MHz Medium parameters used: f = 2600 MHz; $\sigma = 2.02$ S/m; $\epsilon_r = 37.6$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.84, 7.84, 7.84) @ 2600 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 117.1 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 28.9 W/kg **SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.3 W/kg** Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 49.3% Maximum value of SAR (measured) = 24.1 W/kg



0 dB = 24.1 W/kg = 13.83 dBW/kg

Impedance Measurement Plot for Head TSL

File	<u>⊻</u> iew	⊆hannel	Sweep	Calibration	<u>Trace</u> 5	cale	M <u>a</u> rker	S <u>y</u> stem	<u>W</u> indow (<u>t</u> elp				
		Ch 1 Avg =	20		K				A	.600000 (6.911) .600000 (3 pF	-8. 94.0	7.483 Ω 8584 Ω 362 mU 00.67 °	
	Ch1: Sta	at 2.40000						.j				Stop 2	.80000 GHa	2
10.(5.0 -5.0 -5.0 -10. -15. -20. -25.	0 - 0 - 10 - 00 - 00 -							>	1: 2			-20.	532 dB	Sector Sect
-30. -35. -40	.00 .09 .00	<u>Ch 1 Avg =</u> nt 2.48000 (20 3Hz									Stop 2	.80000 GHz	
Sta	itus	CH 1: §	311		C* 1-Port		and the second	Avg=20	Delay				LCL	<u>البريمينييني</u>

DASY5 Validation Report for Body TSL

Date: 11.05.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1042

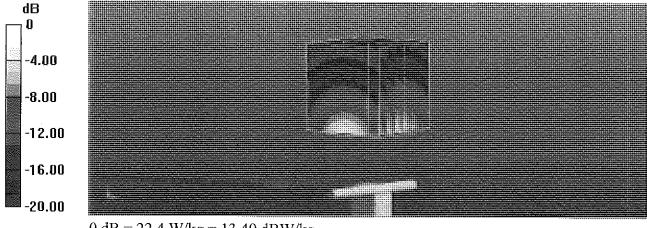
Communication System: UID 0 - CW; Frequency: 2600 MHz Medium parameters used: f = 2600 MHz; $\sigma = 2.2$ S/m; $\epsilon_r = 51.1$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.91, 7.91, 7.91) @ 2600 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.05.2022
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 107.5 V/m; Power Drift = -0.07 dB Peak SAR (extrapolated) = 27.0 W/kg SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.04 W/kg Smallest distance from peaks to all points 3 dB below = 8.5 mm Ratio of SAR at M2 to SAR at M1 = 50.9% Maximum value of SAR (measured) = 22.4 W/kg



0 dB = 22.4 W/kg = 13.49 dBW/kg

Impedance Measurement Plot for Body TSL

<u>File Yiew</u>	<u>⊂</u> hannel	Sw <u>e</u> ep C	ajibration]	[race <u>S</u> cale	e M <u>a</u> rker	System <u>W</u>	indow <u>H</u> e	elp		
					XXX			600000 G 8.4441 600000 G	рF	44.240 Ω -7.2493 Ω 7.962 mU -124.07 °
Ch1:S	Ch 1 Avg ≈ tart 2.40000 0				~~~ <u>~</u>		-		Sto	op 2,80000 GHz
10.00 5.00 0.00	dB \$11					>	2.6	00000 G	Hz -	20.179 dB
-5.00 -10.00 -15.00 -20.00			w							
-25.00 -30.00										
35.00 40.00 Ch1: \$	Ch 1 Avg = tart 2.40000 C						~		Ste	p 2.80000 GHz
Status	CH 1: [5	11	C	* 1-Port		Avg=20 Del	ay			LCL



Element Materials Technology Morgan Hill 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.410.290.6652 / Fax +1.410.290.6654 http://www.element.com



Certification of Calibration

Object

D2600V2 - SN: 1042

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

May 11, 2023

Extended Calibration date:

Description: SAR Validation Dipole at 2600 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/14/2022	Annual	6/14/2023	US39170118
Agilent	E4438C	ESG Vector Signal Generator	11/17/2022	Annual	11/17/2023	MY45093852
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Rohde & Schwarz	NRX	Power Meter	1/11/2023	Annual	1/11/2024	102583
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106562
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	5/19/2022	Annual	5/19/2023	106559
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774685
Agilent	85033E	3.5mm Standard Calibration Kit	6/21/2022	Annual	6/21/2023	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	12/5/2022	Biennial	12/5/2024	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	8/15/2022	Annual	8/15/2023	1041
SPEAG	EX3DV4	SAR Probe	2/13/2023	Annual	2/13/2024	7427
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2023	Annual	2/15/2024	1403

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Compliance Engineer I	AC
Approved By:	Greg Snyder	Executive VP of Operations	Sugged Sol

Object:	Date Issued:	Dage 1 of 4
D2600V2 – SN: 1042	05/11/2023	Page 1 of 4

DIPOLE CALIBRATION EXTENSION

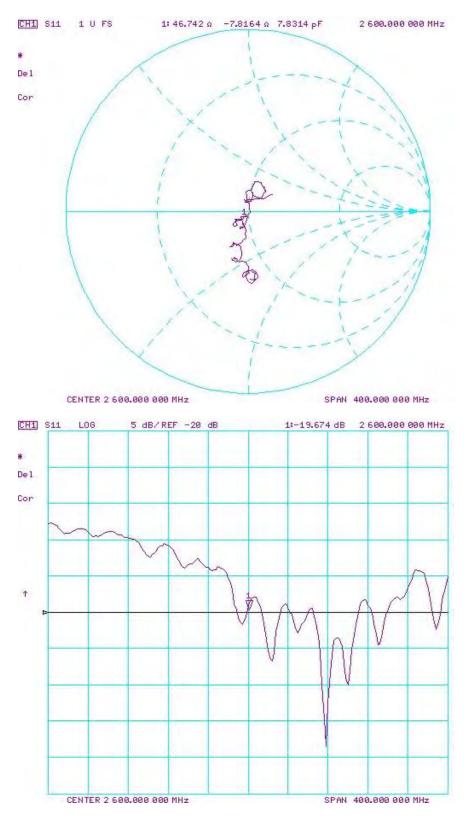
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

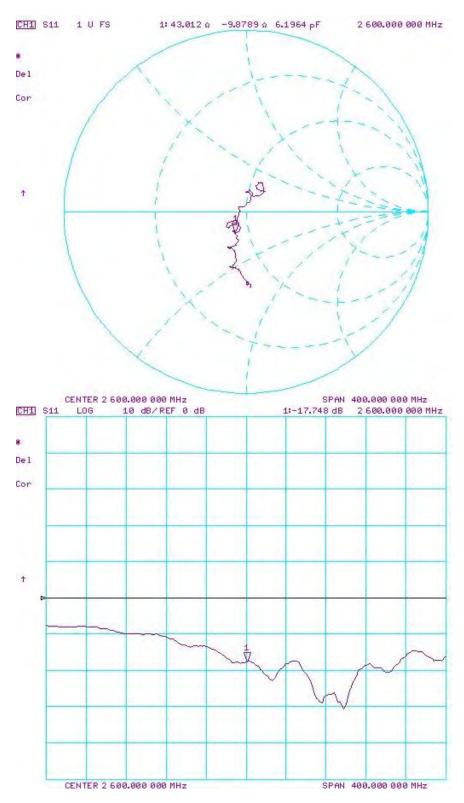
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5/11/2022	5/11/2023	1.15	5.58	5.63	0.90%	2.49	2.52	1.20%	47.5	46.7	0.8	-8.9	-7.8	1.1	-20.5	-19.7	4.00%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5/11/2022	5/11/2023	1.15	5.37	5.53	2.98%	2.4	2.54	5.83%	44.2	43	1.2	-7.2	-9.9	2.7	-20.2	-17.7	12.10%	PASS

Object:	Date Issued:	Page 2 of 4
D2600V2 – SN: 1042	05/11/2023	raye z 014



Impedance & Return-Loss Measurement Plot for Head TSL

Object:	Date Issued:	Page 3 of 4
D2600V2 – SN: 1042	05/11/2023	Page 5 01 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Daga 4 of 4
D2600V2 – SN: 1042	05/11/2023	Page 4 of 4

Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland

PC Test

Client



Schweizerischer Kalibrierdienst S

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- С Servizio svizzero di taratura

Accreditation No.: SCS 0108

S Swiss Calibration Service

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

Certificate No: D3700V2-1097_Jun21

CALIBRATION CERTIFICATE

Object	D3700V2 - SN:10	997	VATA
Calibration procedure(s)	OA CAL-22.46 Calbraton Pros	dure for SAR Validation Sources	19131
			, ATM
Calibration date:	June 09, 2021		6/9/2022
	•	onal standards, which realize the physical un obability are given on the following pages ar	
All calibrations have been conducto	ed in the closed laborator	y facility: environment temperature (22 ± 3)°(C and humidity < 70%.
Calibration Equipment used (M&TE	E critical for calibration)		
Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22
Reference Probe EX3DV4	SN: 3503	30-Dec-20 (No. EX3-3503_Dec20)	Dec-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check; Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	in house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22
	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	Milleser
Approved by:	Katja Pokovic	Technical Manager	fllly
This calibration certificate shall not	be reproduced except in	full without written approval of the laboratory	Issued: June 10, 2021

Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





S

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Swiss Calibration Service

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

Glossary:

tissue simulating liquid
sensitivity in TSL / NORM x,y,z
not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

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%.

Accreditation No.: SCS 0108

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3700 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.7	3.12 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.9 ± 6 %	3.08 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	68.1 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm^3 (10 g) of Head TSI	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 100 mW input power	2.46 W/kg

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	51.0	3.55 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.3 ± 6 %	3.50 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	6.20 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	62.3 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.2 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.3 Ω + 0.9 jΩ
Return Loss	- 30.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.6 Ω + 1.8 jΩ
Return Loss	- 26.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.132 ns
,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1.132 IIS

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
	SPEAG

DASY5 Validation Report for Head TSL

Date: 09.06.2021

Test Laboratory: SPEAG, Zurich, Switzerland

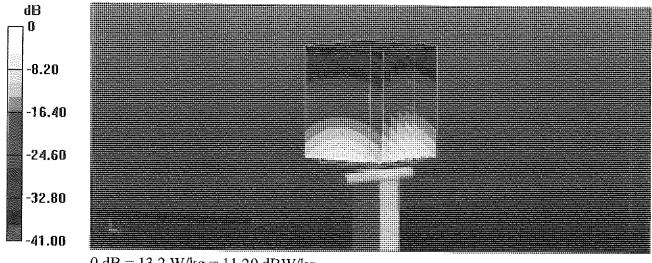
DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 - SN:1097

Communication System: UID 0 - CW; Frequency: 3700 MHz Medium parameters used: f = 3700 MHz; $\sigma = 3.08$ S/m; $\epsilon_r = 36.9$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.73, 7.73, 7.73) @ 3700 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3700MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 72.08 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 19.5 W/kg SAR(1 g) = 6.82 W/kg; SAR(10 g) = 2.46 W/kg Smallest distance from peaks to all points 3 dB below = 8 mm Ratio of SAR at M2 to SAR at M1 = 73.7% Maximum value of SAR (measured) = 13.2 W/kg



0 dB = 13.2 W/kg = 11.20 dBW/kg

File	⊻iew	⊆hannel	Sw <u>e</u> ep	Calibration	<u>T</u> race <u>S</u> cale	Marker	System	<u>W</u> indow	Help				
	Ch1: Sra	Ch 1 Avg ≃ rt 3.50000	20 GHz						37	00 GHz .086 pH 00 GHz	86 : 29	17.275 Ω 2.16 mΩ .386 mU 161.94 °	19
Ľ											Stop	3.90000 GHz	
10.0 5.0 -5.0 -10, -15, -20, -25, -30, -35, -40,	0 - 00 - 00 - 00 - 00 - 00 - 00 - 00 -	E \$11	20						3.7000	00 (Hz	-31	0.637 dB	
	oo L Ch1: Sta	<u>ca 1 Avg -</u> rt 3.50000 (<u>120</u> 3Hz	~ !	<u> </u>						Stop	3.90000 GHz	
Sta	tus	СН 1: 🔅	311		C* 1-Port		Avg=20	Delay				LCL	=1

DASY5 Validation Report for Body TSL

Date: 09.06.2021

Test Laboratory: SPEAG, Zurich, Switzerland

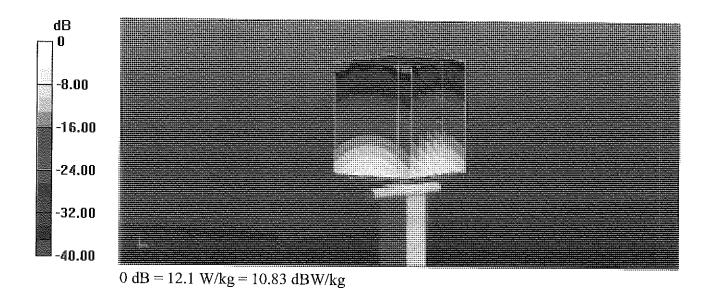
DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 - SN: 1097

Communication System: UID 0 - CW; Frequency: 3700 MHz Medium parameters used: f = 3700 MHz; $\sigma = 3.5$ S/m; $\epsilon_r = 51.3$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.31, 7.31, 7.31) @ 3700 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Body Tissue/Pin=100 mW, d=10mm, f=3700MHz/Zoom Scan , dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 64.18 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 17.1 W/kg SAR(1 g) = 6.2 W/kg; SAR(10 g) = 2.22 W/kg Smallest distance from peaks to all points 3 dB below = 8 mm Ratio of SAR at M2 to SAR at M1 = 74.7% Maximum value of SAR (measured) = 12.1 W/kg



Impedance Measurement Plot for Body TSL

Eile	⊻iew	⊆hannel	Sw <u>e</u> ep	Calibration	Trace	Scale	M <u>a</u> rker	System	<u>W</u> indow	Help			
		Ch 1 Avg =	20						A	3.700000 (77.284 3.700000 (i pH	45.616 C 1.7967 C 49.539 mU 156.64 *	
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	. 17	Mildow Barris			- 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 199								2
10.0 5.00 -5.00 -10.0 -15.0 -20.0 -25.0 -30.0 -35.0)									3.700000 (Hz	-26.101 dB	
5.00 0.00 -5.00 -10.0 -15.0 -25.0 -25.0 -30.0 -35.0 -40.0)	Ch 1 Avg =	20				······································			3.700000 (-26.101 dB	
5.00 0.00 -5.00 -10.0 -15.0 -25.0 -25.0 -30.0 -35.0 -40.0)	<u>Ch 1 Avg =</u> rt 3.50000 G	20 6Hz		C* 1-Port			> 					



Element Materials Technology Morgan Hill 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.410.290.6652 / Fax +1.410.290.6654 http://www.element.com



Certification of Calibration

Object

D3700V2 - SN: 1097

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

June 09, 2022

Extended Calibration date:

Description: SAR Validation Dipole at 3700 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	12/17/2021	Annual	12/17/2022	MY40000670
Agilent	E4438C	ESG Vector Signal Generator	3/24/2022	Annual	3/24/2023	MY45093678
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Anritsu	ML2495A	Power Meter	3/17/2022	Annual 3/17/2023		0941001
Anritsu	MA2411B	Pulse Power Sensor	3/2/2022	Annual	3/2/2023	1126066
Anritsu	MA2411B	Pulse Power Sensor	3/28/2022	Annual	3/28/2023	1339007
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670633
Agilent	85033E	3.5mm Standard Calibration Kit		Annual	7/7/2022	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz		N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)		N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench		Annual	3/19/2023	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit		Annual	10/7/2022	1045
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7639
SPEAG	EX3DV4	SAR Probe	4/22/2022	Annual	4/22/2023	7532
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2021	Annual	11/11/2022	1646
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	501

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Parker Jones	Department Manager	Parker Jones
Approved By:	Kaitlin O'Keefe	Managing Director	ROK

DIPOLE CALIBRATION EXTENSION

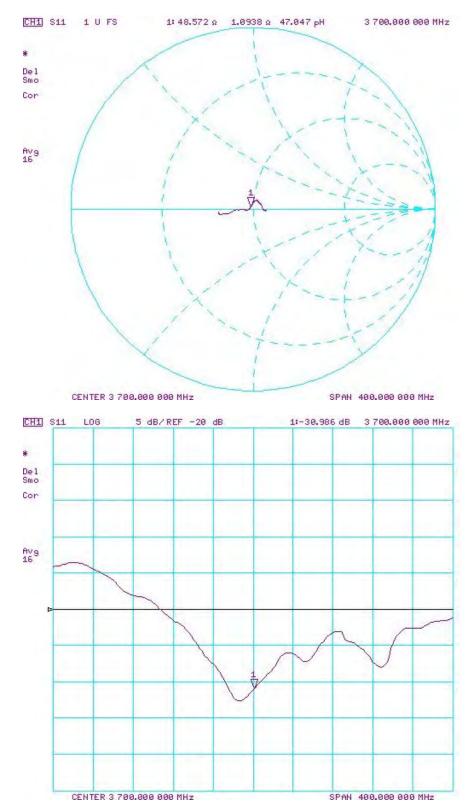
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

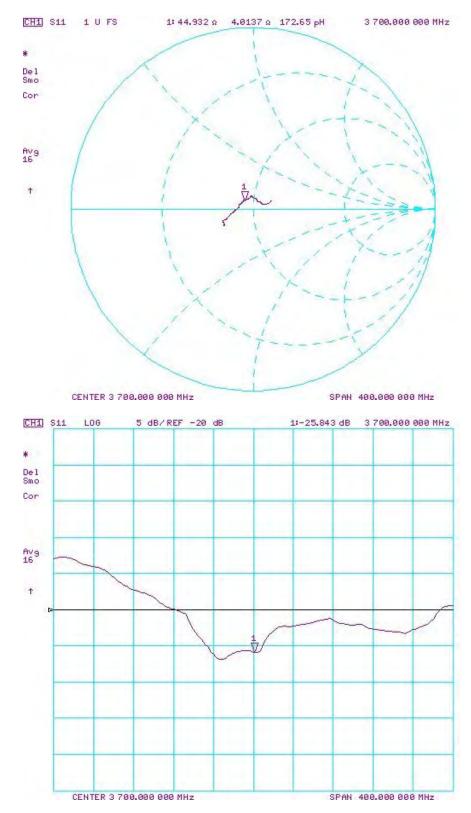
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real			Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)			PASS/FAIL
6/9/2021	6/9/2022	1.132	6.81	6.54	-3.96%	2.45	2.4	-2.04%	47.3	48.6	1.3	0.9	1.1	0.2	-30.6	-31	-1.30%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 20.0 dBm	Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm	Measured Body SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)			PASS/FAIL
6/9/2021	6/9/2022	1.132	6.23	6.57	5.46%	2.22	2.37	6.76%	45.6	44.9	0.7	1.8	4	2.2	-26.1	-25.8	1.10%	PASS

Object:	Date Issued:	Daga 2 of 4	
D3700V2 – SN: 1097	06/09/2022	Page 2 of 4	



Impedance & Return-Loss Measurement Plot for Head TSL

Object:	Date Issued:	Dogo 2 of 4
D3700V2 – SN: 1097	06/09/2022	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Page 4 of 4	
D3700V2 – SN: 1097	06/09/2022	Faye 4 01 4	



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(formerly PCTEST) 18855 Adams Ct, Morgan Hill, CA 95037 USA Tel. +1.408.538.5600 http://www.element.com



Certification of Calibration

Object

D3700V2 – SN: 1097

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extension Calibration date: June 09, 2023

Description:

SAR Validation Dipole at 3700 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	6/14/2022	Annual	6/14/2023	US39170118
Agilent	E4438C	ESG Vector Signal Generator	11/17/2022	Annual	11/17/2023	MY45093852
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Rohde & Schwarz	NRX	Power Meter	1/11/2023	Annual	1/11/2024	102583
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	1/19/2023	Annual	1/19/2024	106563
Rohde & Schwarz	NRP-Z81	Wide Band Power Sensor	1/11/2023	Annual	1/11/2024	106564
Traceable	4040 90080-06	Therm./ Clock/ Humidity Monitor	5/11/2022	Biennial	5/11/2024	221514974
Control Company	4353	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774685
Agilent	85033E	3.5mm Standard Calibration Kit	6/21/2022	Annual	6/21/2023	MY53402352
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	12/5/2022	Biennial	12/5/2024	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	8/15/2022	Annual	8/15/2023	1041
SPEAG	EX3DV4	SAR Probe	1/17/2023	Annual	1/17/2024	3837
SPEAG	EX3DV4	SAR Probe	12/9/2022	Annual	12/9/2023	7490
SPEAG	DAE4	Dasy Data Acquisition Electronics	12/13/2022	Annual	12/13/2023	1644
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/17/2023	Annual	1/17/2024	793

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Arturo Oliveros	Compliance Engineer	AC
Approved By:	Greg Snyder	Executive VP of Operations	Lugo del

Object:	Date Issued:	Page 1 of 4
D3700V2 – SN: 1097	06/09/2023	Page 1 of 4

DIPOLE CALIBRATION EXTENSION

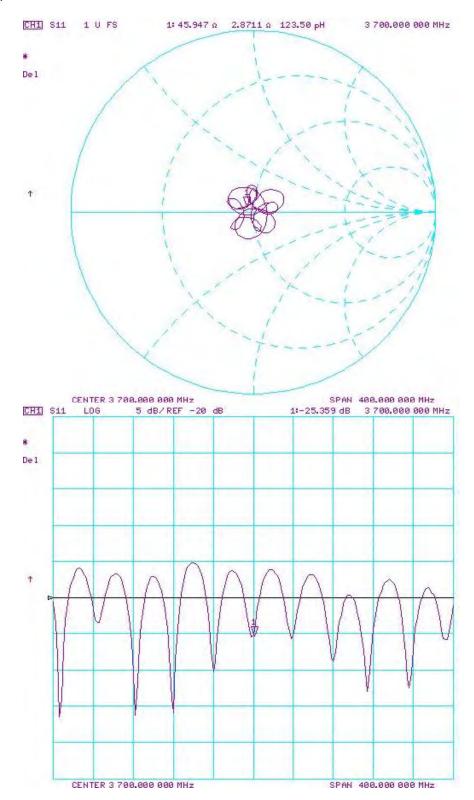
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

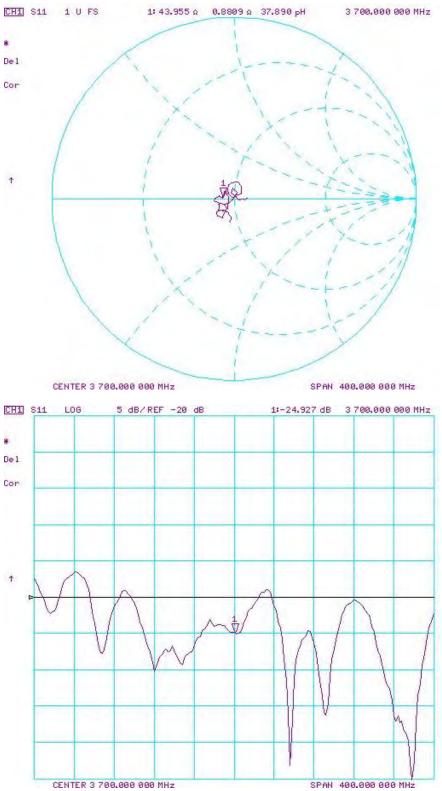
Calibration Date	Extension Date	Certificate Electrical Delay (ns)		Measured Head SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)		Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
6/9/2021	6/9/2023	1.132	6.81	6.62	-2.79%	2.45	2.45	0.00%	47.3	46	1.3	0.9	2.9	2	-30.6	-25.4	17.10%	PASS
Calibration Date	Extension Date	Certificate Electrical Delay (ns)		Measured Body SAR (1g) W/kg @ 20.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 20.0 dBm		Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
6/9/2021	6/9/2023	1.132	6.23	6.04	-3.05%	2.22	2.19	-1.35%	45.6	44	1.6	1.8	0.9	0.9	-26.1	-24.9	4.50%	PASS

Object:	Date Issued:	Page 2 of 4
D3700V2 – SN: 1097	06/09/2023	Fage 2 014



Impedance & Return-Loss Measurement Plot for Head TSL

Object:	Date Issued:	Daga 2 of 4
D3700V2 – SN: 1097	06/09/2023	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL

Object:	Date Issued:	Dogo 4 of 4
D3700V2 – SN: 1097	06/09/2023	Page 4 of 4

Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizerischer Kalibrierdienst S

- Service suisse d'étalonnage
- С Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

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

Certificate No: D3900V2-1073_Jun21

PC Test CALIDDATION CEDTIEICATE

Client

CALIBRATION C	EKTIFICATE							
Object	D3900V2 - SN:10	73	BN 06-11-22					
Calibration procedure(s)	QA CAL-22.v6 Calibration Procedure for SAR Validation Sources between 3-10 GHz							
Calibration date:	June 10, 2021		BN106-15-21 PN18-21-23					
		nal standards, which realize the physical uni obability are given on the following pages an	ts of measurements (SI).					
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22 \pm 3)°C	2 and humidity < 70%.					
Calibration Equipment used (M&TE	critical for calibration)							
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration					
Power meter NRP	SN: 104778	09-Apr-21 (No. 217-03291/03292)	Apr-22					
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22					
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22					
Reference 20 dB Attenuator	SN: BH9394 (20k)	09-Apr-21 (No. 217-03343)	Apr-22					
Type-N mismatch combination	SN: 310982 / 06327	09-Apr-21 (No. 217-03344)	Apr-22					
Reference Probe EX3DV4	SN: 3503	30-Dec-20 (No. EX3-3503_Dec20)	Dec-21					
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21					
Secondary Standards	ID #	Check Date (in house)	Scheduled Check					
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22					
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22					
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22					
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22					
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21					
	Name	Function	Signature					
Calibrated by:	Michael Weber	Laboratory Technician	111161					
			M.10x					
Approved by:	Katja Pokovic	Technical Manager	M.M.S.					
This calibration certificate shall not	be reproduced except in	full without written approval of the laboratory.	Issued: June 10, 2021					

Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst S

Service suisse d'étalonnage

С Servizio svizzero di taratura

S **Swiss Calibration Service**

Accreditation No.: SCS 0108

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed 0 point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole 6 positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. 0 No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power. 0
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna 6 connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the 0 nominal SAR result.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3900 MHz ± 1 MHz 4100 MHz ± 1 MHz	

Head TSL parameters at 3900 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.5	3.32 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.6 ± 6 %	3.25 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		11. 15 10 10

SAR result with Head TSL at 3900 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.98 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	69.7 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.42 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.0 W/kg ± 19.5 % (k=2)

Head TSL parameters at 4100 MHz The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.2	3.53 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.4 ± 6 %	3.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL at 4100 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.85 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	68.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.5 W/kg ± 19.5 % (k=2)

Body TSL parameters at 3900 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	50.8	3.78 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.0 ± 6 %	3.73 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL at 3900 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	6.41 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	64.3 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR averaged over 10 cm ³ (10 g) of Body TSL SAR measured	condition 100 mW input power	2.20 W/kg

Body TSL parameters at 4100 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	50.5	4.01 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.7 ± 6 %	3.98 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL at 4100 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	6.33 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	63.4 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.6 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 3900 MHz

Impedance, transformed to feed point	46.5 Ω - 3.9 jΩ
Return Loss	- 25.2 dB

Antenna Parameters with Head TSL at 4100 MHz

Impedance, transformed to feed point	59.2 Ω + 3.1 jΩ
Return Loss	- 21.0 dB

Antenna Parameters with Body TSL at 3900 MHz

Impedance, transformed to feed point	46.1 Ω - 3.0 jΩ
Return Loss	- 25.8 dB

Antenna Parameters with Body TSL at 4100 MHz

Impedance, transformed to feed point	58.7 Ω + 4.7 jΩ
Return Loss	- 20.9 dB

General Antenna Parameters and Design

	Electrical Delay (one di	rection)	1.103 ns	
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 10.06.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN:1073

Communication System: UID 0 - CW; Frequency: 3900 MHz, Frequency: 4100 MHz Medium parameters used: f = 3900 MHz; $\sigma = 3.25$ S/m; $\varepsilon_r = 36.6$; $\rho = 1000$ kg/m³, Medium parameters used: f = 4100 MHz; $\sigma = 3.42$ S/m; $\varepsilon_r = 36.4$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

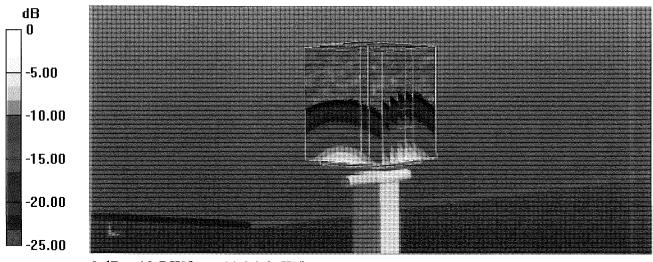
DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.39, 7.39, 7.39) @ 3900 MHz, ConvF(7.26, 7.26, 7.26) @ 4100 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

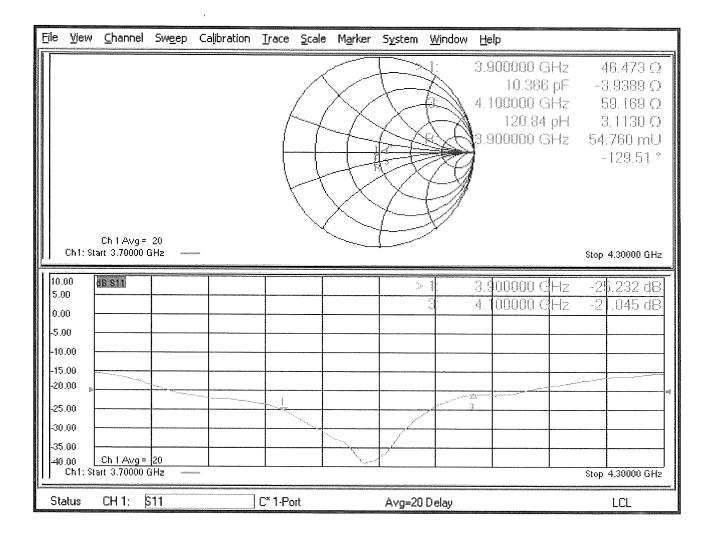
Maximum value of SAR (measured) = 13.7 W/kg

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3900MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 73.94 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 20.1 W/kg SAR(1 g) = 6.98 W/kg; SAR(10 g) = 2.42 W/kg Smallest distance from peaks to all points 3 dB below = 7.9 mm Ratio of SAR at M2 to SAR at M1 = 74.6%

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=4100MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 71.95 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 19.8 W/kg SAR(1 g) = 6.85 W/kg; SAR(10 g) = 2.36 W/kg Smallest distance from peaks to all points 3 dB below = 7.9 mm Ratio of SAR at M2 to SAR at M1 = 74.2% Maximum value of SAR (measured) = 13.5 W/kg



0 dB = 13.7 W/kg = 11.36 dBW/kg



DASY5 Validation Report for Body TSL

Date: 01.06.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN: 1073

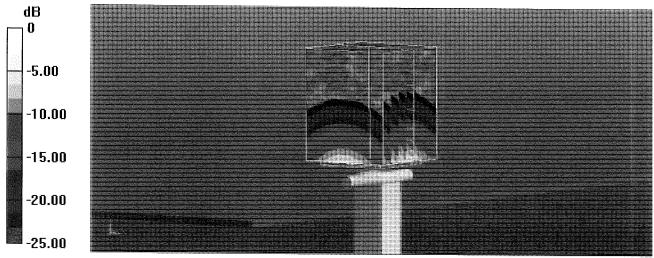
Communication System: UID 0 - CW; Frequency: 3900 MHz, Frequency: 4100 MHz Medium parameters used: f = 3900 MHz; $\sigma = 3.73$ S/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³, Medium parameters used: f = 4100 MHz; $\sigma = 3.98$ S/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.18, 7.18, 7.18) @ 3900 MHz, ConvF(6.88, 6.88, 6.88) @ 4100 MHz; Calibrated: 30.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

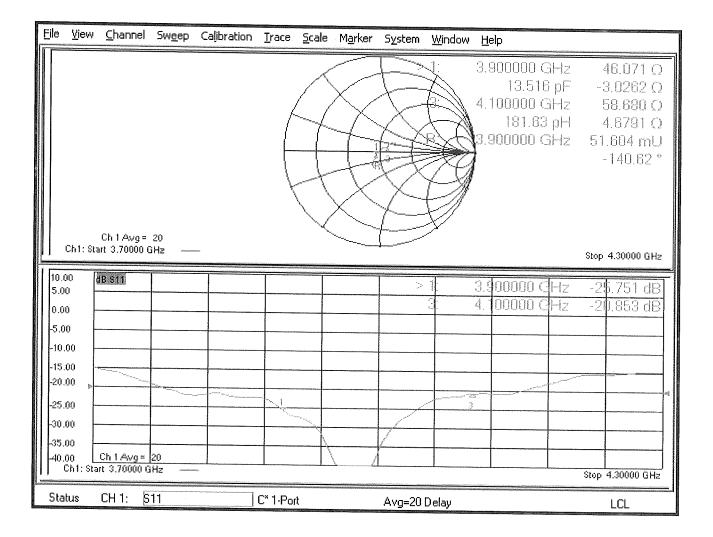
Dipole Calibration for Body Tissue/Pin=100 mW, d=10mm, f=3900MHz/Zoom Scan , dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 64.23 V/m; Power Drift = 0.06 dB Peak SAR (extrapolated) = 19.2 W/kg SAR(1 g) = 6.41 W/kg; SAR(10 g) = 2.2 W/kg Smallest distance from peaks to all points 3 dB below = 8 mm Ratio of SAR at M2 to SAR at M1 = 72.5% Maximum value of SAR (measured) = 12.9 W/kg

Dipole Calibration for Body Tissue/Pin=100 mW, d=10mm, f=4100MHz/Zoom Scan , dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 62.35 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 19.8 W/kg SAR(1 g) = 6.33 W/kg; SAR(10 g) = 2.16 W/kg Smallest distance from peaks to all points 3 dB below = 8 mm Ratio of SAR at M2 to SAR at M1 = 70.9%Maximum value of SAR (measured) = 13.0 W/kg



0 dB = 13.0 W/kg = 11.14 dBW/kg

Impedance Measurement Plot for Body TSL







Certification of Calibration

Object

D3900V2 - SN: 1073

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

06/10/2022

Extension Calibration date:

Description:

SAR Validation Dipole at 3900 and 4100 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N5182A	MXG Vector Signal Generator	6/21/2021	Annual	6/21/2022	MY47420603
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA2411B	Pulse Power Sensor	9/21/2021	Annual	9/21/2022	1339008
Anritsu	MA2411B	Pulse Power Sensor	10/21/2021	Annual	10/21/2022	1339027
Anritsu	ML2496A	Power Meter	11/29/2021	Annual	11/29/2022	1840005
Anritsu	ML2496A	Power Meter	2/11/2022	Annual	2/11/2023	1405003
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/12/2021	Biennial	3/12/2023	210202100
Control Company	4352	Ultra Long Stem Thermometer	10/25/2021	Annual	10/25/2022	200645916
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	200670653
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	NC-100	Torque Wrench	8/4/2020	Biennial	8/4/2022	N/A
Mini-Circuits	ZHDC-16-63-S+	Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/20/2021	Annual	10/20/2022	101307
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/20/2021	Annual	10/20/2022	1091
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	9/27/2021	Annual	9/27/2022	MY53401181
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7538
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/10/2021	Annual	11/10/2022	1323
SPEAG	EX3DV4	SAR Probe	8/5/2021	Annual	8/5/2022	7670
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/3/2021	Annual	8/3/2022	1681

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Bizunesh Baldinazzo	Test Engineer	BB
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	ROK

Object:	Date Issued:	Page 1 of 4
D3900V2 – SN: 1073	06/10/2022	raye i 014

DIPOLE CALIBRATION EXTENSION

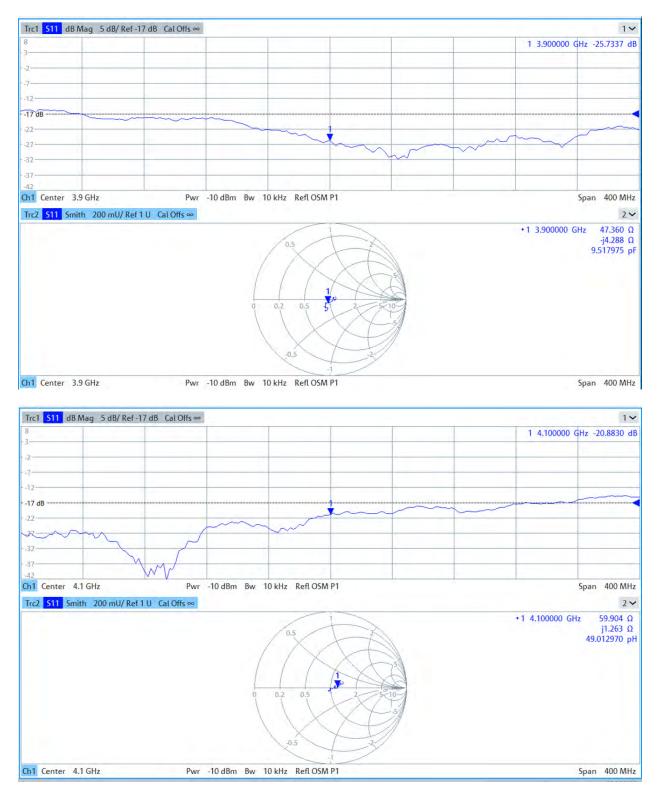
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

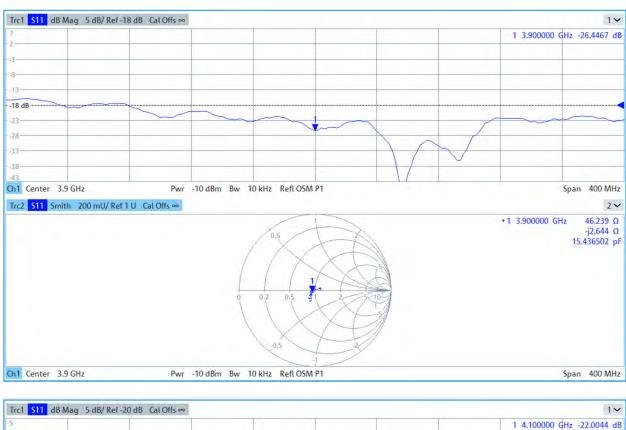
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 17.0 dBm	(1a) W/ka @	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 17.0 dBm	(10a) W/ka @	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
3900	6/10/2021	6/10/2022	1.103	6.97	7.18	3.01%	2.4	2.57	7.08%	46.5	47.4	0.9	-3.9	-4.3	0.4	-25.2	-25.7	0.30%	PASS
4100	6/10/2021	6/10/2022	1.103	6.85	6.62	-3.36%	2.35	2.32	-1.28%	59.2	59.9	0.7	3.1	1.3	1.8	-21	-20.9	0.10%	PASS
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 17.0 dBm	(1a) W/ka @	Deviation 1g (%)		(10a) W/ka @	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
3900	6/10/2021	6/10/2022	1.103	6.43	6.26	-2.64%	2.2	2.19	-0.45%	46.1	46.2	0.1	-3	-2.6	0.4	-25.8	-26.4	-2.50%	PASS
4100	6/10/2021	6/10/2022	1.103	6.34	6.62	4.42%	2.16	2.32	7.41%	58.7	57.4	1.3	4.7	3.9	0.8	-20.9	-22.0	-5.30%	PASS

Object:	Date Issued:	Page 2 of 4
D3900V2 – SN: 1073	06/10/2022	raye 2 014

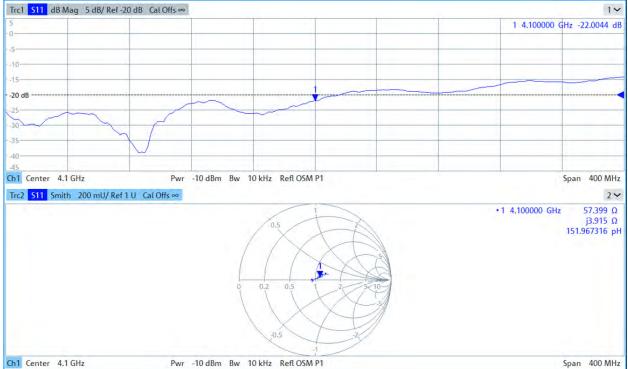


Impedance & Return-Loss Measurement Plot for Head TSL

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D3900V2 – SN: 1073	06/10/2022	Page 3 of 4



Impedance & Return-Loss Measurement Plot for Body TSL



Object:	Date Issued:	Page 4 of 4
D3900V2 – SN: 1073	06/10/2022	Faye 4 01 4





Certification of Calibration

Object		

D3900V2 - SN: 1073

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

08/21/2023

Extension Calibration date:

Description:

SAR Validation Dipole at 3900 and 4100 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N5182A	MXG Vector Signal Generator	11/30/2022	Annual	11/30/2023	MY47420603
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA24106A	USB Power Sensor	1/9/2023	Annual	1/9/2024	1344545
Anritsu	MA24106A	USB Power Sensor	1/9/2023	Annual	1/9/2024	1349511
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/27/2023	Biennial	3/27/2025	230208060
Control Company	4352	Long Stem Thermometer	9/10/2021	Biennial	9/10/2023	210774675
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	PE5011-1	Torque Wrench	12/21/2021	Biennial	12/21/2023	82475
Mini-Circuits	ZHDC-16-63-S+	Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	ZNLE6	Vector Network Analyzer	10/21/2022	Annual	10/21/2023	101307
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/14/2022	Annual	11/14/2023	1277
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	11/11/2022	Annual	11/11/2023	MY53401181
SPEAG	EX3DV4	SAR Probe	6/15/2023	Annual	6/15/2024	7409
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/15/2023	Annual	6/15/2024	1334
SPEAG	EX3DV4	SAR Probe	6/14/2023	Annual	6/14/2024	7661
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/11/2023	Annual	5/11/2024	728

Measurement Uncertainty = $\pm 23\%$ (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Greg Snyder	Executive VP of Operations	Sugar M. Sal

Object:	Date Issued:	Page 1 of 3
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DIPOLE CALIBRATION EXTENSION

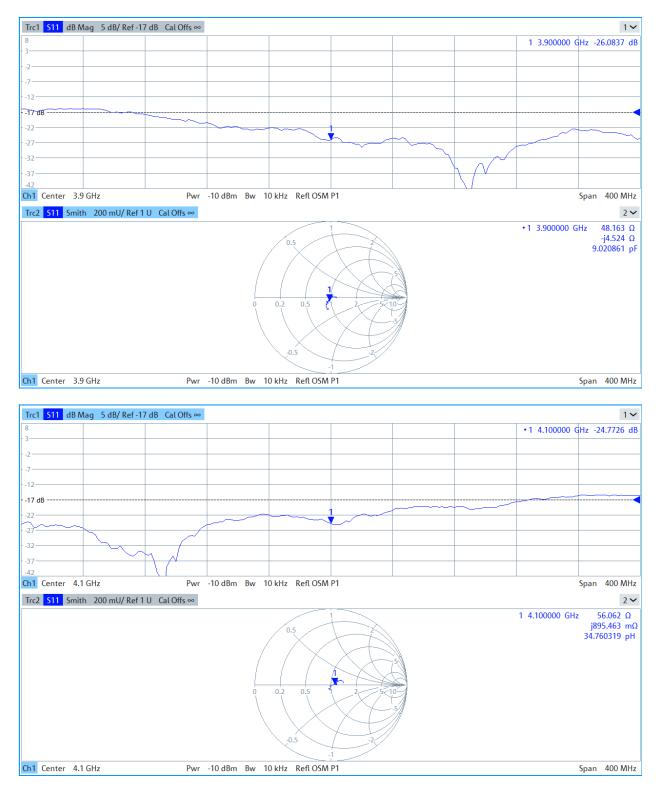
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

Frequency (MHz)	Calibration Date	Extension Date	Electrical	Certificate SAR Target Head (1g) W/kg @ 20.0 dBm	Head SAR	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 20.0 dBm	Measured Head SAR (10g) W/kg @ 20.0 dBm	Deviation 10g (%)			Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary		Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
3900	6/10/2021	8/21/2023	1.103	6.97	6.96	-0.14%	2.4	2.31	-3.75%	46.5	48.2	1.7	-3.9	-4.5	0.6	-25.2	-26.1	-3.50%	PASS
4100	6/10/2021	8/21/2023	1.103	6.85	7.10	3.65%	2.35	2.50	6.38%	59.2	56.1	3.1	3.1	0.9	2.2	-21	-24.8	-18.00%	PASS

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Impedance & Return-Loss Measurement Plot for Head TSL

 Object:
 Date Issued:
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 D3900V2 - SN: 1073
 08/21/2023
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Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland



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Swiss Calibration Service

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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

Accreditation No.: SCS 0108

Client	Element Morgan Hill, USA		Certificate No.	EX-7782_Sep23
CAL	IBRATION CI	ERTIFICATE		/ATH
Object		EX3DV4 - SN:7782		9/28/2023
Calibrat	tion procedure(s)	QA CAL-01.v10, QA CAL- QA CAL-25.v8 Calibration procedure for e		
Calibrat	tion date	September 12, 2023		
The me	asurements and the u	cuments the traceability to national stand incertainties with confidence probability	are given on the following	pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22±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	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
OCP DAK-3.5 (weighted)	SN: 1249	20-Oct-22 (OCP-DAK3.5-1249_Oct22)	Oct-23
OCP DAK-12	SN: 1016	20-Oct-22 (OCP-DAK12-1016_Oct22)	Oct-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	30-Mar-23 (No. 217-03809)	Mar-24
DAE4	SN: 660	16-Mar-23 (No. DAE4-660_Mar23)	Mar-24
Reference Probe ES3DV2	SN: 3013	06-Jan-23 (No. ES3-3013_Jan23)	Jan-24

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-22)	In house check: Jun-24
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

	Name	Function	Signature
Calibrated by	Aldonia Georgiadou	Laboratory Technicia	n Net
Approved by	Sven Kühn	Technical Manager	<u> </u>
This calibration certific	ate shall not be reproduced except in fu	III without written approval of	Issued: September 12, 2023 f the laboratory.

Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizerischer Kalibrierdienst

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Swiss Calibration Service

Accreditation No.: SCS 0108

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

Glossary

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	arphi rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices -- Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORMx, y,z: Assessed for E-field polarization $\vartheta = 0$ ($f \le 900$ MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx, y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x, y,z = NORMx, y,z * frequency response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx, y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax, y,z; Bx, y,z; Cx, y,z; Dx, y,z; VRx, y,z; A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \le 800 \text{ MHz}$) and inside wavequide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx, y, z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

Parameters of Probe: EX3DV4 - SN:7782

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (<i>k</i> = 2)
Norm $(\mu V/(V/m)^2)^A$	0.67	0.55	0.58	±10.1%
DCP (mV) ^B	104.6	105.1	106.6	±4.7%

Calibration Results for Modulation Response

UID	Communication System Name		A	В	С	D	VR	Max	Max
	-		dB	dBõV		dB	mV	dev.	Unc ^E
				-					k = 2
0	CW	X	0.00	0.00	1.00	0.00	146.3	±3.8%	±4.7%
I		Y	0.00	0.00	1.00		154.8		
		Z	0.00	0.00	1.00		137.4		
10352	Pulse Waveform (200Hz, 10%)	X	1.51	60.50	6.25	10.00	60.0	±3.0%	±9.6%
		Y	1.40	60.00	5.89		60.0		
		Z	1.38	60.00	5.97		60.0		
10353	Pulse Waveform (200Hz, 20%)	X	0.79	60.00	4.82	6.99	80.0	±2.8%	±9.6%
		Y	0.79	60.00	4.63	1	80.0		
		Z	22.00	74.00	9.00		80.0		
10354	Pulse Waveform (200Hz, 40%)	X	0.22	154.15	2.91	3.98	95.0	±2.4%	±9.6%
		Y	0.00	126.91	0.26		95.0]	
		Z	0.45	60.00	3.68		95.0		
10355	Pulse Waveform (200Hz, 60%)	X	0.00	154.06	40.85	2.22	120.0	±1.5%	±9.6%
		Y	2.39	159.98	1.99]	120.0		
		Z	0.32	60.00	2.80		120.0		
10387	QPSK Waveform, 1 MHz	X	0.62	69.00	16.17	1.00	150.0	±3.2%	±9.6%
		Y	0.41	62.44	11.56		150.0		
		Z	0.60	66.80	14.33		150.0		
10388	QPSK Waveform, 10 MHz	X	1.55	69.93	15.73	0.00	150.0	±0.9%	±9.6%
		Y	1.15	65.42	13.02]	150.0		
		Z	1.45	68.07	14.90		150.0		
10396	64-QAM Waveform, 100 kHz	X	1.65	64.43	16.16	3.01	150.0	±1.1%	±9.6%
		Y	1.74	65.22	16.17		150.0		
		Z	1.88	66.55	16.95		150.0		
10399	64-QAM Waveform, 40 MHz	X	2.85	67.42	15.80	0.00	150.0	±2.2%	±9.6%
		Y	2.67	66.24	14.95	_	150.0	1	
		Z	2.87	67.12	15.54		150.0		
10414	WLAN CCDF, 64-QAM, 40 MHz	X	3.84	67.36	15.92	0.00	150.0	±3.4%	±9.6%
		Y	3.71	66.66	15.39		150.0]	
		Z	3.79	66.59	15.54		150.0		ļ

Note: For details on UID parameters see Appendix

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Linearization parameter uncertainty for maximum specified field strength,

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

Parameters of Probe: EX3DV4 - SN:7782

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 msV ^{−2}	T2 ms V ⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	T6
х	7.5	53.93	33.28	2.09	0.00	4.90	0.00	0.07	1.00
у	7.5	54.53	33.71	2.25	0.00	4.91	0.64	0.00	1.00
Z	8.5	60.99	32.72	4.45	0.00	4.90	0.67	0.00	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-97,4°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3-4 mm for an Area Scan job.

Parameters of Probe: EX3DV4 - SN:7782

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k = 2)
750	41.9	0.89	9.26	9.26	9.26	0.59	0.80	±12.0%
835	41.5	0.90	8.99	8.99	8.99	0.44	0.87	±12.0%
1750	40.1	1.37	7.93	7.93	7.93	0.34	0.86	±12.0%
1900	40.0	1.40	7.76	7.76	7.76	0.32	0.86	±12.0%
2300	39.5	1.67	7.38	7.38	7.38	0.33	0.90	±12.0%
2450	39.2	1.80	7.11	7.11	7.11	0.38	0.90	±12.0%
2600	39.0	1.96	6.99	6.99	6.99	0.29	0.90	±12.0%
3500	37.9	2.91	6.19	6.19	6.19	0.30	1.35	±14.0%
3700	37.7	3.12	6.18	6.18	6.18	0.30	1.35	±14.0%
3900	37.5	3.32	5.65	5.65	5.65	0.40	1.60	±14.0%

Calibration Parameter Determined in Head Tissue Simulating Media

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10 , 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ε and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10%. If TSL with deviations from the target of less than ±5% are used, the calibration uncertainties are 11.1% for 0.7 - 3 GHz and 13.1% for 3 - 6 GHz.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than $\pm 1\%$ for frequencies below 3 GHz and below $\pm 2\%$ for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

Unc

(k = 2)

Parameters of Probe: EX3DV4 - SN:7782

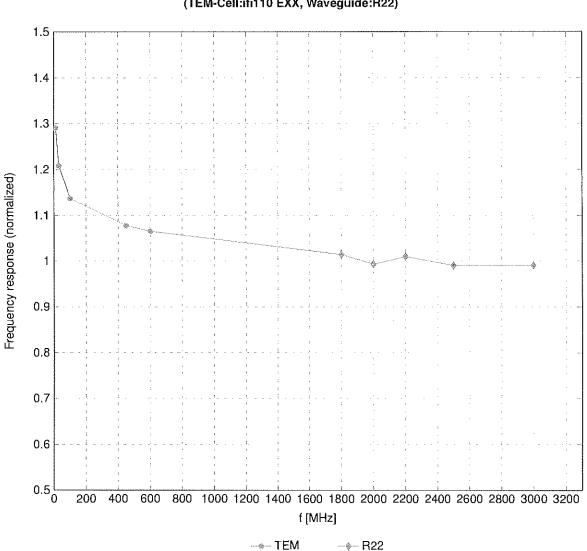
Alpha^G f (MHz)^C Conductivity^F ConvF Z Depth^G ConvF X ConvF Y Relative Permittivity^F (mm) (S/m) 5.91 0.40 1.35 ±14.0% 3500 51.3 3.31 5.91 5.91 5.91 1.35 ±14.0% 51.0 3.55 5.91 5.91 0.40 3700 3.78 5.40 5.40 0.40 1.70 ±14.0% 3900 50.8 5.40

Calibration Parameter Determined in Body Tissue Simulating Media

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz. RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25,

The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10%. If TSL with deviations from the target of less than ±5% are used, the calibration uncertainties are 11.1% for 0.7 - 3 GHz and 13.1% for 3 - 6 GHz.

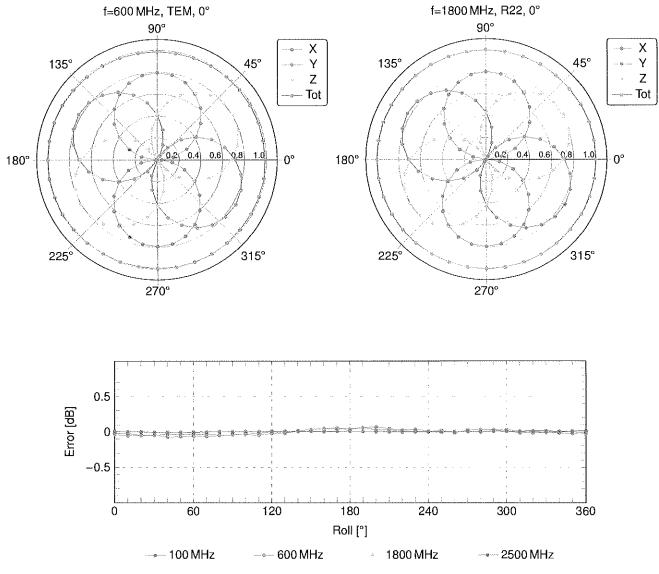
G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



Frequency Response of E-Field

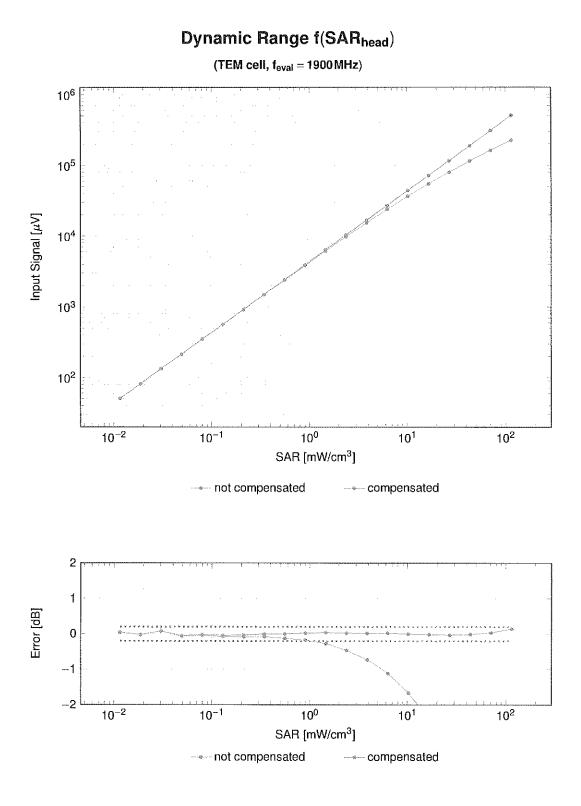
(TEM-Cell:ifi110 EXX, Waveguide:R22)

Uncertainty of Frequency Response of E-field: ±6.3% (k=2)

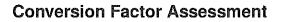


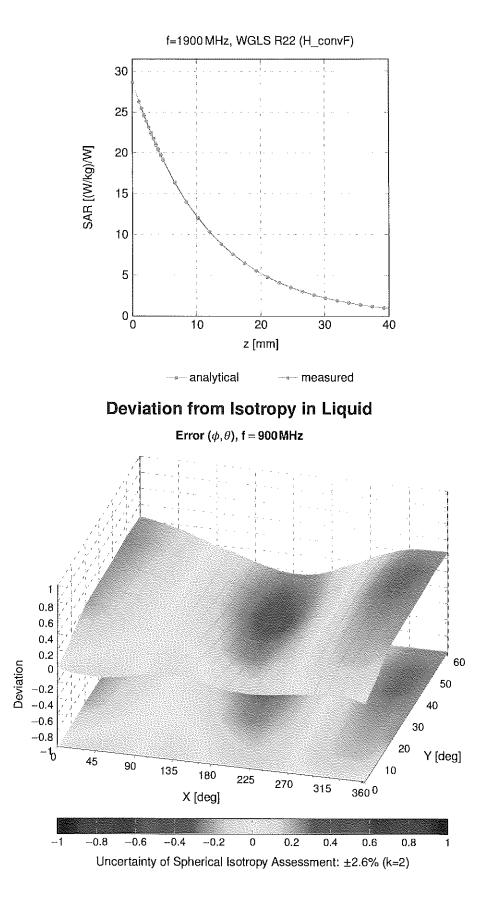
Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$

Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)





Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E $k = 2$
0		CW	CW	0.00	±4.7
10010	CAB	SAR Validation (Square, 100 ms, 10 ms)	Test	10.00	±9.6
10011	CAC	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	±9.6
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9,46	±9.6
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	±9,6
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6,56	±9.6
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	±9.6
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	±9.6
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	±9.6
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	±9.6
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±9.6
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	±9.6
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	±9.6
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	±9.6
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	±9.6
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.6
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000 AMPS	4.57	±9.6 ±9.6
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	±9.6
10044	CAA CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	±9.6
10048	CAA	DECT (10D, 10MA/FDM, GFSK, Full Slot, 24)	DECT	10.79	±9.6
10049	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	±9.6
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	±9.6
10000	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	±9.6
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	±9.6
10062	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	±9.6
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	±9.6
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	±9.6
10065	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±9.6
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	±9.6
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10,12	±9.6
10068	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	±9.6
10069	CAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	±9.6
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	±9.6
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	±9.6
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±9.6
10074	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	±9.6
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±9.6
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±9.6
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	±9.6
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	±9.6
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	±9.6
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	±9.6
10098	CAC	UMTS-FDD (HSUPA, Sublest 2)	WCDMA	3.98	±9.6
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
10100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	±9.6
10101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10102	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10103	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9,29	<u>±9.6</u>
10104	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	±9.6
10105	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	±9.6
10108	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	±9.6
10109	CAH CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10110	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD LTE-FDD	5.75	±9.6
				6.44	±9.6

		Occurrent and an Alexandrean Manage	Group	PAR (dB)	Unc ^E $k = 2$
UID 10112	Rev CAH	Communication System Name LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	Group LTE-FDD	6.59	$\frac{\text{OHC}^- \mathbf{x} = 2}{\pm 9.6}$
10112	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10114	CAD	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	±9.6
10115	CAD	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	±9.6
10116	CAD	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	±9.6
10117	CAD	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	±9.6
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	±9.6
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	±9.6
10140	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10141	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	±9.6
10142	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10143	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	±9.6
10144	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	±9.6
10145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	±9.6
10146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	±9.6
10147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	±9.6
10149	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10150	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10151	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	±9.6
10152	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10153	CAH CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	10.05	±9.6 ±9.6
	1		LTE-FDD	6.43	±9.6
10155	CAH CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	±9.6
10157	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10157	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10159	CAH	LTE-FDD (SC-FDMA, 50% RB, 5MHz, 64-QAM)	LTE-FDD	6.56	±9.6
10160	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	±9.6
10161	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10162	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	±9.6
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	±9.6
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	±9.6
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	±9.6
10169	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	±9.6
10170	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10171	AAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	±9.6
10172	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	±9.6
10173	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10174	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10175	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	±9.6
10176	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10177	CAJ	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	±9.6
10178	CAH CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD LTE-FDD	6.52 6.50	±9.6 ±9.6
10179	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10180	CAF	LTE-FDD (SC-FDMA, 1 RB, 15MHz, QPSK)	LTE-FDD	5.72	±9.6
10182	CAF	LTE-FDD (SC-FDMA, 1 RB, 15MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10183	AAE	LTE-FDD (SC-FDMA, 1 RB, 15MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10184	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10185	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	±9.6
10186	AAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	±9.6
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10189	AAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10193	CAD	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6
10194	CAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	±9.6
10195	CAD	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6
10196	CAD	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	±9.6
10197	CAD	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6
10198	CAD	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6
10219	CAD	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6
10220	CAD	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN WLAN	8.13	±9.6
10221	CAD CAD	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.27 8.06	±9.6 ±9.6
10222	CAD	IEEE 802.11n (HT Mixed, 15 Mbps, 16-QAM)	WLAN	8.06	±9.6
10223	CAD	IEEE 802.11n (HT Mixed, 50 Mbps, 64-QAM)	WLAN	8.08	±9.0 ±9.6
			1 1 Saf 11 N	1	1 19:0

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10225	CAC	UMTS-FDD (HSPA+)	WCDMA	5.97	±9,6
10226	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	±9.6
10227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6
10228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±9.6
10229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10231	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	±9,6
10232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10233	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10234	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	±9.6
10235	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10236	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10237	CAH	LTE-TDD (SC-FDMA, 1 RB, 10MHz, QPSK)	LTE-TDD	9.21	±9.6
10238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	±9,6
10241	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	±9.6
10242	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	±9.6
10243	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	±9.6
10244	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10245	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	±9.6
10246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	±9.6
10247	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9,91	±9.6
10248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±9.6
10249	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	±9.6
10250	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	±9.6
10251	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	±9.6
10252	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	±9.6
10253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±9.6
10254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	±9.6
10255	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	±9.6
10256	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	±9.6
10257	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	±9.6
10258	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6
10259	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	±9.6
10260	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6
10261	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±9.6
10262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±9.6
10263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±9.6
10264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	±9.6
10265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10266	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	±9.6
10267	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.6
10268	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10269	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	±9.6
10270	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	±9.6
10274	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	±9.6
10275	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	±9.6
10277	CAA	PHS (QPSK)	PHS	11.81	±9.6
10278	CAA	PHS (QPSK, BW 884 MHz, Rolloff 0.5)	PHS	11.81	±9.6
10279	CAA	PHS (QPSK, BW 884 MHz, Rolloff 0.38)	PHS	12.18	±9.6
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	±9.6
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	±9.6
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	±9.6
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±9.6
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	±9.6
10297	AAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	±9.6
10298	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	±9.6
10299	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	±9.6
10300	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10301	AAA	IEEE 802.16e WIMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC)	WiMAX	12.03	±9.6
10302	AAA	IEEE 802.16e WIMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC, 3 CTRL symbols)	WIMAX	12.57	±9.6
10303	AAA	IEEE 802.16e WiMAX (31:15, 5 ms, 10 MHz, 64QAM, PUSC)	WIMAX	12.52	±9.6
10304	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, 64QAM, PUSC)	WIMAX	11.86	±9.6
LICOD	AAA	EEE 802.16e WIMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols)	WIMAX	15.24	±9.6
10305	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols)	WIMAX	14.67	±9.6

	David	Communication Custom Name	Group	PAR (dB)	$Unc^{E} k = 2$
UID	Rev AAA	Communication System Name IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, QPSK, PUSC, 18 symbols)	Group WIMAX	14.49	±9.6
10307	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC)	WIMAX	14.46	±9.6
10309	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols)	WIMAX	14.58	±9.6
10303	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols)	WIMAX	14.57	±9.6
10311	AAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	±9.6
10313	AAA	IDEN 1:3	IDEN	10,51	±9.6
10314	AAA	IDEN 1:6	IDEN	13.48	±9.6
10315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN	1.71	±9.6
10316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8,36	±9.6
10317	AAD	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	±9.6
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±9.6
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	±9.6
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	±9.6
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2,22	±9.6
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	±9.6
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	±9.6
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	±9.6
10396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	±9,6
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	±9.6
10400	AAE	IEEE 802.11ac WiFi (20 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	±9.6
10401	AAE	IEEE 802.11ac WiFi (40 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.60	±9.6
10402	AAE	IEEE 802.11ac WiFi (80 MHz, 64-QAM, 99pc duty cycle)	WLAN	8,53	±9.6
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	±9.6
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	±9.6
10406	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	±9.6
10410	AAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	LTE-TDD	7.82	±9.6
10414	AAA	WLAN CCDF, 64-QAM, 40 MHz	Generic	8.54	±9,6
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	±9.6
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10417	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	WLAN	8.14	±9.6
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	WLAN	8.19	±9.6
10422	AAC	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8,32	±9.6
10423	AAC	IEEE 802,11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	±9.6
10424	AAC	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	±9.6
10425	AAC	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6
10426	AAC	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	±9.6
10427	AAC	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	±9.6
10430	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	±9.6
10431	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	±9.6
10432	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
10433	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
10434	AAB	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	±9.6
10435	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10447	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	±9.6
10448	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	±9.6
10449	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	±9.6
10450	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	±9.6
10451	AAB	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	±9.6
10453	AAE	Validation (Square, 10 ms, 1 ms)	Test	10.00	±9.6
10456	AAC	IEEE 802.11ac WiFi (160 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.63	±9.6
10457	AAB	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	±9.6
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	±9.6
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	±9.6
10460	AAB	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	±9.6
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.30	±9.6
10463	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	±9.6
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10465	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10466	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10467	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10468	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10469	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	<u>+9.6</u>
10470	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10471	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10472	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10473	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10474	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10475	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10477	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10478	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10480	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.18	±9.6
10481	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10482	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.71	±9.6
10483	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.39	±9.6
10484	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8,47	±9.6
10485	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.59	±9.6
10486	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.38	±9.6
10487	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.60	±9.6
10488	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.70	±9.6
10489	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	<u>±9.6</u>
10490	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	±9.6
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10494	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10495	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subirame=2,3,4,7,8,9)	LTE-TDD	8.37	<u>±9,6</u>
10496	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10497	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	±9.6
10498	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	±9.6
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.68	±9.6
10500	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	±9.6
10501	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.44	±9.6
10502	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.52	±9.6
10503	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	±9.6
10504	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
10505	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10506	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10507	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.36	±9.6
10508	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.99	±9.6
10510	AAF AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.51	±9.6 ±9.6
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 13 Minz, 64-04Mi, 0L Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10512	AAG	LTE-TDD (SC-FDMA, 100% RB, 20MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.42	±9.6
10513	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10515	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
10516	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	WLAN	1.57	±9.6
10517	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
10518	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10518	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.39	±9.6
10519	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.12	±9.6
10520	AAC	IEEE 802.11a/h Will 5 GHz (OFDM, 13 Mbps, 99pc duty cycle)	WLAN	7.97	±9.6
10522	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10522	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.08	±9.6
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.27	±9.6
	AAC	IEEE 802.11ac WiFi (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.36	±9.6
10525	1 nnu	IEEE 802.11ac WiFi (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.42	±9.6
10525	AAC				1
10526	AAC				+96
10526 10527	AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.21	±9.6
10526 10527 10528	AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle)	WLAN WLAN	8.21 8.36	±9.6
10526 10527 10528 10529	AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle)	WLAN WLAN WLAN	8.21 8.36 8.36	±9.6 ±9.6
10526 10527 10528 10529 10531	AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle)	WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43	+9.6 +9.6 +9.6
10526 10527 10528 10529 10531 10532	AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29	
10526 10527 10528 10529 10531 10532 10533	AAC AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29 8.38	
10526 10527 10528 10529 10531 10532 10533 10533	AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29 8.38 8.45	$ \begin{array}{r} \pm 9.6 \\ \end{array} $
10526 10527 10528 10529 10531 10532 10533 10533 10534	AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS0, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29 8.38 8.45 8.45	$\begin{array}{c} \pm 9.6 \\ \pm 9.6 \end{array}$
10526 10527 10528 10529 10531 10532 10533 10534 10535 10536	AAC AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS0, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS2, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29 8.38 8.45 8.45 8.45 8.32	$\begin{array}{c} \pm 9.6 \\ \pm 9.6 \end{array}$
10526 10527 10528 10529 10531 10532 10533 10533 10534	AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle) IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS0, 99pc duty cycle) IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	8.21 8.36 8.36 8.43 8.29 8.38 8.45 8.45	$\begin{array}{c} \pm 9.6 \\ \pm 9.6 \end{array}$

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E <i>k</i> = 2
10541	AAC	IEEE 802.11ac WiFi (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.46	±9.6
10542	AAC	IEEE 802.11ac WiFi (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.65	±9.6
10543	AAC	IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
10544	AAC	IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle)	WLAN	8,47	±9.6
10545	AAC	IEEE 802.11ac WiFi (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10546	AAC	IEEE 802.11ac WiFi (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.35	±9.6
10547	AAC	IEEE 802.11ac WiFi (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.49	±9.6
10548	AAC	IEEE 802.11ac WiFi (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.37	±9.6
10550	AAC	IEEE 802.11ac WiFi (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.38	<u>+</u> 9.6
10551	AAC	IEEE 802.11ac WiFi (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.50	±9.6
10552	AAC	IEEE 802.11ac WiFi (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.42	±9.6
10553	AAC	IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.45	±9.6
10554	AAD	IEEE 802.11ac WiFi (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.48	±9.6
10555	AAD	IEEE 802.11ac WiFi (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
10556	AAD	IEEE 802.11ac WiFi (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.50	±9.6
10557	AAD	IEEE 802.11ac WiFi (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.52	<u>±9.6</u>
10558	AAD	IEEE 802.11ac WiFi (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.61	±9.6
10560	AAD	IEEE 802.11ac WiFi (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.73	±9,6
10561	AAD	IEEE 802.11ac WiFi (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.56	±9.6
10562	AAD	IEEE 802.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.69	±9.6
10563	AAD	IEEE 802.11ac WiFi (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.77	±9.6
10564	AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	±9.6
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	±9.6
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	±9.6
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	±9.6
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	±9.6
10570	AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.30	±9.6
10571	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10572	AAA	IEEE 802.11b WIFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10573	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10575	AAA	IEEE 802.11g WIFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8,76	±9.6
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10583	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10584	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10585	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10586	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10587	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10588	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10589	AAC	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10590	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10591	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)	WLAN	8.63	±9.6
10592	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10593	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS2, 90pc duty cycle)	WLAN	8.64	±9,6
10594	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10595	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)	WLAN	8.74	±9.6
10596	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS5, 90pc duty cycle)	WLAN	8.71	±9.6
10597	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
10598	AAC	IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
10599	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)	WLAN	8.79	±9.6
10600	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10601	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)	WLAN	8.82	±9.6
10602	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)	WLAN	8.94	±9.6
10603	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)	WLAN	9.03	±9,6
10604	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±9,6
10605	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)	WLAN	8.97	±9.6
10606	AAC	IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10607	AAC	IEEE 802.11ac WiFi (20 MHz, MCS0, 90pc duty cycle)	WLAN	8.64	±9.6
10608	AAC	IEEE 802.11ac WiFi (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.77	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
10609	AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
10610	AAC	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.78	±9.6
10611	AAC	IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10612	AAC	IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10613	AAC	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.94	±9.6
10614	AAC	IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
10615	AAC	IEEE 802.11 ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10616	AAC	IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.82	±9.6
10617	AAC	IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAC	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.58	±9.6
10619	AAC	IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAC	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAC	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAC	IEEE 802.11ac WiFi (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAC	IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAC	IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.96	±9.6
10625	AAC	IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.96	±9.6
10626	AAC	IEEE 802.11ac WiFi (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAC	IEEE 802.11ac WiFi (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10628	AAC	IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.71	±9.6
10629	AAC	IEEE 802.11ac WiFI (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAC	IEEE 802.11ac WiFI (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAC	IEEE 802.11ac WiFI (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.81	±9.6
10632	AAC	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10633	AAC	IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.83	±9.6
10634	AAC	IEEE 802.11ac WIFi (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAC	IEEE 802.11ac WiFi (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAD	IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAD	IEEE 802.11ac WiFi (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAD	IEEE 802.11ac WiFi (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.86	±9.6
10639	AAD	IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAD	IEEE 802.11ac WiFi (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.98	±9.6
10641	AAD	IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAD	IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAD	IEEE 802.11ac WiFI (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.89	±9.6
10644	AAD	IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAD	IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)	WLAN	9.11	±9,6
10646	AAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10647	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	±9.6
10652	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	±9.6
10653	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	±9.6
10654	AAE	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	±9.6
10655	AAF	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	±9.6
10658	AAB	Pulse Waveform (200Hz, 10%)	Test	10.00	±9.6
10659	AAB	Pulse Waveform (200Hz, 20%)	Test	6.99	±9.6
10660	AAB	Pulse Waveform (200Hz, 40%)	Test	3.98	±9.6
10661	AAB	Pulse Waveform (200Hz, 60%)	Test	2.22	±9.6
10662	AAB	Pulse Waveform (200Hz, 80%)	Test	0.97	±9.6
					±9.6
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	
10670 10671	AAA AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	Bluetooth WLAN	2.19 9.09	±9.6
10670 10671 10672	AAA	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	Bluetooth WLAN WLAN		±9.6 ±9.6
10670 10671 10672 10673	AAA AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN	9.09	
10670 10671 10672 10673 10674	AAA AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN	9.09 8.57	±9.6
10670 10671 10672 10673 10674 10675	AAA AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78	±9.6 ±9.6
10670 10671 10672 10673 10674	AAA AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74	±9.6 ±9.6 ±9.6
10670 10671 10672 10673 10674 10675	AAA AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90	+9.6 +9.6 +9.6 +9.6
10670 10671 10672 10673 10674 10675 10676 10677 10678	AAA AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77	± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10670 10671 10672 10673 10674 10675 10676 10677	AAA AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73	± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6 ± 9.6
10670 10671 10672 10673 10674 10675 10676 10677 10678	AAA AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.78	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$
10670 10671 10672 10673 10674 10675 10676 10677 10678 10679	AAA AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.78 8.89	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$
10670 10671 10672 10673 10674 10675 10676 10677 10678 10679 10680	AAA AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.78 8.89 8.89 8.80	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$
10670 10671 10672 10673 10674 10675 10676 10677 10678 10679 10680 10681	AAA AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.73 8.78 8.89 8.80 8.80 8.62	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$
10670 10671 10672 10673 10674 10675 10676 10677 10678 10679 10680 10681 10682	AAA AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.78 8.89 8.80 8.80 8.62 8.83	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$
10670 10671 10672 10673 10674 10675 10676 10677 10678 10679 10680 10681 10682 10683	AAA AAC AAC AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle) IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	Bluetooth WLAN WLAN WLAN WLAN WLAN WLAN WLAN WLAN	9.09 8.57 8.78 8.74 8.90 8.77 8.73 8.73 8.78 8.89 8.80 8.80 8.62 8.83 8.42	$\begin{array}{r} \pm 9.6 \\ \pm 9.6 \end{array}$

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.45	±9.6
10688	AAC	IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	±9.6
10689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duly cycle)	WLAN	8.55	±9.6
10690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10691	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.25	±9.6
10692	AAC	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
10693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
10694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
10695	AAC	IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.78	±9.6
10696	AAC	IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.91	±9.6
10697	AAC	IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.61	±9.6
10698	AAC	IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.89	±9.6
10699	AAC	IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.82	±9.6
10700	AAC	IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.73	±9.6
10701	AAC	IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.86	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.70	±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 90pc duty cycle)	WLAN	8.69	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.66	±9,6
10707	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.32	±9.6
10708	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10710	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.29	±9.6
10711	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.39	±9.6
10712	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.67	±9.6
10713	AAC	IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.33	±9.6
10714	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.26	±9.6
10715	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.45	±9.6
10716	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.30	±9.6
10717	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
10718	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.24	±9.6
10719	AAC	IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.81	±9.6
10720	AAC	IEEE 802.11ax (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.87	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.76	±9.6
10722	AAC	IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.55	±9.6
10723	AAC	IEEE 802.11ax (80 MHz, MCS4, 90pc duly cycle)	WLAN	8.70	±9.6
10724	AAC	IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9,6
10726	AAC	IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.72	±9.6
10727	AAC	IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.66	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.65	±9.6
10729	AAC	IEEE 802.11ax (80 MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6
10730	AAC	IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle)	WLAN	8.67	±9.6
10731	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10732	AAC AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.46	±9.6
10733	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle) IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN WLAN	8.40	±9.6
10734	AAC	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.25	±9.6
10735	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle) IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.33	±9.6
10736	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN		±9.6
10737	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.36	±9.6 ±9.6
10738	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN		
10739	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.29	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS3, 990c duty cycle)	WLAN	8.48	±9.6
	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.40	±9.6 ±9.6
			WLAN	8.43	±9.6
10742					l <u>∓a</u> .o
10742 10743	AAC	IEEE 802.11ax (160 MHz, MCS0, 90pc duty cycle)			
10742 10743 10744	AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle)	WLAN	9.16	±9.6
10742 10743 10744 10745	AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle)	WLAN WLAN	9.16 8.93	±9.6
10742 10743 10744 10745 10746	AAC AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle)	WLAN WLAN WLAN	9.16 8.93 9.11	±9.6 ±9.6
10742 10743 10744 10745 10746 10747	AAC AAC AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle)	WLAN WLAN WLAN WLAN	9.16 8.93 9.11 9.04	+9.6 +9.6 +9.6
10742 10743 10744 10745 10745 10746 10747 10748	AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle)	WLAN WLAN WLAN WLAN WLAN	9.16 8.93 9.11 9.04 8.93	
10742 10743 10744 10745 10746 10747 10748 10749	AAC AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle)	WLAN WLAN WLAN WLAN WLAN WLAN	9.16 8.93 9.11 9.04 8.93 8.90	$ \pm 9.6 $
10742 10743 10744 10745 10745 10746 10747 10748	AAC AAC AAC AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle) IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle)	WLAN WLAN WLAN WLAN WLAN	9.16 8.93 9.11 9.04 8.93	

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10753	AAC	IEEE 802.11ax (160 MHz, MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
10754	AAC	IEEE 802.11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	±9.6
10755	AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.64	±9.6
10756	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.77	±9.6
10757	AAC	IEEE 802.11ax (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.77	±9.6
10758	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.69	±9.6
10759	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.58	±9.6
10760	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)	WLAN	8.49	±9.6
10761	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.58	±9.6
10762	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.49	±9.6
10763	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.53	±9.6
10764	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.54	±9.6
10765	AAC	IEEE 802.11ax (160 MHz, MCS10, 99pc duty cycle)	WLAN	8.54	±9.6
10766	AAC	IEEE 802.11ax (160 MHz, MCS11, 99pc duty cycle)	WLAN	8.51	±9.6
10767	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	±9.6
10768	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10770	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10772	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	±9.6
10773	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9.6
10774	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10775	AAD	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10776	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	±9.6
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
10780	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10781	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10782	AAD	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	±9.6
10783	AAE	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10784	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6
10785	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	<u>±9.6</u>
10786	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
10787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6
10788	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10789	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	±9.6
10790	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10791	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	±9.6
10792	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	±9.6
10793	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	±9.6
10794	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	±9.6
10796	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10797	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8,01	±9,6
10798	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10799	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10801	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10802	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	±9.6
10803	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	±9.6
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10817	AAE	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	±9,6
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	±9.6
10821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10823	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	±9.6
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	±9.6
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10625					1
10825	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^E k = 2$
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
10829	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	±9.6
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.6
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.6
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9,6
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10836	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8,49	±9.6
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9,6
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	±9.6
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10864	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	±9.6
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	±9.6
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	±9.6
10873	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10874	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6,65	±9.6
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9,6
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.6
10877	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.6
10878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10879	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±9.6
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	±9.6
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.6
10884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9.6
10885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.6
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
10891	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	±9.6
10892	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10897	AAC	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.6
10898	AAB	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10900	AAB	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10901	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5,68	±9,6
10902	AAB	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10903	AAB	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10904	AAB	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10905	AAB	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10906	AAB	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10907	AAC	5G NR (DFT-s-OFDM, 50% RB, 5MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
10908	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5,93	±9.6
10909	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10910	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6

TOTY TARE DO NR (DFE-CPTS) TOTY TOTY <thtoty< th=""> <thtoty< th=""> <thtoty< th=""></thtoty<></thtoty<></thtoty<>		Day	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
19912 AAB EG NR DEF-CPENM, GINY, ED, SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19914 AAB 50 NR (DF-C-CPEM, SINY, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19915 AAB 50 NR (DF-C-CPEM, SINY, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19916 AAB 50 NR (DF-C-CPEM, SINY, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19917 AAB 50 NR (DF-C-CPEM, SINY, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19917 AAB 50 NR (DF-C-CPEM, 100%, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19917 AAB 50 NR (DF-C-CPEM, 100%, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19921 AAB 50 NR (DF-C-CPEM, 100%, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19922 AAB 50 NR (DF-C-CPEM, 100%, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 19923 AAB 50 NR (DF-C-CPEM, 100%, RE), SUMPL, OPEX, SUMPL) 50 NR FRI TOD 5.84 4.94 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>±9.6</td></t<>						±9.6
Totata AAB 5G NR (DFE-SCPDM, 50%, RB, 50MHz), CPRS, 50MHz) 5G NR (FFI TOD 5.544 494 Totata AAB 5G NR (DFE-SCPDM, 50%, RB, 50MHz), CPRS, 50MHz) 5G NR (FFI TOD 5.83 494 Totata AAB 5G NR (DFE-SCPDM, 50%, RB, 50MHz), CPRS, 30HHz) 5G NR (FFI TOD 5.83 494 Totata AAB 5G NR (DFE-SCPDM, 50%, RB, 50MHz), CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 50%, RB, 50MHz), CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 100%, RB, 50MHz, CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 100%, RB, 50MHz, CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 100%, RB, 50MHz, CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 100%, RB, 50MHz, CPRS, 30HHz) 5G NR (FFI TOD 5.84 494 Totata AAB 5G NR (DFE-SCPDM, 100%, RB, 50MHz, CPRS, 30HHz) 5G NR (FFI TOD 5.84 494						±9.6
Togsta ARE EG NR 10FT-G/FDM, 50% RB, 50MHz, GPSK, 30H42) EG NR PFH TDD 5.88 440. TOGIS ARE SG NR 10FT-G/FDM, 50% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.87 440. TOGIS ARE SG NR 10FT-G/FDM, 50% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.88 440. TOGIS ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.88 450. 10918 ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.88 450. 10921 ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.48 450. 10922 ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.44 450. 10923 ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 30H42) SG NR PFH TDD 5.44 450. 10924 ARE SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 50H42) SG NR PFH TDD 5.54 4.90. 10928 ARC SG NR 10FT-G/FDM, 100% RB, 50MHz, GPSK, 50H42) SG NR PFH TDD 5.54 4.90. 109				5G NR FR1 TDD	5.84	±9.6
TOBST ARE SG NR IDFT-GPEN, 50% RB, 00MH2, QPSK, 30HH2) SG NR IPFT-GPEN, 50% RB, 00MH2, QPSK, 30HH2) SG NR IPFT-GPEN, 50% RB, 00MH2, QPSK, 30HH2) SG NR IPFT-GPEN, 100% SG NR IPFT-GPEN, 100% <th< td=""><td></td><td></td><td></td><td>5G NR FR1 TDD</td><td>5.85</td><td>±9.6</td></th<>				5G NR FR1 TDD	5.85	±9.6
Tools ARE SCIN IN (DFT-COPML 50X, RE, ROMAL, CIPSK, SOHAD) SCIN IN FRIT IDD C-5.78 45.94 10937 ARE SCIN IN (DFT-COPML 100X, RE, ROMAL, CIPSK, SOHAD) SCIN IN FRIT IDD 5.88 49.91 10938 ARE SCIN IN (DFT-COPML 100X, RE, SMH2, CIPSK, SOHAD) SCIN IN FRIT IDD 5.88 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH2, CIPSK, SOHAD) SCIN IN FRIT IDD 5.87 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH2, CIPSK, SOHAD) SCIN IN FRIT IDD 5.84 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SOHAD) SCIN IN FRIT IDD 5.84 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SMH4) SCIN IN FRIT IDD 5.84 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SMH4) SCIN IN FRIT IDD 5.84 49.91 10932 ARE SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SMH4) SCIN IN FRIT IDD 5.84 49.91 10932 ARC SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SMH4) SCIN IN FRIT IDD 5.84 49.91 10932 ARC SCIN IN (DFT-COPML 100X, RE, SMH4, CIPSK, SMH4) SCIN IN FRIT IDD	J			5G NR FR1 TDD	5.83	±9.6
10977 AAB 5G NR (DFT=CPEN, 59%, RB, 100 MHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 100 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 100 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, RB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 30 HHz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 100%, SB, 20 HHz, CPSK, 15Hz) 5G NR (PFT=CPEN, 10				5G NR FR1 TDD	5.87	±9.6
Totatis AAC So NR PERT DOP -5-OPEM. 1009K RD, SMH2, OPSK, S0 MH2) So NR PERT TDO 5-88 449. 10931 AAB SG NR (DFT-5-OPEM. 1009K RD, TSMH2, OPSK, S0 MH2) SG NR PERT TDO 5-87 449. 10921 AAB SG NR (DFT-5-OPEM. 1009K RD, TSMH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10922 AAB SG NR (DFT-5-OPEM. 1009K RD, ZSMH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10923 AAB SG NR (DFT-5-OPEM. 1009K RD, ZSMH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10923 AAB SG NR (DFT-5-OPEM. 1009K RD, ZSMH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10924 AAB SG NR (DFT-5-OPEM. 109K RD, RD MH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10924 AAB SG NR (DFT-5-OPEM. 109K RD, RD MH2, OPSK, S0 MH2) SG NR PERT TDO 5-84 499. 10926 AAB SG NR (DFT-5-OPEM. 109K RD, RD MH2, OPSK, 15 MH2) SG NR PERT TDO 5-84 499. 10928 AAC SG NR (DFT-5-OPEM. 109K RD, RD MH2, OPSK, 15 MH2) SG NR PERT PDO 5-82 <t< td=""><td></td><td></td><td></td><td>5G NR FR1 TDD</td><td>5.94</td><td>±9.6</td></t<>				5G NR FR1 TDD	5.94	±9.6
10320 AAB CG NH (DFF-S-OFDM, 100% RB, 15MHz, OPSK, 00HHz) FG AH FFH TDD 5.47 49. 10321 AAB SG NH (DFF-S-OFDM, 100% RB, 25MHz, OPSK, 00HHz) FG AN FFH TDD 5.44 4.91 10322 AAB SG NH (DFF-S-OFDM, 100% RB, 25MHz, OPSK, 00HHz) FG AN FFH TDD 5.44 4.93 10322 AAB SG NH (DFF-S-OFDM, 100% RB, 20MHz, OPSK, 30HHz) FG NH FFH TDD 5.44 4.93 10325 AAB SG NH (DFF-S-OFDM, 100% RB, 50MHz, OPSK, 30HHz) FG NH FFH TDD 5.44 4.93 10326 AAB SG NH (DFF-S-OFDM, 100% RB, 50MHz, OPSK, 30HHz) FG NH FH TDD 5.44 4.90 10328 AAC SG NH (DFF-S-OFDM, 106% RB, 50MHz, OPSK, 15MHz) FG NH FH TDD 5.24 4.90 10328 AAC SG NH (DFF-S-OFDM, 118, 15MHz, OPSK, 15MHz) FG NH FH TDD 5.52 4.90 10328 AAC SG NH (DFF-S-OFDM, 118, 15MHz, OPSK, 15MHz) FG NH FH TDD 5.51 4.91 10328 AAC SG NH (DFF-S-OFDM, 118, 15MHz, OPSK, 15MHz) FG NH FH TDD 5.51 4.91 10332				5G NR FR1 TDD	5.86	±9.6
10022 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.44 4.94 10222 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.84 4.93 10224 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.84 4.93 10225 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.84 4.93 10225 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.44 4.90 10225 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FITTOD 5.44 4.90 10226 AAB SG NR IDFT=-CPDM_100K RB_20MHz_CPSK_00Hz) SG NR FIT DD 5.52 4.90 10282 ACC SG NR IDFT=-CPDM_11RB_10MHz_CPSK_15Hz) SG NR FIT DD 5.52 4.90 10382 ACC SG NR IDFT=-CPDM_11RB_20MHz_CPSK_15Hz) SG NR FIT DD 5.52 4.90 10383 ACC SG NR IDFT=-CPDM_11RB_20MHz_CPSK_15Hz) SG NR FIT DD 5.51 4.90 10383 ACC SG NR IDFT=-CPDM_11RB_20MHz_	10919	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10022 AAB GAR (DFT-S-OPDM, 100K, RD, 25MHz, OPSK, 30MHz) 5G AN FPH TDD 5.24 4.91 10023 AAB SG AN (DFT-S-OPDM, 100K, RD, 26MHz, OPSK, 30MHz) 5G AN FPH TDD 5.24 4.91 10024 AAB SG AN (DFT-S-OFDM, 100K, RD, 26MHz, OPSK, 30MHz) 5G AN FPH TDD 5.24 4.91 10025 AAB SG AN (DFT-S-OFDM, 100K, RD, 80MHz, OPSK, 30MHz) 5G AN FPH TDD 5.44 4.91 10026 AAB SG AN (DFT-S-OFDM, 100K, RD, 80MHz, OPSK, 30MHz) 5G AN FPH TDD 5.24 4.91 10028 AAC SG AN (DFT-S-OFDM, 100K, RD, 80MHz, OPSK, 15MHz) 5G AN FPH TDD 5.52 4.91 10028 AAC SG AN (DFT-S-OFDM, 118, B, SMHz, OPSK, 15MHz) 5G AN FPH TDD 5.51 4.91 10038 AAC SG AN (DFT-S-OFDM, 118, B, SMHz, OPSK, 15MHz) 5G AN FPH TDD 5.51 4.91 10384 AAC SG AN (DFT-S-OFDM, 118, B, SMHz, OPSK, 15MHz) 5G AN FPH FDD 5.51 4.91 10384 AAC SG AN (DFT-S-OFDM, 118, B, SMHz, OPSK, 15MHz) 5G AN FPH FDD 5.51 4.91 <	10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
TOBSE AAB G NIN (DFFS-OFDM, 100% RB, 30 MLz, OPSK, 30 HL2) G ON R FRI TDD 5.5.44 4.9.9 TOBSE AAB SG NIR (DFFS-OFDM, 100% RB, 30 MLz, OPSK, 30 HL2) GG NIR FRI TDD 5.5.44 4.9.9 TOBSE AAB SG NIR (DFFS-OFDM, 100% RB, 60 MLz, OPSK, 30 HL2) GG NIR FRI TDD 5.5.44 4.9.9 TOBSE AAB SG NIR (DFFS-OFDM, 100% RB, 60 MLz, OPSK, 150 HL2) GG NIR FRI TDD 5.5.44 4.9.9 TOBSE AAC G SG NIR (DFFS-OFDM, 178, 81 MHL2, OPSK, 150 HL2) GG NIR FRI TDD 5.5.2 4.9.0 TOBSE AAC G SG NIR (DFFS-OFDM, 178, 81 MHL2, OPSK, 150 HL2) GS NIR FRI TDD 5.5.2 4.9.0 TOBSE AAC G SG NIR (DFFS-OFDM, 178, 20 MLH2, OPSK, 150 HL2) GS NIR FRI TDD 5.5.1 4.9.0 TOBSE AAC G SG NIR (DFFS-OFDM, 178, 20 ML42, OPSK, 150 HL2) GS NIR FRI TDD 5.5.1 4.9.0 TOBSE AAC G SG NIR (DFFS-OFDM, 178, 20 ML42, OPSK, 150 HL2) GS NIR FRI TDD 5.5.1 4.9.0 TOBSE AAC G SG NIR (DFFS-OFDM, 198, 20 ML42, OPSK, 150 HL2) GS NIR (FFS OFDM, 199, 20 ML42, OPSK	10921	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
TODB AND G GNR (DFF-COFDM, 100% RB, 50 MHz, OPSK, 50 Hz) G GN R FHT TOD 5.44 49. 10828 AAB G GN R (DFF-COFDM, 100% RB, 50 MHz, OPSK, 50 Hz) 50 NR FHT TOD 5.44 49. 10828 AAB G GN R (DFF-COFDM, 100% RB, 80 MHz, OPSK, 50 Hz) 50 NR FHT TOD 5.44 49. 10828 AAC G GN R (DFF-COFDM, 180, 70 MLz, OPSK, 15 Hz) 50 NR FHT FDD 5.52 4.9. 10828 AAC G GN R (DFF-OFDM, 180, 70 MHz, OPSK, 15 Hz) 50 NR FHT FDD 5.52 4.9. 10828 AAC G GN R (DFF-OFDM, 180, 50 MHz, OPSK, 15 Hz) 50 NR FHT FDD 5.52 4.9. 10838 AAC G GN R (DFF-OFDM, 180, 30 MHz, OPSK, 15 Hz) 50 NR FHT FDD 5.51 4.9. 10838 AAC G GN R (DFF-OFDM, 180, 30 MHz, OPSK, 15 Hz) 50 NR FHT FDD 5.51 4.9. 10838 AAC G GN R (DFF-OFDM, 180, 30 MHz, OPSK, 15 Hz) 50 NR FHT FDD 5.61 4.9. 10838 AAC G GN R (DFF-OFDM, 500, 680, 780, 78, 78, 16 Hz) 50 NR FHT FDD 5.77 4.9. 10848	10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)			±9.6
TOUBDE AAB GE NR (DFTOFDM, 100% RB, SOMH-2, CPSK, SOMH-2) SG NR RF1 TDD 5.53 4.99. 1082E AAB SG NR (DFT-SOFDM, 100% RB, SOMH-2, OPSK, SOMH-2) SG NR FR1 TDD 5.544 4.99. 1082E AAB SG NR (DFT-SOFDM, 100% RB, SOMH-2, OPSK, SOMH-2) SG NR FR1 FDD 5.52 4.99. 1082B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.52 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. 1083B AAC SG NR (DFT-SOFDM, 1 RB, SMH-2, OPSK, 15 KH2) SG NR FR1 FDD 5.51 4.99. <td< td=""><td>10923</td><td>AAB</td><td></td><td> · · · · · · · · · · · · · · · ·</td><td></td><td>±9.6</td></td<>	10923	AAB		· · · · · · · · · · · · · · · ·		±9.6
TABLE GAB GAB </td <td>10924</td> <td>AAB</td> <td></td> <td></td> <td></td> <td>±9.6</td>	10924	AAB				±9.6
TOB22 AAB GS NR FIRT TOD 5.9.4 4.9.5 10822 AAC TG NR FIRT TOD 5.2.4 4.9.5 10828 AAC TG NR FIRT FOD 5.5.2 4.9.5 10829 AAC TG NR FIRT FOD 5.5.2 4.9.5 10820 AAC TG NR FIRT FOD 5.5.2 4.9.5 10821 AAC TG NR FIRT FOD 5.5.1 4.9.5 10831 AAC TG NR FIRT FOD 5.5.1 4.9.5 10833 AAC TG NR FIRT FOD 5.5.1 4.9.5 10834 AAC TG NR FIRT FOD 5.5.1 4.9.5 10835 AAC TG NR FIRT FOD 5.5.1 4.9.5 10836 AAC TG NR FIRT FOD 5.5.1 4.9.5 10837 AAC TG NR FIRT FOD 5.5.7 4.9.5 10838 AAC TG NR FIRT FOD 5.9.0 4.9.5 10838 AAC TG NR FIRT FOD 5.9.0 4.9.5 10838 AAC TG NR	10925	AAB				±9.6
T0828 AAC 5G NR [DFT=0FDM, 1 RB, 5MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.52 49. 10929 AAC 5G NR [DFT=0FDM, 1 RB, 10MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.52 49. 10930 AAC 5G NR [DFT=0FDM, 1 RB, 10MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.51 49. 10932 AAC 5G NR [DFT=0FDM, 1 RB, 20MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.51 49. 10932 AAC 5G NR [DFT=0FDM, 1 RB, 20MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.51 49. 10934 AAC 5G NR [DFT=0FDM, 1 RB, 30MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.51 49. 10935 AAC 5G NR [DFT=0FDM, 1 RB, 50MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.51 49. 10938 AAC 5G NR [DFT=0FDM, 50% RB, 5MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.80 49. 10939 AAC 5G NR [DFT=0FDM, 50% RB, 20MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.82 49. 10939 AAC 5G NR [DFT=0FDM, 50% RB, 20MHz, OPSK, 15kHz] 5G NR FR1 FDD 5.82 49. 10939 AAC 5G NR		ł				±9.6
Table Factor Figure 2005 Figu						±9.6
10930 AAC 5G NR (DFT=-OFDM, 1R), 20PK, 15KH2) 5G NR FRI FDD 5.52 49. 10931 AAC 5G NR (DFT=-OFDM, 1R), 20PK, 15KH2) 5G NR (DFT=-OFDM, 5R), 20PK, 15KH2) 5G NR (DT=-OFDM, 5R), 20PK, 15KH2) 5G NR (DT=-OFDM, 5R), 20PK, 15KH2) 5G NR (DT=-OFDM, 5R), 20PK, 15KH2)						
10931 AAC 5G NR (DFTs-OFDM, 1 RB, 20 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.51 ±9. 10932 AAC 5G NR (DFTs-OFDM, 1 RB, 26 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.51 ±9. 10933 AAC 5G NR (DFTs-OFDM, 1 RB, 30 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.51 ±9. 10934 AAC 5G NR (DFTs-OFDM, 1 RB, 50 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.51 ±9. 10936 AAC 5G NR (DFTs-OFDM, 1 RB, 50 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.90 ±9. 10936 AAC 5G NR (DFTs-OFDM, 60% RB, 10 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.90 ±9. 10938 AAC 5G NR (DFTs-OFDM, 60% RB, 10 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.82 ±9. 10939 AAC 5G NR (DFTs-OFDM, 60% RB, 20 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.83 ±9. 10941 AAC 5G NR (DFTs-OFDM, 60% RB, 20 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.83 ±9. 10944 AAC 5G NR (DFTs-OFDM, 60% RB, 20 MHz, OPSK, 15 Hz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC 5G NR (DFTs-OFDM, 60% RB, 50 MHz, OFSK, 15 Hz) 5G NR FR1 FDD 5.85						
10932 AAC SG NR (DFT-OFDM, T RB, 25MHz, OPSK, 15HHz) SG NR FRI FDD 5.51 49. 10938 AAC SG NR (DFT-OFDM, T RB, 30MHz, OPSK, 15HHz) SG NR FRI FDD 5.51 49. 10938 AAC SG NR (DFT-OFDM, T RB, 30MHz, OPSK, 15HHz) SG NR FRI FDD 5.51 49. 10938 AAC SG NR (DFT-OFDM, SR, 85, 0HLz, OPSK, 15HHz) SG NR FRI FDD 5.51 49. 10938 AAC SG NR (DFT-OFDM, SR, 85, 0HLz, OPSK, 15HHz) SG NR FRI FDD 5.77 49. 10938 AAC SG NR (DFT-OFDM, SG% RB, 20MHz, OPSK, 15HHz) SG NR FRI FDD 5.82 49. 10339 AAC SG NR (DFT-OFDM, SG% RB, 20MHz, OPSK, 15HHz) SG NR FRI FDD 5.83 49. 10349 AAC SG NR (DFT-OFDM, SG% RB, 20MHz, OPSK, 15HHz) SG NR FRI FDD 5.83 49. 10441 AAC SG NR (DFT-OFDM, SG% RB, 20MHz, OPSK, 15HHz) SG NR FRI FDD 5.83 49. 10444 AAC SG NR (DFT-OFDM, SG% RB, 50HHz, OPSK, 15HHz) SG NR FRI FDD 5.85 49. 10444 AAC <		l				±9.6
10933 AAC 5G NR (DFTs-OFDM, 1 RB, 30 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.51 4.9. 10934 AAC 5G NR (DFTs-OFDM, 1 RB, 40 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.51 4.9. 10935 AAC 5G NR (DFTs-OFDM, 1 RB, 50 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.51 4.9. 10936 AAC 5G NR (DFTs-OFDM, 50% RB, 10 HHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.90 4.9. 10937 AAC 5G NR (DFTs-OFDM, 50% RB, 10 HHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.82 4.9. 10938 AAC 5G NR (DFTs-OFDM, 50% RB, 25 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.82 4.9. 10940 AAC 5G NR (DFTs-OFDM, 50% RB, 25 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.83 4.9. 10941 AAC 5G NR (DFTs-OFDM, 50% RB, 20 MHz, QPSK, 15 HHz) 5G NR FR1 FDD 5.84 4.9. 10944 AAC 5G NR (DFTs-OFDM, 100% RB, 10 MHz, QPSK, 15 HHz) 5G NR (PTTs-OFDM, 100% RB, 10 MHz, QPSK, 15 HHz) 5G NR (PTTs-OFDM, 100% RB, 10 MHz, QPSK, 15 HHz) 5G NR (PTTs-OFDM, 100% RB, 10 MHz, QPSK, 15 HHz) 5G NR (PTTs OFDM, 100% RB, 10 MHz, QPSK, 15 HHz) 5G NR (PTTS OFDM, 100% RB, 10 M						
10334 AAC 5G NR (DFTs-OFDM, 1 RB, 40 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.51 49. 10335 AAD 5G NR (DFTs-OFDM, 50% RB, 50MHz, QPSK, 15 KHz) 5G NR RF11 FDD 5.91 49. 10397 AAC 5G NR (DFTs-OFDM, 50% RB, 50MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.90 49. 10398 AAC 5G NR (DFTs-OFDM, 50% RB, 15 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.82 49. 10398 AAC 5G NR (DFTs-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.82 49. 10340 AAC 5G NR (DFTs-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.88 49. 10341 AAC 5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.88 49. 10342 AAC 5G NR (DFTs-OFDM, 50% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.88 49. 10343 AAD 5G NR (DFTs-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.84 49. 10344 AAC 5G NR (DFTs-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.84 49. 1034	1					
10935 AAD 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.51 19. 10936 AAC 5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.90 49. 10937 AAC 5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.90 49. 10938 AAC 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.82 49. 10940 AAC 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.88 49. 10941 AAC 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.88 49. 10943 AAD 5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.86 49. 10943 AAD 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.86 49. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.84 49. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 49.		<u> </u>				
10838 AAC 5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.90 49 10937 AAC 5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.77 49 10938 AAC 5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.82 49 10940 AAC 5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 49 10941 AAC 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 49 10942 AAC 5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 49 10943 AAC 5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 49 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 49 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 49 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 49 109		<u>}</u>				
10337 AAC 5G NR (DFTs-OFDM, 50% RB, 10 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.77 ±9. 10338 AAC 5G NR (DFTs-OFDM, 50% RB, 15 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.89 ±9. 10340 AAC 5G NR (DFTs-OFDM, 50% RB, 25 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.82 ±9. 10441 AAC 5G NR (DFTs-OFDM, 50% RB, 20 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.83 ±9. 10942 AAC 5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.84 ±9. 10943 AAD 5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.85 ±9. 10944 AAC 5G NR (DFTs-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.85 ±9. 10945 AAC 5G NR (DFTs-OFDM, 100% RB, 15 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.85 ±9. 10946 AAC 5G NR (DFTs-OFDM, 100% RB, 25 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.84 ±9. 10947 AAC 5G NR (DFTs-OFDM, 100% RB, 25 MHz, QPSK, 15 KHz) 5G NR FP1 FDD 5.84 ±9. <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
10938 AAC 5G NR FCFL-OFDM, 50% RB, 15MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.90 ±9. 10939 AAC 5G NR FCFL-OFDM, 50% RB, 20MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.82 ±9. 10941 AAC 5G NR (DFFs-OFDM, 50% RB, 20MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.83 ±9. 10942 AAC 5G NR (DFFs-OFDM, 50% RB, 30MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.83 ±9. 10942 AAC 5G NR (DFFs-OFDM, 50% RB, 30MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.85 ±9. 10943 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.81 ±9. 10944 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.83 ±9. 10945 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.83 ±9. 10946 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.83 ±9. 10947 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.87 ±9. 10948 AAC 5G NR (DFFs-OFDM, 100% RB, 5MHz, QPSK, 15Hz) 5G NR FCFLFDD 5.87 <t< td=""><td></td><td></td><td></td><td></td><td>L</td><td>. · · · · · · · · · · · · · · · · · · ·</td></t<>					L	. · · · · · · · · · · · · · · · · · · ·
10939 AAC 5G NR (FFT=-0FDM, 50% RB, 20MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.82 ±9. 10940 AAC 5G NR (DFT=-0FDM, 50% RB, 20MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.83 ±9. 10941 AAC 5G NR (DFT=-0FDM, 50% RB, 40MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.83 ±9. 10942 AAC 5G NR (DFT=-0FDM, 50% RB, 50MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.85 ±9. 10943 AAC 5G NR (DFT=-0FDM, 100% RB, 5MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.81 ±9. 10944 AAC 5G NR (DFT=-0FDM, 100% RB, 5MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.85 ±9. 10945 AAC 5G NR (DFT=-0FDM, 100% RB, 5MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.84 ±9. 10946 AAC 5G NR (DFT=-0FDM, 100% RB, 20MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.87 ±9. 10947 AAC 5G NR (DFT=-0FDM, 100% RB, 20MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.87 ±9. 10948 AAC 5G NR (DFT=-0FDM, 100% RB, 20MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.87 ±9. 10945 <						±9.6
10940 AC 5G NR (DFT-s-OFDM, 50% RB, 25MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.89 ±9. 10941 AAC 5G NR (DFT-s-OFDM, 50% RB, 30MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.83 ±9. 10942 AAC 5G NR (DFT-s-OFDM, 50% RB, 50MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.85 ±9. 10943 AAC 5G NR (DFT-s-OFDM, 100% RB, 50MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 20MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.83 ±9. 10947 AAC 5G NR (DFT-s-OFDM, 100% RB, 20MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.84 ±9. 10948 AAC 5G NR (DFT-s-OFDM, 100% RB, 20MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 20MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.87 ±9. 10948 <td>}</td> <td></td> <td></td> <td></td> <td></td> <td>±9.6</td>	}					±9.6
10941 AAC 5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.83 ±9. 10942 AAC 5G NR (DFTs-OFDM, 50% RB, 30 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.85 ±9. 10943 AAC 5G NR (DFTs-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC 5G NR (DFTs-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.85 ±9. 10945 AAC 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 ±9. 10946 AAC 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 ±9. 10947 AAC 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10951 AAD 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.82 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.25 ±9.		[)	· · · · · · · · · · · · · · · · · · ·		±9.6
10942 AAC SG NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.85 ±9. 10943 AAD SG NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.85 ±9. 10944 AAC SG NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.81 ±9. 10945 AAC SG NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 ±9. 10946 AAC SG NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 ±9. 10947 AAC SG NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 ±9. 10948 AAC SG NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.84 ±9. 10949 AAC SG NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10950 AAD SG NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10951 AAD SG NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.25 ±9.						±9.6
10943 AAD SG NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.95 ±9. 10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.81 ±9. 10945 AAC 5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.83 ±9. 10946 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.83 ±9. 10947 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10948 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10950 AAC 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 KHz) 5G NR FR1 FDD 8.22 ±9.						±9.6
10944 AAC 5G NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.81 ±9. 10945 AAC 5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15KHz) 5G NR FR1 FDD 5.85 ±9. 10946 AAC 5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10947 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10948 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.94 ±9. 10950 AAC 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 KHz) 5G NR FR1 FDD 5.92 ±9. 10951 AAD 5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 KHz) 5G NR FR1 FDD 8.22 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 KHz) 5G NR FR1 FDD 8.23 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 KHz) 5G NR FR1 FDD 8.23 ±9. <				5G NR FR1 FDD	5.95	±9.6
10945 AAC 5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.85 ±9. 10946 AAC 5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.83 ±9. 10947 AAC 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10948 AAC 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10950 AAC 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.92 ±9. 10951 AAD 5G NR DL (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 8.25 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.23 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.42 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9.	1			5G NR FR1 FDD	5.81	±9.6
10947 AAC 5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10948 AAC 5G NR (DFTs-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10949 AAC 5G NR (DFTs-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10950 AAC 5G NR (DFTs-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10951 AAD 5G NR (DFTs-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.92 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.25 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.15 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 HHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 HHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 HHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. <		AAC		5G NR FR1 FDD	5.85	±9.6
10948 AAC 5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.87 ±9. 10950 AAC 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10951 AAD 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.94 ±9. 10952 AAA 5G NR DL CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.15 ±9. 10953 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.15 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.42 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.44 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9.	10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10949 AAC 5G NR (DFT-s-OFDM, 100% RB, 30MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.87 ±9. 10950 AAC 5G NR (DFT-s-OFDM, 100% RB, 50MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.94 ±9. 10951 AAD 5G NR (DFT-s-OFDM, 100% RB, 50MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.92 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.25 ±9. 10953 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.15 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 20MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.42 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 20MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.41 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.42 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.41 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.33 ±9. <t< td=""><td>10947</td><td>AAC</td><td>5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)</td><td>5G NR FR1 FDD</td><td>5.87</td><td>±9.6</td></t<>	10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10950 AAC 5G NR (DFT-s-OFDM, 100% RB, 40MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.94 ±9. 10951 AAD 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15kHz) 5G NR FR1 FDD 5.92 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.25 ±9. 10953 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.23 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.23 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.42 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9. 10959 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.33 ±9.	10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5,94	±9.6
10951 AAD 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) 5G NR FR1 FDD 5.92 ±9. 10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.25 ±9. 10953 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.15 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.23 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9. 10960 AAC 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR FR1 TDD 9.36 ±9.	10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)			±9.6
10952 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.25 ±9. 10953 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.15 ±9. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 15MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.23 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 20MHz, 64-QAM, 15kHz) 5G NR FR1 FDD 8.42 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.14 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.14 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.31 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.31 ±9. 10959 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30kHz) 5G NR FR1 FDD 8.33 ±9. 10960 AAC 5G NR DL (CP-OFDM, TM 3.1, 10MHz, 64-QAM, 15kHz) 5G NR FR1 TDD 9.36 ±9.	10950	AAC				±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. 10954 AAA 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.23 ±9. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.42 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 5MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9. 10960 AAC 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 TDD 9.32 ±9. 10961 AAB 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR FR1 TDD 9.49 10962 AAB 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 TDD 9.49 10964	10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)			±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. 10955 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR FR1 FDD 8.42 ±9. 10956 AAA 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.14 ±9. 10957 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.31 ±9. 10958 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.61 ±9. 10959 AAA 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.61 ±9. 10959 AAA 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR FR1 FDD 8.33 ±9. 10960 AAC 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 TDD 9.36 ±9. 10961 AAB 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR FR1 TDD 9.40 ±9. 10962 AAB 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR FR1 TDD 9.40 ±9. 10964 AAC 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30	10952	AAA			- <u> </u>	±9.6
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10974 AAB 5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz) 5G NR FR1 TDD 10.28 ±9 10978 AAA ULLA BDR ULLA 1.16 ±9						±9.6
	10974	AAB		5G NR FR1 TDD	10.28	±9.6
10979 AAA ULLA HDR4 ULLA 8.58 ±9	10978	AAA	ULLA BDR	1	1.16	±9.6
	10979	AAA	ULLA HDR4	ULLA	8.58	±9.6
	· · · · · · · · ·	AAA				±9.6
	1	4				±9.6
10982 AAA ULLA HDRp8 ULLA 3.43 ±9	10982	AAA	ULLA HDRp8	ULLA	3.43	±9.6

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
10983	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9,6
10985	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10986	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAA	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10988	AAA	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10989	AAA	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	±9.6
10990	AAA	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
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	±9.6
11009	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, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±9.6
11011	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
11013	AAA	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11014	AAA	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAA	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAA	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAA	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAA	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAA	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAA	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAA	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAA	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAA	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAA	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAA	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026	AAA	IEEE 802.11be (320 MHz, MCS0, 99pc 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.