

HAC RF-Emission Test Report

Report No. : HFBFLF-WTW-P21010278

Applicant : ASUSTeK COMPUTER INC.

Address : 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

Product : EXP21 Smartphone

FCC ID : MSQI007D

Brand : ASUS

Model No. : ASUS_I007D

Standards : FCC 47 CFR Part 20.19, ANSI C63.19-2011
KDB 285076 D01 v05, KDB 285076 D02 v03

Sample Received Date : Jan. 12, 2021

Date of Testing : Mar. 23, 2021 ~ Mar. 30, 2021

M-Rating Summary : M3

Lab Address : No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location : No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, Taiwan

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's HAC characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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FCC Accredited No.: TW0003

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Release Control Record

Report No.	Reason for Change	Date Issued
HFBFLF-WTW-P21010278	Initial release	Apr. 20, 2021

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1. Summary of Maximum M-Rating

Mode	Band	Maximum Audio Interference Level (dBV/m)	M-Rating
GSM	GSM850	33.19	M4
	GSM1900	22.53	M4
WCDMA	Band II	N/A	M4
	Band IV	N/A	M4
	Band V	N/A	M4
CDMA	BC0	23.98	M4
	BC1	17.96	M4
	BC10	23.73	M4
FDD-LTE	Band 2	N/A	M4
	Band 4	N/A	M4
	Band 5	N/A	M4
	Band 7	N/A	M4
	Band 12	N/A	M4
	Band 13	N/A	M4
	Band 14	N/A	M4
	Band 17	N/A	M4
	Band 25	N/A	M4
	Band 26	N/A	M4
	Band 30	N/A	M4
	Band 66	N/A	M4
TDD-LTE	Band 38	26.24	M4
	Band 40	29.98	M4
	Band 41	28.45	M4
	Band 42	22.07	M4
	Band 43	26.9	M4
	Band 48	27	M4
FDD-5G-FR1	5G NR n2	N/A	M4
	5G NR n5	N/A	M4
	5G NR n7	N/A	M4
	5G NR n12	N/A	M4
	5G NR n13	N/A	M4
	5G NR n14	N/A	M4
	5G NR n25	N/A	M4
	5G NR n26	N/A	M4
	5G NR n28	N/A	M4
	5G NR n30	N/A	M4
	5G NR n66	N/A	M4
	5G NR n70	N/A	M4
TDD-5G-FR1	5G NR n71	N/A	M4
	5G NR n38	N/A	M4
	5G NR n40	N/A	M4
	5G NR n41	N/A	M4
	5G NR n48	N/A	M4
	5G NR n77	N/A	M4
	5G NR n78	N/A	M4
WLAN	5G NR n79	N/A	M4
	2.4G	31.62	M3
	5.2G	27.32	M4
	5.3G	27.27	M4
	5.6G	21.87	M4
	5.8G	28.3	M4
M-Rating Summary		M3	

Note:

1. The HAC RF emission limit (**M-rating Category M3**) is specified in FCC 47 CFR part 20.19 and ANSI C63.19.
2. The device RF emission rating is determined by the minimum rating.

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2. Description of Equipment Under Test

EUT Type	EXP21 Smartphone
FCC ID	MSQI007D
Brand Name	ASUS
Model Name	ASUS_I007D
Tx Frequency Bands (Unit: MHz)	GSM850 : 824.2 ~ 848.8 GSM1900 : 1850.2 ~ 1909.8 WCDMA Band II : 1852.4 ~ 1907.6 WCDMA Band IV : 1712.4 ~ 1752.6 WCDMA Band V : 826.4 ~ 846.6 CDMA BC0 : 824.7 ~ 848.31 CDMA BC1 : 1851.25 ~ 1908.75 CDMA BC10 : 817.9 ~ 823.1 LTE Band 2 : 1850.7 ~ 1909.3 LTE Band 4 : 1710.7 ~ 1754.3 LTE Band 5 : 824.7 ~ 848.3 LTE Band 7 : 2502.5 ~ 2567.5 LTE Band 12 : 699.7 ~ 715.3 LTE Band 13 : 779.5 ~ 784.5 LTE Band 14 : 790.5 ~ 795.5 LTE Band 17 : 706.5 ~ 713.5 LTE Band 25 : 1850.7 ~ 1914.3 LTE Band 26 : 814.7 ~ 848.3 LTE Band 30 : 2307.5 ~ 2312.5 LTE Band 38 : 2572.5 ~ 2617.5 LTE Band 40 : 2302.5 ~ 2397.5 LTE Band 41 : 2498.5 ~ 2687.5 LTE Band 42 : 3552.5 ~ 3597.5 LTE Band 43 : 3652.5 ~ 3672.5 LTE Band 48 : 3552.5 ~ 3697.5 LTE Band 66 : 1710.7 ~ 1779.3 LTE Band 71 : 665.5 ~ 695.5 5G NR n2 : 1852.5 ~ 1907.5 5G NR n5 : 826.5 ~ 846.5 5G NR n7 : 2502.5 ~ 2567.5 5G NR n12 : 701.5 ~ 713.5 5G NR n14 : 790.5 ~ 795.5 5G NR n25 : 1852.5 ~ 1912.5 5G NR n26 : 816.5 ~ 846.5 5G NR n30 : 2307.5 ~ 2312.5 5G NR n38 : 2572.5 ~ 2617.5 5G NR n40 : 2302.5 ~ 2397.5 5G NR n41 : 2506.02 ~ 2679.99 5G NR n48 : 3552.5 ~ 3697.5 5G NR n66 : 1712.5 ~ 1777.5 5G NR n71 : 665.5 ~ 695.5 5G NR n77 : 3710.01 ~ 3969.99 5G NR n78 : 3305 ~ 3795 5G NR n257 : 26500 ~ 29500 5G NR n258 : 24250 ~ 27500 5G NR n260 : 37000 ~ 40000 5G NR n261 : 27500 ~ 28350 WLAN 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825 Bluetooth 2402 ~ 2480
Modulations Supported in Uplink	GSM & GPRS : GMSK EDGE : 8PSK WCDMA : QPSK CDMA : QPSK LTE : QPSK, 16QAM, 64QAM 5G NR_FR1 : DFT-s- / CP-OFDM_PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11b : DSSS 802.11a/g/n/ac : OFDM

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	Bluetooth : GFSK, $\pi/4$ -DQPSK, 8-DPSK
Antenna Type	PIFA Antenna
EUT Stage	Engineering Sample

Note:

- The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

List of Accessory:

Battery	Brand Name	SCUD
	Model Name	C21P2002
	Power Rating	7.74Vdc, 15.2Wh
	Type	Li-ion
Bluetooth Earphone	Brand Name	Bang & Olufsen
	Model Name	EQ Earbud R EQ Earbud L

Air Interface and Operational Mode:

Air Interface	Bands	Transport Type	HAC Tested	Simultaneous But Not Tested	Name of Voice Service	Power Reduction
GSM	850	VO	YES	WLAN or BT	CMRS Voice	No
	1900					No
	EGPRS	VD	No ⁽¹⁾	WLAN or BT	Google Duo	No
WCDMA	II	VO	No ⁽¹⁾	WLAN or BT	CMRS Voice	No
	IV					No
	V					No
	HSPA	VD	No ⁽¹⁾	WLAN or BT	Google Duo	No
CDMA	BC0	VO	YES	WLAN or BT	CMRS Voice	No
	BC1					No
	BC10					No
	EVDO	VD	No ⁽¹⁾	WLAN or BT	Google Duo	No

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Air Interface	Bands	Transport Type	HAC Tested	Simultaneous But Not Tested	Name of Voice Service	Power Reduction
FDD-LTE	2	VD	No ⁽¹⁾	WLAN or BT	VoLTE Google Duo	No
	4					No
	5					No
	7					No
	12					No
	13					No
	14					No
	17					No
	25					No
	26					No
	30					No
	66					No
	71					No
TDD-LTE	38	VD	YES	WLAN or BT	VoLTE Google Duo	No
	40					No
	41					No
	42					No
	43					No
	48					No
FDD-5G-FR1	n2	VD	No ⁽¹⁾	WLAN or BT	Google Duo	No
	n5					No
	n7					No
	n12					No
	n13					No
	n14					No
	n25					No
	n26					No
	n28					No
	n30					No
	n66					No
	n70					No
TDD-5G-FR1	n38	VD	No ⁽¹⁾	WLAN or BT	Google Duo	No
	n40					No
	n41					No
	n48					No
	n77					No
	n78					No
WLAN	2.4G	VD	YES	WWAN	VoWiFi Google Duo	No
	5.2G	VD	YES		VoWiFi Google Duo	No
	5.3G					No
	5.6G					No
	5.8G					No
Bluetooth	2.4G	DT	No	WWAN	N/A	No
Transport Type VO = Legacy Cellular Voice Service DT = Digital Transport Only (No Voice) VD = IP Voice Service over Digital Transport			Note 1. It applies the low power exemption per ANSI C63.19-2011.			

3. HAC RF Emission Measurement System

3.1 SPEAG DASY6 System

The SPEAG DASY6 system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY6 software defined. The DASY6 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

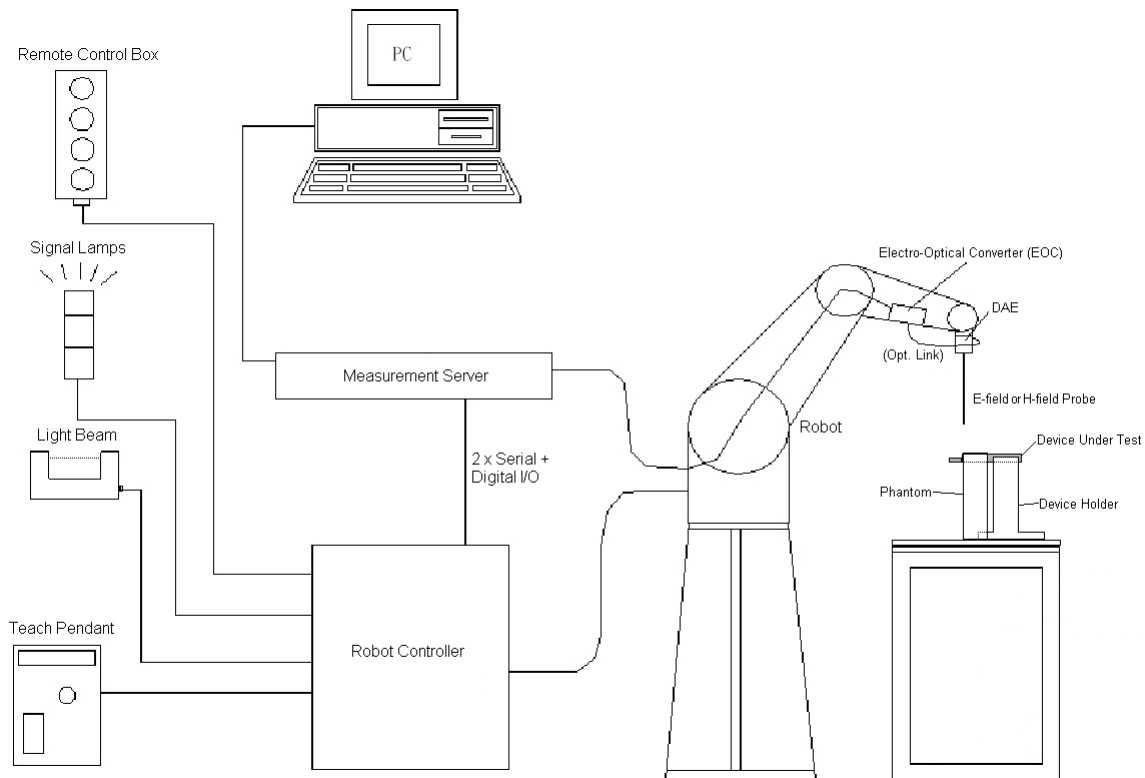


Fig-3.1 SPEAG DASY6 System Setup

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3.1.1 Robot

The DASY6 system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY6: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ± 0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

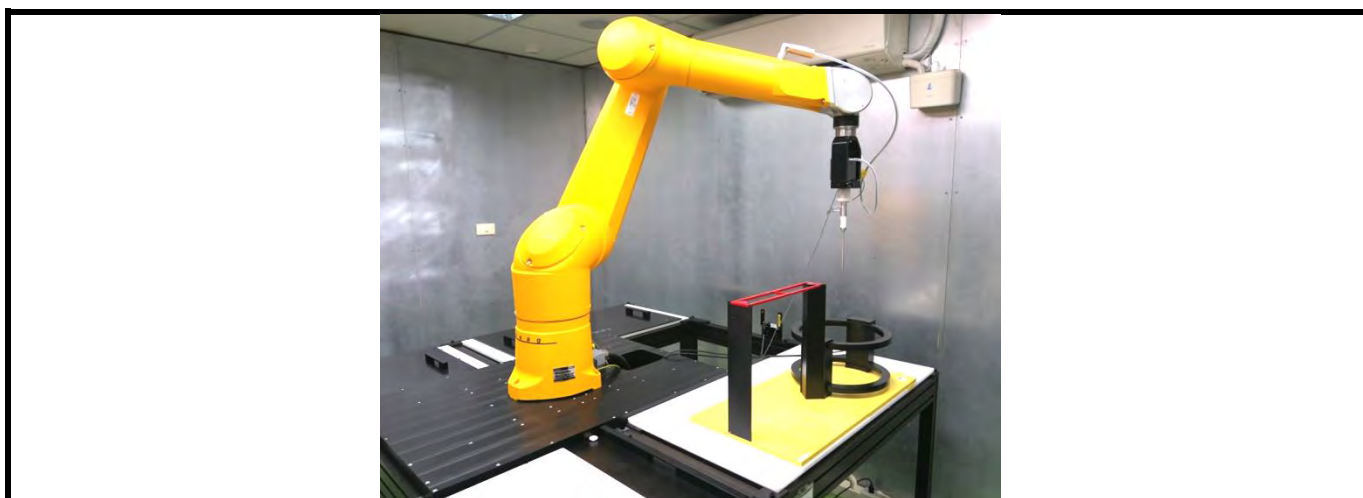


Fig-3.2 DASY6 Measurement System

3.1.2 Probes

Model	ER3DV6	
Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges	
Frequency	40 MHz to 3 GHz Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)	
Dynamic Range	2 V/m to 1000 V/m Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (Tip: 16 mm) Tip diameter: 8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.5 mm	

Model	EF3DV3	
Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges	
Frequency	40 MHz to 6 GHz Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)	
Dynamic Range	2 V/m to 1000 V/m Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 1.5 mm	

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3.1.3 Data Acquisition Electronics (DAE)

Model	DAE3, DAE4	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)	
Input Offset Voltage	< 5µV (with auto zero)	
Input Bias Current	< 50 fA	
Dimensions	60 x 60 x 68 mm	

3.1.4 Phantoms

Model	Test Arch	
Construction	Enables easy and well defined positioning of the phone and validation dipoles as well as simple teaching of the robot.	
Dimensions	Length : 370 mm Width : 370 mm Height : 370 mm	

3.1.5 Device Holder

Model	Mounting Device	
Construction	The Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to ANSI C63.19.	
Material	POM	

3.1.6 RF Emission Calibration Dipoles

Model	CD-Serial	
Construction	Free space antenna Hearing Aid susceptibility measurements according to ANSI C63.19. Validation of Hearing Aid RF setup for wireless device emission measurements according to ANSI C63.19	
Frequency	CD700V3 : 698 ~ 806 MHz CD835V3 : 800 ~ 960 MHz CD1880V3 : 1710 ~ 2000 MHz CD2450V3 : 2250 ~ 2650 MHz CD2600V3 : 2450 ~ 2750 MHz CD3500V3 : 3300 ~ 3950 MHz CD5500V3 : 5000 ~ 5900 MHz	
Return Loss	CD700V3 : > 15 dB (750 MHz > 20 dB) CD835V3 : > 15 dB (835 MHz > 25 dB) CD1880V3 : > 18 dB (1880 MHz > 20 dB) CD2450V3 : > 18 dB (2450 MHz > 25 dB) CD2600V3 : > 18 dB (2600 MHz > 20 dB) CD3500V3 : > 16 dB (3500 MHz > 20 dB) CD5500V3 : > 18 dB (5500 MHz > 20 dB)	
Power Capability	> 40 W continuous	

3.2 DASY6 System Verification

The system check verifies that the system operates within its specifications. It is performed before every E-field measurement. The system check uses normal measurements in the center section of the arch phantom with a matched dipole at a specified distance. The system verification setup is shown as below.

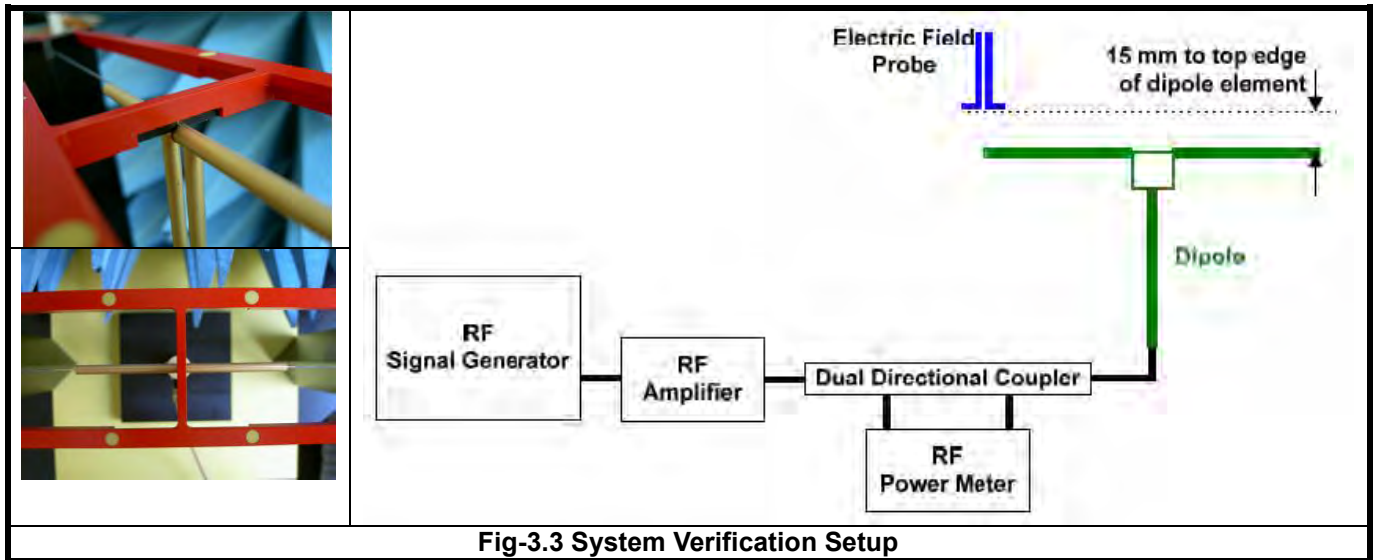


Fig-3.3 System Verification Setup

The validation dipole is placed beneath the center of arch phantom. The power meter measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power, 100 mW (20 dBm) at the dipole connector and the RF power meter is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at RF power meter.

After system check testing, the E-field result will be compared with the reference value derived from validation dipole certificate report. The deviation of system check should be within 25 %.

The result of system verification is shown in section 4.3 of this report.

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3.3 EUT Measurements Reference and Plane

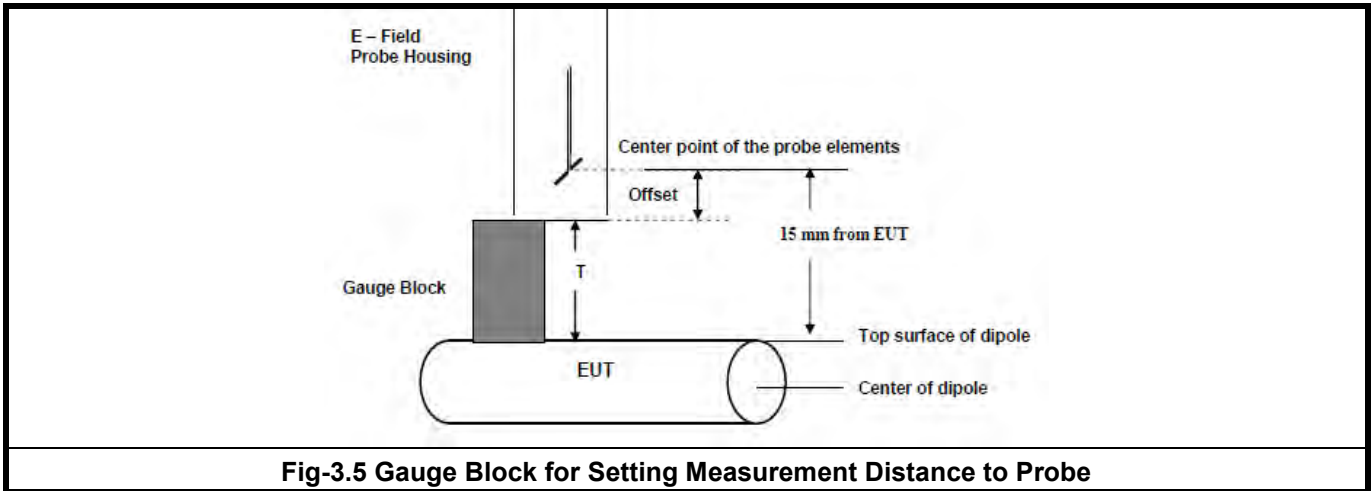
The EUT is mounted in the device holder. The acoustic output of the EUT will coincide with the center point of the area formed by the dielectric wire and the middle bar of the arch's top frame. Then EUT will be moved vertically upwards until it touches the frame.

Fig-3.4 and Fig-3.5 illustrate the references and reference plane that is used in the RF emissions measurement.

- The grid is 50 mm by 50 mm area that is divided into nine evenly sized blocks or sub-grids.
- The grid is centered on the audio frequency output transducer of the EUT.
- The grid is in a reference plane, which is defined as the planar area that contains the highest point in the area of the phone that normally rests against the user's ear. It is parallel to the centerline of the receiver area of the phone and is defined by the points of the receiver-end of the EUT handset, which in normal handset use rest against the ear.
- The measurement plane is parallel to and 15 mm in front of the reference plane.



Fig-3.4 EUT Reference and Plane



3.4 HAC RF Emission Measurement Procedure

The RF emissions test procedure for wireless communications device is as below.

1. Confirm the proper operation of the field probe, probe measurement system, and other instrumentation and the positioning system.
2. Position the WD in its intended test position.
3. Set the WD to transmit a fixed and repeatable combination of signal power and modulation characteristic that is representative of the worst case (highest interference potential) encountered in normal use. Transiently occurring start-up, changeover, or termination conditions, or other operations likely to occur less than 1% of the time during normal operation, may be excluded from consideration.
4. The center sub-grid shall be centered on the T-Coil mode perpendicular measurement point or the acoustic output, as appropriate. Locate the field probe at the initial test position in the 50 mm by 50 mm grid, which is contained in the measurement plane, illustrated in Fig-3.4. If the field alignment method is used, align the probe for maximum field reception.
5. Record the reading at the output of the measurement system.
6. Scan the entire 50 mm by 50 mm region in equally spaced increments and record the reading at each measurement point. The distance between measurement points shall be sufficient to assure the identification of the maximum reading.
7. Identify the five contiguous sub-grids around the center sub-grid whose maximum reading is the lowest of all available choices. This eliminates the three sub-grids with the maximum readings. Thus, the six areas to be used to determine the WD's highest emissions are identified.
8. Identify the maximum reading within the non-excluded sub-grids identified in step 7.
9. Indirect Measurement Method: The RF audio interference level in dB(V/m) is obtained by adding the MIF (in dB) to the maximum steady-state rms field-strength reading, in dB(V/m), from step 8. Use this result to determine the category rating.

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10. Compare this RF audio interference level with the categories in section 4.1 and record the resulting WD category rating.
- 11 For the T-Coil mode M-rating assessment, determine whether the chosen perpendicular measurement point is contained in an included sub-grid of the first can. If so, then a second scan is not necessary. The first scan and resultant category rating may be used for the T-Coil mode M-rating. Otherwise, repeat step 1 through step 9, with the grid shifted so that it is centered on the perpendicular measurement point. Record the WD category rating.

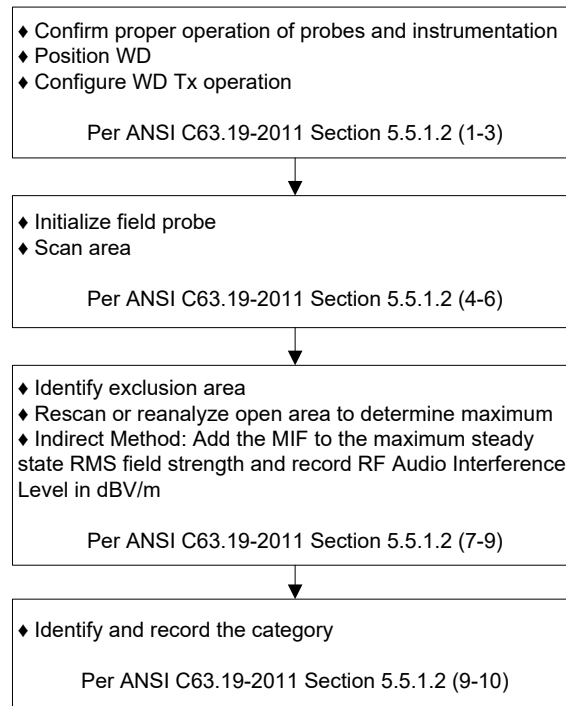


Fig-3.6 WD Near-Field Emission Test Flowchart

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3.5 Modulation Interference Factor

The HAC Standard ANSI C63.19-2011 defines a new scaling using the Modulation Interference Factor (MIF) which replaces the need for the Articulation Weighting Factor (AWF) during the evaluation and is applicable to any modulation scheme.

The Modulation Interference Factor (MIF, in dB) is added to the measured average E-field (in dBV/m) and converts it to the RF audio interference potential (in dBV/m). This level considers the audible amplitude modulation components in the RF E-field. CW fields without amplitude modulation are assumed to not interfere with the hearing aid electronics. Modulations without time slots and low fluctuations at low frequencies have low MIF values, TDMA modulations with narrow transmission slots and repetition rates of few 100 Hz have high MIF values and give similar classification as ANSI C63.19-2007.

ER3D E-field probe have a bandwidth <10 kHz and can therefore not evaluate the RF envelope in the full audio band. DASY6 is therefore using the "indirect" measurement method according to ANSI C63.19-2011 which is the primary method. This near field probe read the averaged E-field. Especially for the new high peak-to-average (PAR) signal types, the probes shall be linearized by PMR calibration in order to not overestimate the field reading.

The evaluation method for the MIF is defined in ANSI C63.19-2011 section D.7. An RMS demodulated RF signal is fed to a spectral filter (similar to an A weighting filter) and forwarded to a temporal filter acting as a quasi-peak detector. The averaged output of these filtering is scaled to a 1 kHz 80% AM signal as reference. It may alternatively be determined through analysis and simulation, because it is constant and characteristic for a communication signal. DASY6 uses well-defined signals for PMR calibration. The MIF of these signals has been determined numerically. It allows a precise scaling and is therefore automatically applied.

The following table lists the MIF values evaluated by DASY6 manufacturer (SPEAG), and the test result will be calculated with the MIF parameter automatically. The detailed parameters for E-field probe can be found in the probe calibration report in appendix C.

UID	Reversion	Communication System Name	MIF (dB)
10021	DAC	GSM-FDD (TDMA, GMSK)	3.63
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	3.75
10460	AAA	UMTS-FDD (WCDMA, AMR)	-25.43
10225	CAB	UMTS-FDD (HSPA+)	-20.39
10081	CAB	CDMA2000 (1xRTT, RC3)	-19.71
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	3.26
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	-17.67
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	-9.76
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	-1.62
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	-1.44
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	-1.54
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	-2.02
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	0.12
10427	AAC	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	-13.44
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	-3.15
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	-5.57
10769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz) TDD	-12.08
10930	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz) FDD	-15.06

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The MIF measurement uncertainty listed in following table is estimated by SPEAG.

MIF (dB)	MIF Measurement Uncertainty (dB)
-7 to +5	0.2
-13 to +11	0.5
> -20	1.0

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4. HAC Measurement Evaluation

4.1 M-Rating Category

The HAC Standard ANSI C63.19-2011 represents performance requirements for acceptable interoperability of hearing aids with wireless communications devices. When these parameters are met, a hearing aid operates acceptably in close proximity to a wireless communications device.

Emission Categories	E-Field Emissions < 960 MHz (dB V/m)	E-Field Emissions > 960 MHz (dB V/m)
Category M1	50 - 55	40 - 45
Category M2	45 - 50	35 - 40
Category M3	40 - 45	30 - 35
Category M4	< 40	< 30

4.2 EUT Configuration and Setting

For HAC RF emission testing, the EUT was linked and controlled by base station emulator. Communication between the EUT and the emulator was established by air link. The distance between the EUT and the communicating antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during HAC testing.

4.3 System Verification

The measuring results for system check are shown as below.

Frequency (MHz)	Input Power (dBm)	Target Value (V/m)	E-Field 1 (V/m)	E-Field 2 (V/m)	Average E-Field (V/m)	Deviation (%)	Test Date
835	20.0	106.7	112.4	108.8	110.6	3.66	Mar. 23, 2021
1880	20.0	88.2	83.47	81.45	82.46	-6.51	Mar. 23, 2021
2450	20.0	85.1	83.7	82	82.85	-2.64	Mar. 24, 2021
2600	20.0	84.9	81.33	79.94	80.635	-5.02	Mar. 24, 2021
3500	20.0	83.9	88.51	89.99	89.25	6.38	Mar. 24, 2021
5500	20.0	103.6	109.2	113.2	111.2	7.34	Mar. 24, 2021
2450	20.0	85.1	81.94	80.02	80.98	-4.84	Mar. 31, 2021

Note:

- Comparing to the reference target value provided by SPEAG, the validation data should be within its specification of 25 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.
- For E-Field, the deviation is $[(\text{E-Field 1} + \text{E-Field 2}) / 2 - \text{Target Value}] / \text{Target Value} \times 100\%$

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4.4 Maximum Target Conducted Power

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

Air Interface			Max. Tune-up Power									
			ANT 0	Ant 1	Ant 2	Ant 5	Ant 7	Ant 8	Ant 9	Ant 10	Ant 11	ANT 0+1
GSM	GSM850		33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EDGE850		27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	GSM1900		N/A	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EDGE1900		N/A	26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WCDMA	Band II	AMR	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		HSPA	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band IV	AMR	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		HSPA	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band V	AMR	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		HSPA	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CDMA	BC0	Full Frame Rate	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		1/8th Frame Rate	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		EVDO	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	BC1	Full Frame Rate	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		1/8th Frame Rate	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		EVDO	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	BC10	Full Frame Rate	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		1/8th Frame Rate	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		EVDO	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Air Interface		Max. Tune-up Power									
		ANT 0	Ant 1	Ant 2	Ant 5	Ant 7	Ant 8	Ant 9	Ant 10	Ant 11	ANT 0+1
FDD-LTE	Band 2	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 4	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 5	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 7	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 12	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 13	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 14	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 17	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 25	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 26	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 30	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 66	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 71	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TDD-LTE	Band 38	QPSK	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		16QAM	N/A	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		64QAM	N/A	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 40	QPSK	N/A	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		16QAM	N/A	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		64QAM	N/A	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 41 (PC2)	QPSK	N/A	26.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		16QAM	N/A	24.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		64QAM	N/A	23.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 41 (PC3)	QPSK	N/A	25.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		16QAM	N/A	24.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		64QAM	N/A	23.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Band 42	QPSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25	N/A
		16QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24	N/A
		64QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	N/A
	Band 43	QPSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25	N/A
		16QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24	N/A
		64QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	N/A
	Band 48	QPSK	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25	N/A
		16QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24	N/A
		64QAM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23	N/A

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Air Interface		Max. Tune-up Power									
		ANT 0	Ant 1	Ant 2	Ant 5	Ant 7	Ant 8	Ant 9	Ant 10	Ant 11	ANT 0+1
FDD-5G FR1	n2	N/A	24	24	N/A	N/A	24	24	N/A	N/A	N/A
	n5	25	N/A	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	n7	N/A	24	24	N/A	N/A	24	24	N/A	N/A	N/A
	n12	25	N/A	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	n14	25	N/A	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	n25	N/A	24	24	N/A	N/A	24	24	N/A	N/A	N/A
	n26	25	N/A	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	n30	N/A	24	24	N/A	N/A	24	N/A	N/A	N/A	N/A
	n48	N/A	25	25	N/A	N/A	25	25	N/A	N/A	N/A
	n66	N/A	24	24	N/A	N/A	24	24	N/A	N/A	N/A
	n71	25	N/A	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FDD-5G FR1	n38	N/A	24	24	N/A	N/A	24	24	N/A	N/A	N/A
	n41	N/A	26.5	26.5	N/A	N/A	26.5	26.5	N/A	N/A	N/A
	n77	N/A	N/A	N/A	25	25	N/A	N/A	25	25	N/A
	n78	N/A	N/A	N/A	25	25	N/A	N/A	25	25	N/A
	n79	N/A	N/A	N/A	24.5	24.5	N/A	N/A	24.5	24.5	N/A

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Air Interface		Max. Tune-up Power									
		ANT 0	Ant 1	Ant 2	Ant 5	Ant 7	Ant 8	Ant 9	Ant 10	Ant 11	ANT 0+1
WLAN 2.4G	802.11b	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
	802.11g	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
	802.11n HT20	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
	802.11n HT40	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
	802.11ac VHT20	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
	802.11ac VHT40	20	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22
WLAN 5.2G	802.11a	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT20	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT40	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT20	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT40	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT80	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
WLAN 5.3G	802.11a	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT20	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT40	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT20	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT40	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT80	20	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
WLAN 5.6G	802.11a	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
	802.11n HT20	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
	802.11n HT40	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
	802.11ac VHT20	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
	802.11ac VHT40	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
	802.11ac VHT80	20	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
WLAN 5.8G	802.11a	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT20	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11n HT40	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT20	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT40	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21
	802.11ac VHT80	19	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21

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4.5 Low Power Exemption Evaluation

According to ANSI C63.19-2011 section 4, RF air interface technologies that have low power have been found to produce sufficiently low RF interference potential, so it is possible to exempt them from the product testing. An RF air interface technology of a device is exempt from testing when its average antenna input power plus its worst-case MIF is ≤ 17 dBm for any of its operating modes. If a device supports multiple RF air interfaces, each RF air interface shall be evaluated individually. An RF air interface technology that is exempted from testing by above method could be rated as M4.

The low power exemption for this device is analyzed in below.

Air Interface			Max. Tune-up Power (dBm)	Worst Case MIF (dB)	Power + MIF (dB)	C63.19 Testing Required
GSM	GSM850		33	3.63	36.63	YES
	EDGE850		27	3.75	30.75	No
	GSM1900		30	3.63	33.63	YES
	EDGE1900		26	3.75	29.75	No
WCDMA	AMR		25	-25.43	-0.43	No
	HSPA		25	-20.39	4.61	No
CDMA	Full Frame Rate		24	-19.71	4.29	No
	1/8th Frame Rate		24	3.26	27.26	YES
	EVDO		24	-17.67	6.33	No
FDD-LTE			25	-9.76	15.24	No
TDD-LTE	QPSK		26.5	-1.62	24.88	YES
	16QAM		24.5	-1.44	23.06	No
	64QAM		23.5	-1.54	21.96	No
FDD-FR1			25	-15.06	9.94	No
TDD-FR1			26.5	-12.08	14.42	No
WLAN 2.4G	802.11b	ANT 6	20	-2.02	17.98	No
		ANT 3 or 4	20	-2.02	17.98	No
		ANT 6+ 3 or 4	23	-2.02	20.98	No
	802.11g	ANT 6	20	0.12	20.12	YES
		ANT 3 or 4	20	0.12	20.12	YES
		ANT 6+ 3 or 4	23	0.12	23.12	YES
	802.11ac VHT20	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3 or 4	23	-5.57	17.43	YES
	802.11ac VHT40	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3 or 4	23	-5.57	17.43	YES

Note:

1. The EDGE data modes were considered but not tested because GSM voice mode was worst case for the GSM air interface.
2. The TDD-LTE 16QAM/64QAM data modes were considered but not tested because QPSK mode was worst case for the TDD-LTE air interface.
3. The 802.11b modes were considered but not tested because 802.11g mode was worst case for the WLAN 2.4G air interface.

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Air Interface			Max. Tune-up Power (dBm)	Worst Case MIF (dB)	Power + MIF (dB)	C63.19 Testing Required
WLAN 5.2G	802.11a	ANT 6	20	-3.15	16.85	No
		ANT 3 or 4	20	-3.15	16.85	No
		ANT 6+ 3	23	-3.15	19.85	YES
		ANT 6+ 4	19	-3.15	15.85	No
	802.11ac VHT20	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	19	-5.57	13.43	No
	802.11ac VHT40	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	19	-5.57	13.43	No
	802.11ac VHT80	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	20	-5.57	14.43	No
		ANT 6+ 4	19	-5.57	13.43	No
WLAN 5.3G	802.11a	ANT 6	20	-3.15	16.85	No
		ANT 3 or 4	20	-3.15	16.85	No
		ANT 6+ 3	23	-3.15	19.85	YES
		ANT 6+ 4	19	-3.15	15.85	No
	802.11ac VHT20	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	19	-5.57	13.43	No
	802.11ac VHT40	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	19	-5.57	13.43	No
	802.11ac VHT80	ANT 6	20	-5.57	14.43	No
		ANT 3 or 4	20	-5.57	14.43	No
		ANT 6+ 3	20	-5.57	14.43	No
		ANT 6+ 4	19	-5.57	13.43	No

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Air Interface			Max. Tune-up Power (dBm)	Worst Case MIF (dB)	Power + MIF (dB)	C63.19 Testing Required
WLAN 5.6G	802.11a	ANT 6	20	-3.15	16.85	No
		ANT 3	20	-3.15	16.85	No
		ANT 4	17.5	-3.15	14.35	No
		ANT 6+ 3	22	-3.15	18.85	YES
		ANT 6+ 4	19.5	-3.15	16.35	No
	802.11ac VHT20	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	17.5	-5.57	11.93	No
		ANT 6+ 3	22	-5.57	16.43	No
		ANT 6+ 4	19.5	-5.57	13.93	No
	802.11ac VHT40	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	17.5	-5.57	11.93	No
		ANT 6+ 3	22	-5.57	16.43	No
		ANT 6+ 4	19.5	-5.57	13.93	No
	802.11ac VHT80	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	17.5	-5.57	11.93	No
		ANT 6+ 3	22	-5.57	16.43	No
		ANT 6+ 4	19.5	-5.57	13.93	No
WLAN 5.8G	802.11a	ANT 6	20	-3.15	16.85	No
		ANT 3	20	-3.15	16.85	No
		ANT 4	16.5	-3.15	13.35	No
		ANT 6+ 3	23	-3.15	19.85	YES
		ANT 6+ 4	20	-3.15	16.85	No
	802.11ac VHT20	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	16.5	-5.57	10.93	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	20	-5.57	14.43	No
	802.11ac VHT40	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	16.5	-5.57	10.93	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	20	-5.57	14.43	No
	802.11ac VHT80	ANT 6	20	-5.57	14.43	No
		ANT 3	20	-5.57	14.43	No
		ANT 4	16.5	-5.57	10.93	No
		ANT 6+ 3	23	-5.57	17.43	YES
		ANT 6+ 4	20	-5.57	14.43	No

4.6 Measured Conducted Power Results

Refer to Appendix E

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4.7 HAC RF Emission Testing Results

Plot No.	Band	Mode	Channel	Transmit Antenna	Audio Interference Level (dB V/m)	FCC Limit (dB V/m)	FCC Margin (dB)	M-Rating
01	GSM850	GSM Voice	128	0	32.62	45	-12.38	M4
	GSM850	GSM Voice	189	0	32.81	45	-12.19	M4
	GSM850	GSM Voice	251	0	33.19	45	-11.81	M4
02	GSM1900	GSM Voice	512	1	21.47	35	-13.53	M4
	GSM1900	GSM Voice	661	1	22.5	35	-12.5	M4
	GSM1900	GSM Voice	810	1	22.53	35	-12.47	M4
03	CDMA BC0	RC1+SO3, 1/8th Rate	1013	0	23.8	45	-21.2	M4
	CDMA BC0	RC1+SO3, 1/8th Rate	384	0	23.97	45	-21.03	M4
	CDMA BC0	RC1+SO3, 1/8th Rate	777	0	23.98	45	-21.02	M4
04	CDMA BC1	RC1+SO3, 1/8th Rate	25	1	17.96	35	-17.04	M4
	CDMA BC1	RC1+SO3, 1/8th Rate	600	1	17.79	35	-17.21	M4
	CDMA BC1	RC1+SO3, 1/8th Rate	1175	1	17.36	35	-17.64	M4
05	CDMA BC10	RC1+SO3, 1/8th Rate	476	0	23.73	45	-21.27	M4
	CDMA BC10	RC1+SO3, 1/8th Rate	580	0	23.45	45	-21.55	M4
	CDMA BC10	RC1+SO3, 1/8th Rate	684	0	23.32	45	-21.68	M4
06	LTE B38	20M, QPSK, 1RB, OS0	37850	1	14.95	35	-20.05	M4
	LTE B38	20M, QPSK, 1RB, OS0	38000	1	15.82	35	-19.18	M4
	LTE B38	20M, QPSK, 1RB, OS0	38150	1	14.96	35	-20.04	M4
07	LTE B38	20M, QPSK, 1RB, OS0	37850	2	26.24	35	-8.76	M4
	LTE B38	20M, QPSK, 1RB, OS0	38000	2	25.66	35	-9.34	M4
	LTE B38	20M, QPSK, 1RB, OS0	38150	2	25.22	35	-9.78	M4
08	LTE B38	20M, QPSK, 1RB, OS0	37850	8	16.99	35	-18.01	M4
	LTE B38	20M, QPSK, 1RB, OS0	38000	8	16.09	35	-18.91	M4
	LTE B38	20M, QPSK, 1RB, OS0	38150	8	15.87	35	-19.13	M4

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Plot No.	Band	Mode	Channel	Transmit Antenna	Audio Interference Level (dB V/m)	FCC Limit (dB V/m)	FCC Margin (dB)	M-Rating
	LTE B40	20M, QPSK, 1RB, OS0	38750	1	15.53	35	-19.47	M4
09	LTE B40	20M, QPSK, 1RB, OS0	39150	1	16.04	35	-18.96	M4
	LTE B40	20M, QPSK, 1RB, OS0	39550	1	14.94	35	-20.06	M4
	LTE B40	20M, QPSK, 1RB, OS0	38750	2	29.85	35	-5.15	M4
10	LTE B40	20M, QPSK, 1RB, OS0	39150	2	29.98	35	-5.02	M4
	LTE B40	20M, QPSK, 1RB, OS0	39550	2	29.02	35	-5.98	M4
	LTE B40	20M, QPSK, 1RB, OS0	38750	8	18.13	35	-16.87	M4
11	LTE B40	20M, QPSK, 1RB, OS0	39150	8	18.61	35	-16.39	M4
	LTE B40	20M, QPSK, 1RB, OS0	39550	8	18.51	35	-16.49	M4
12	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	39750	1	18.12	35	-16.88	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40185	1	17.27	35	-17.73	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40620	1	17.34	35	-17.66	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41055	1	15.83	35	-19.17	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41490	1	16.8	35	-18.2	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	39750	2	25.67	35	-9.33	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40185	2	25.9	35	-9.1	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40620	2	25.38	35	-9.62	M4
13	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41055	2	26.86	35	-8.14	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41490	2	25.96	35	-9.04	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	39750	8	16.8	35	-18.2	M4
14	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40185	8	17.17	35	-17.83	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	40620	8	16.23	35	-18.77	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41055	8	15.45	35	-19.55	M4
	LTE B41 (PC2)	20M, QPSK, 1RB, OS0	41490	8	15.51	35	-19.49	M4

HAC RF-Emission Test Report

Plot No.	Band	Mode	Channel	Transmit Antenna	Audio Interference Level (dB V/m)	FCC Limit (dB V/m)	FCC Margin (dB)	M-Rating
15	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	39750	1	19.63	35	-15.37	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40185	1	18.89	35	-16.11	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40620	1	19.04	35	-15.96	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41055	1	17.45	35	-17.55	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41490	1	18.02	35	-16.98	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	39750	2	27.48	35	-7.52	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40185	2	27.69	35	-7.31	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40620	2	26.86	35	-8.14	M4
16	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41055	2	28.45	35	-6.55	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41490	2	27.64	35	-7.36	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	39750	8	18.2	35	-16.8	M4
17	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40185	8	18.43	35	-16.57	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	40620	8	17.56	35	-17.44	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41055	8	16.8	35	-18.2	M4
	LTE B41 (PC3)	20M, QPSK, 1RB, OS0	41490	8	16.87	35	-18.13	M4
	LTE B42	20M, QPSK, 1RB, OS0	43190	11	17.29	35	-17.71	M4
	LTE B42	20M, QPSK, 1RB, OS0	43340	11	20.03	35	-14.97	M4
18	LTE B42	20M, QPSK, 1RB, OS0	43490	11	20.27	35	-14.73	M4
	LTE B42	20M, QPSK, 1RB, OS0	43190	5	21.37	35	-13.63	M4
	LTE B42	20M, QPSK, 1RB, OS0	43340	5	21.84	35	-13.16	M4
19	LTE B42	20M, QPSK, 1RB, OS0	43490	5	22.07	35	-12.93	M4
	LTE B43	20M, QPSK, 1RB, OS0	44190	11	25.28	35	-9.72	M4
	LTE B43	20M, QPSK, 1RB, OS0	44215	11	25.32	35	-9.68	M4
20	LTE B43	20M, QPSK, 1RB, OS0	44240	11	25.39	35	-9.61	M4
	LTE B43	20M, QPSK, 1RB, OS0	44190	5	26.88	35	-8.12	M4
	LTE B43	20M, QPSK, 1RB, OS0	44215	5	26.84	35	-8.16	M4
21	LTE B43	20M, QPSK, 1RB, OS0	44240	5	26.9	35	-8.1	M4

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Plot No.	Band	Mode	Channel	Transmit Antenna	Audio Interference Level (dB V/m)	FCC Limit (dB V/m)	FCC Margin (dB)	M-Rating
	LTE B48	20M, QPSK, 1RB, OS0	55340	11	23.41	35	-11.59	M4
	LTE B48	20M, QPSK, 1RB, OS0	55780	11	24.51	35	-10.49	M4
22	LTE B48	20M, QPSK, 1RB, OS0	56210	11	25.49	35	-9.51	M4
	LTE B48	20M, QPSK, 1RB, OS0	56640	11	25.42	35	-9.58	M4
	LTE B48	20M, QPSK, 1RB, OS0	55340	5	25.78	35	-9.22	M4
23	LTE B48	20M, QPSK, 1RB, OS0	55780	5	27	35	-8	M4
	LTE B48	20M, QPSK, 1RB, OS0	56210	5	26.61	35	-8.39	M4
	LTE B48	20M, QPSK, 1RB, OS0	56640	5	26.49	35	-8.51	M4
	WLAN 2.4G	802.11g	1	6	19.96	35	-15.04	M4
24	WLAN 2.4G	802.11g	6	6	21.7	35	-13.3	M4
	WLAN 2.4G	802.11g	11	6	21.33	35	-13.67	M4
	WLAN 2.4G	802.11g	1	3	30.88	35	-4.12	M3
	WLAN 2.4G	802.11g	6	3	31.14	35	-3.86	M3
25	WLAN 2.4G	802.11g	11	3	31.61	35	-3.39	M3
	WLAN 2.4G	802.11g	1	4	30.99	35	-4.01	M3
	WLAN 2.4G	802.11g	6	4	31.09	35	-3.91	M3
26	WLAN 2.4G	802.11g	11	4	31.62	35	-3.38	M3
	WLAN 2.4G	802.11g	1	6+4	31.15	35	-3.85	M3
27	WLAN 2.4G	802.11g	6	6+4	31.16	35	-3.84	M3
	WLAN 2.4G	802.11g	11	6+4	29.7	35	-5.3	M4
	WLAN 2.4G	802.11g	1	6+3	31.1	35	-3.9	M3
28	WLAN 2.4G	802.11g	6	6+3	31.19	35	-3.81	M3
	WLAN 2.4G	802.11g	11	6+3	29.72	35	-5.28	M4
29	WLAN 2.4G	802.11ac VHT20	1	6+4	22.12	35	-12.88	M4
	WLAN 2.4G	802.11ac VHT20	6	6+4	21.99	35	-13.01	M4
	WLAN 2.4G	802.11ac VHT20	11	6+4	18.16	35	-16.84	M4
	WLAN 2.4G	802.11ac VHT20	1	6+3	14.43	35	-20.57	M4
30	WLAN 2.4G	802.11ac VHT20	6	6+3	15.77	35	-19.23	M4
	WLAN 2.4G	802.11ac VHT20	11	6+3	8.45	35	-26.55	M4
	WLAN 2.4G	802.11ac VHT40	3	6+4	10.69	35	-24.31	M4
31	WLAN 2.4G	802.11ac VHT40	6	6+4	12.61	35	-22.39	M4
	WLAN 2.4G	802.11ac VHT40	9	6+4	8.41	35	-26.59	M4
	WLAN 2.4G	802.11ac VHT40	3	6+3	10.94	35	-24.06	M4
32	WLAN 2.4G	802.11ac VHT40	6	6+3	12.69	35	-22.31	M4
	WLAN 2.4G	802.11ac VHT40	9	6+3	8.66	35	-26.34	M4

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Plot No.	Band	Mode	Channel	Transmit Antenna	Audio Interference Level (dB V/m)	FCC Limit (dB V/m)	FCC Margin (dB)	M-Rating
33	WLAN 5.2G	802.11a	36	6+3	24.65	35	-10.35	M4
	WLAN 5.2G	802.11a	40	6+3	24.2	35	-10.8	M4
	WLAN 5.2G	802.11a	44	6+3	24.57	35	-10.43	M4
	WLAN 5.2G	802.11a	48	6+3	24.34	35	-10.66	M4
	WLAN 5.2G	802.11ac VHT20	36	6+3	14.47	35	-20.53	M4
	WLAN 5.2G	802.11ac VHT20	40	6+3	14.72	35	-20.28	M4
34	WLAN 5.2G	802.11ac VHT20	44	6+3	15.41	35	-19.59	M4
	WLAN 5.2G	802.11ac VHT20	48	6+3	14.22	35	-20.78	M4
	WLAN 5.2G	802.11ac VHT40	38	6+3	11.83	35	-23.17	M4
35	WLAN 5.2G	802.11ac VHT40	46	6+3	16.13	35	-18.87	M4
	WLAN 5.3G	802.11a	52	6+3	2	35	-33	M4
36	WLAN 5.3G	802.11a	56	6+3	24.13	35	-10.87	M4
	WLAN 5.3G	802.11a	60	6+3	23.63	35	-11.37	M4
	WLAN 5.3G	802.11a	64	6+3	23.39	35	-11.61	M4
	WLAN 5.3G	802.11ac VHT20	52	6+3	16.91	35	-18.09	M4
	WLAN 5.3G	802.11ac VHT20	56	6+3	16.68	35	-18.32	M4
	WLAN 5.3G	802.11ac VHT20	60	6+3	17.25	35	-17.75	M4
37	WLAN 5.3G	802.11ac VHT20	64	6+3	17.9	35	-17.1	M4
38	WLAN 5.3G	802.11ac VHT40	54	6+3	17.14	35	-17.86	M4
	WLAN 5.3G	802.11ac VHT40	62	6+3	14.17	35	-20.83	M4
	WLAN 5.6G	802.11a	100	6+3	21.18	35	-13.82	M4
	WLAN 5.6G	802.11a	116	6+3	21.56	35	-13.44	M4
39	WLAN 5.6G	802.11a	124	6+3	21.87	35	-13.13	M4
	WLAN 5.6G	802.11a	132	6+3	21.03	35	-13.97	M4
	WLAN 5.6G	802.11a	144	6+3	19.92	35	-15.08	M4
	WLAN 5.8G	802.11a	149	6+3	25.56	35	-9.44	M4
40	WLAN 5.8G	802.11a	157	6+3	25.63	35	-9.37	M4
	WLAN 5.8G	802.11a	165	6+3	25.15	35	-9.85	M4
41	WLAN 5.8G	802.11ac VHT20	149	6+3	14.87	35	-20.13	M4
	WLAN 5.8G	802.11ac VHT20	157	6+3	13.83	35	-21.17	M4
	WLAN 5.8G	802.11ac VHT20	165	6+3	13.63	35	-21.37	M4
42	WLAN 5.8G	802.11ac VHT40	151	6+3	14.55	35	-20.45	M4
	WLAN 5.8G	802.11ac VHT40	159	6+3	14.52	35	-20.48	M4
43	WLAN 5.8G	802.11ac VHT80	155	6+3	11.33	35	-23.67	M4

Test Engineer : Willy Chang, and Eric Wu

HAC RF-Emission Test Report

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
835MHz Calibration Dipole	SPEAG	CD835V3	1041	Jan. 22, 2020	3 Years
1880MHz Calibration Dipole	SPEAG	CD1880V3	1032	Jan. 22, 2020	3 Years
2450MHz Calibration Dipole	SPEAG	CD2450V3	1033	Jan. 22, 2020	3 Years
2600MHz Calibration Dipole	SPEAG	CD2600V3	1005	Mar. 18, 2020	3 Years
3500MHz Calibration Dipole	SPEAG	CD3500V3	1004	Sep. 15, 2020	3 Years
5500MHz Calibration Dipole	SPEAG	CD5500V3	1003	Mar. 18, 2020	3 Years
Isotropic E-Field Probe	SPEAG	EF3DV3	4049	Jan. 25, 2021	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1277	Jan. 19, 2021	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201381727	Jun. 14, 2019	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201502978	Jun. 13, 2019	1 Year
Universal Radio Communication Tester	R&S	CMW500	164864	Apr. 16, 2020	1 Year
Universal Radio Communication Tester	R&S	CMW500	152443	Nov. 26, 2020	1 Year
MXG Analog Signal Generator	Agilent	N5181A	MY50143868	Jun. 23, 2020	1 Year
Power Meter	Anritsu	ML2495A	1218009	Jun. 24, 2020	1 Year
Power Sensor	Anritsu	MA2411B	1207252	Jun. 24, 2020	1 Year
Test Arch Phantom	SPEAG	Arch	N/A	N/A	N/A

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6. Measurement Uncertainty

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (E)	Standard Uncertainty (E)
Measurement System					
Probe Calibration	5.05	Normal	1	1	± 5.1 %
Axial Isotropy	4.7	Rectangular	√3	1	± 2.7 %
Sensor Displacement	16.5	Rectangular	√3	1	± 9.5 %
Boundary Effects	2.4	Rectangular	√3	1	± 1.4 %
Phantom Boundary Effect	7.2	Rectangular	√3	1	± 4.2 %
Linearity	4.7	Rectangular	√3	1	± 2.7 %
Scaling with PMR Calibration	10.0	Rectangular	√3	1	± 5.8 %
System Detection Limit	0.25	Rectangular	√3	1	± 0.1 %
Readout Electronics	0.3	Normal	1	1	± 0.3 %
Response Time	0.0	Rectangular	√3	1	± 0.0 %
Integration Time	2.6	Rectangular	√3	1	± 1.5 %
RF Ambient Conditions	3.0	Rectangular	√3	1	± 1.7 %
RF Reflections	12.0	Rectangular	√3	1	± 6.9 %
Probe Positioner	1.2	Rectangular	√3	1	± 0.7 %
Probe Positioning	4.7	Rectangular	√3	1	± 2.7 %
Extrap. and Interpolation	2.0	Rectangular	√3	1	± 1.2 %
Test Sample Related					
Device Positioning Vertical	4.7	Rectangular	√3	1	± 2.7 %
Device Positioning Lateral	1.0	Rectangular	√3	1	± 0.6 %
Device Holder and Phantom	2.4	Rectangular	√3	1	± 1.4 %
Power Drift	5.0	Rectangular	√3	1	± 2.9 %
Phantom and Setup Related					
Phantom Thickness	2.4	Rectangular	√3	1	± 1.4 %
Combined Standard Uncertainty					± 16.3 %
Coverage Factor for 95 %					K = 2
Expanded Uncertainty					± 32.6 %

Uncertainty budget for HAC RF Emission

HAC RF-Emission Test Report

7. Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: <https://ee.bureauveritas.com.tw/BVInternet/Default>

The road map of all our labs can be found in our web site also.

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Appendix A. Plots of System Verification

The plots for system verification with largest deviation for each frequency band are shown as follows.

System Check_E-Field_835_210323**DUT: HAC Dipole 835 MHz; Type: CD835V3; SN: 1041**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 835 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

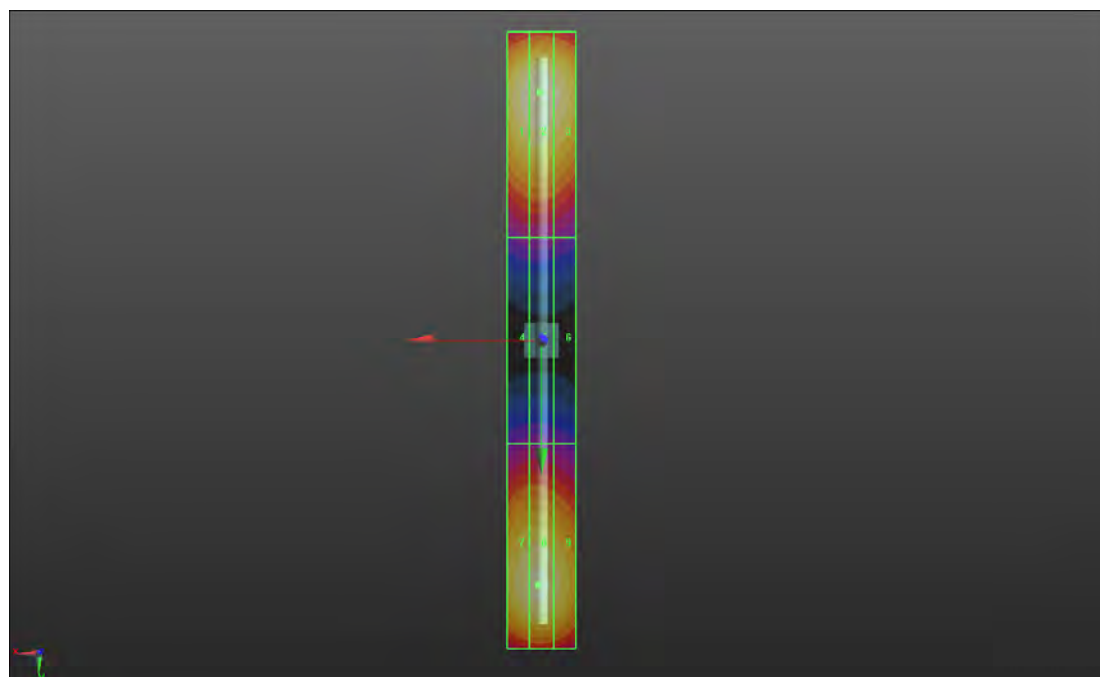
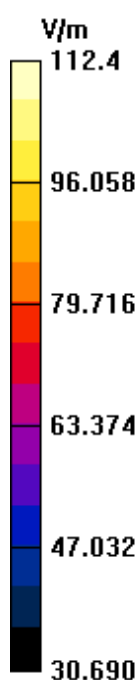
Hearing Aid Compatibility (41x361x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 128.2 V/m; Power Drift = -0.03 dB

E-field emissions = 112.4 V/m

Grid 1 M4 111.2 V/m	Grid 2 M4 112.4 V/m	Grid 3 M4 109.3 V/m
Grid 4 M4 63.26 V/m	Grid 5 M4 63.53 V/m	Grid 6 M4 61.84 V/m
Grid 7 M4 107.8 V/m	Grid 8 M4 108.8 V/m	Grid 9 M4 105.1 V/m



System Check_E-Field_1880_210323

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; SN: 1032

Communication System: UID 0, CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

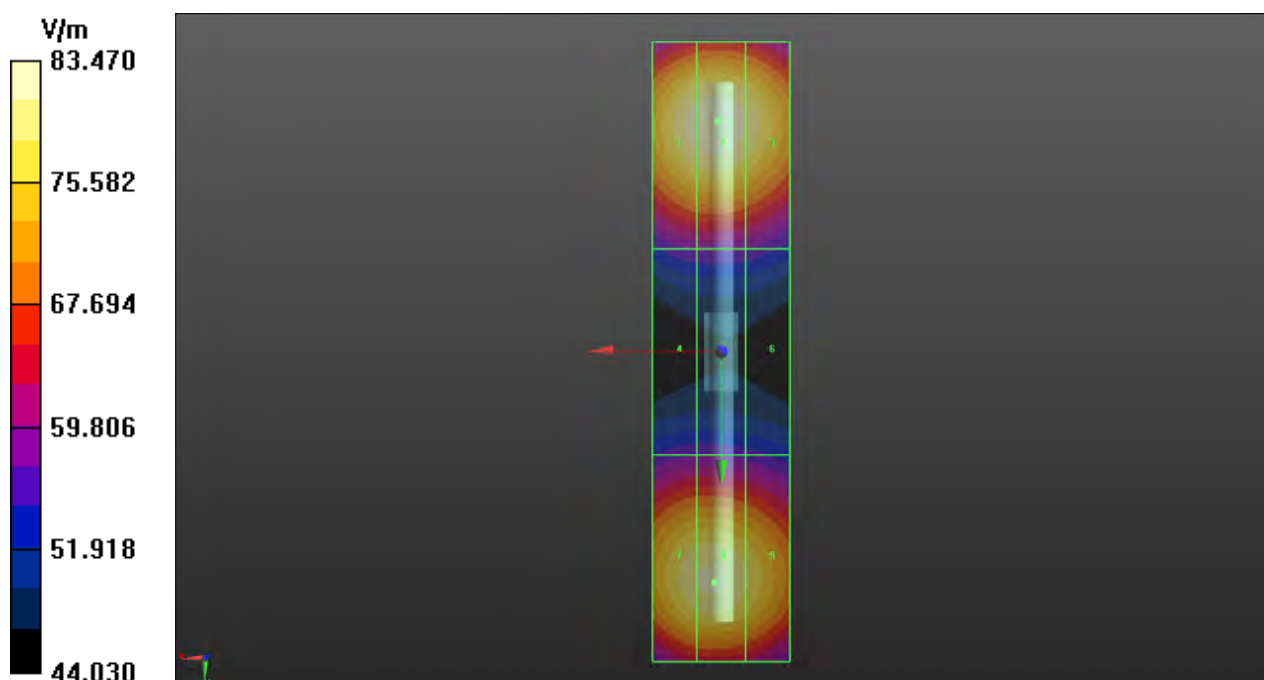
Hearing Aid Compatibility (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 141.6 V/m; Power Drift = -0.01 dB

E-field emissions = 83.47 V/m

Grid 1 M3 82.61 V/m	Grid 2 M3 83.47 V/m	Grid 3 M3 81.04 V/m
Grid 4 M4 57.98 V/m	Grid 5 M4 58.26 V/m	Grid 6 M4 57.37 V/m
Grid 7 M3 80.97 V/m	Grid 8 M3 81.45 V/m	Grid 9 M3 78.76 V/m



System Check_E-Field_2450_210331**DUT: HAC Dipole 2450 MHz; Type: CD2450V3; SN: 1033**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2450 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

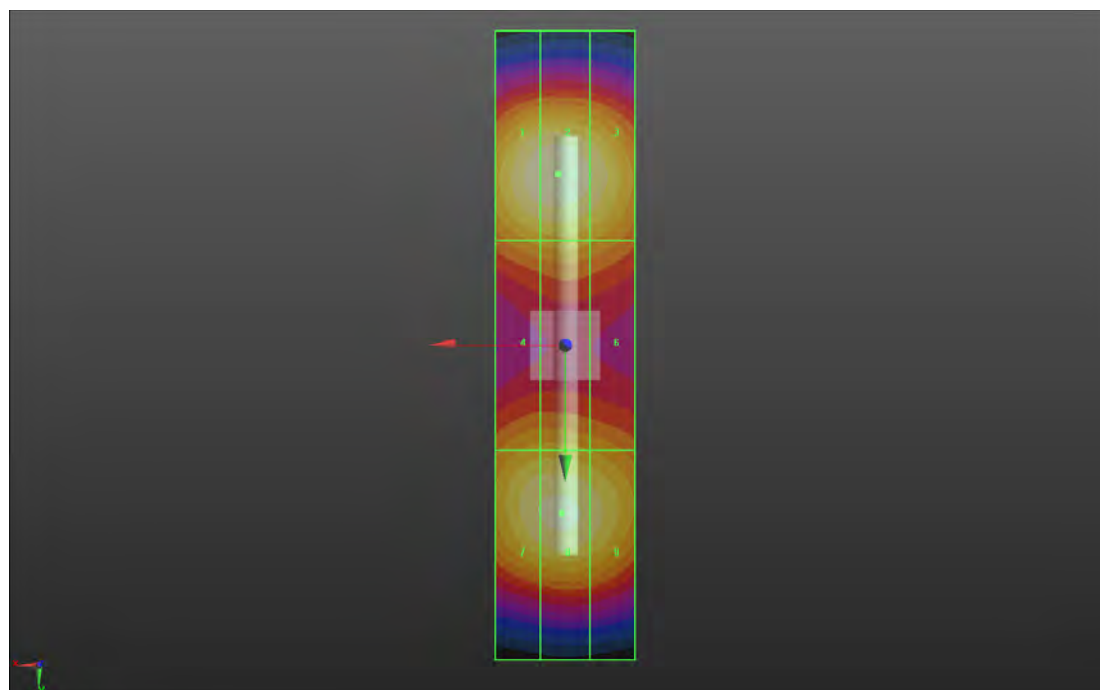
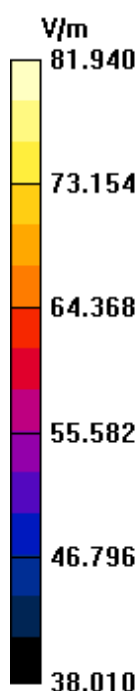
Hearing Aid Compatibility (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 70.04 V/m; Power Drift = 0.06 dB

E-field emissions = 81.94 V/m

Grid 1 M3 81.37 V/m	Grid 2 M3 81.94 V/m	Grid 3 M3 79.35 V/m
Grid 4 M3 71.76 V/m	Grid 5 M3 72.29 V/m	Grid 6 M3 70.78 V/m
Grid 7 M3 79.27 V/m	Grid 8 M3 80.02 V/m	Grid 9 M3 78.14 V/m



System Check_E-Field_2600_210324

DUT: HAC Dipole 2600 MHz; Type: CD2600V3; SN:1005

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2600 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

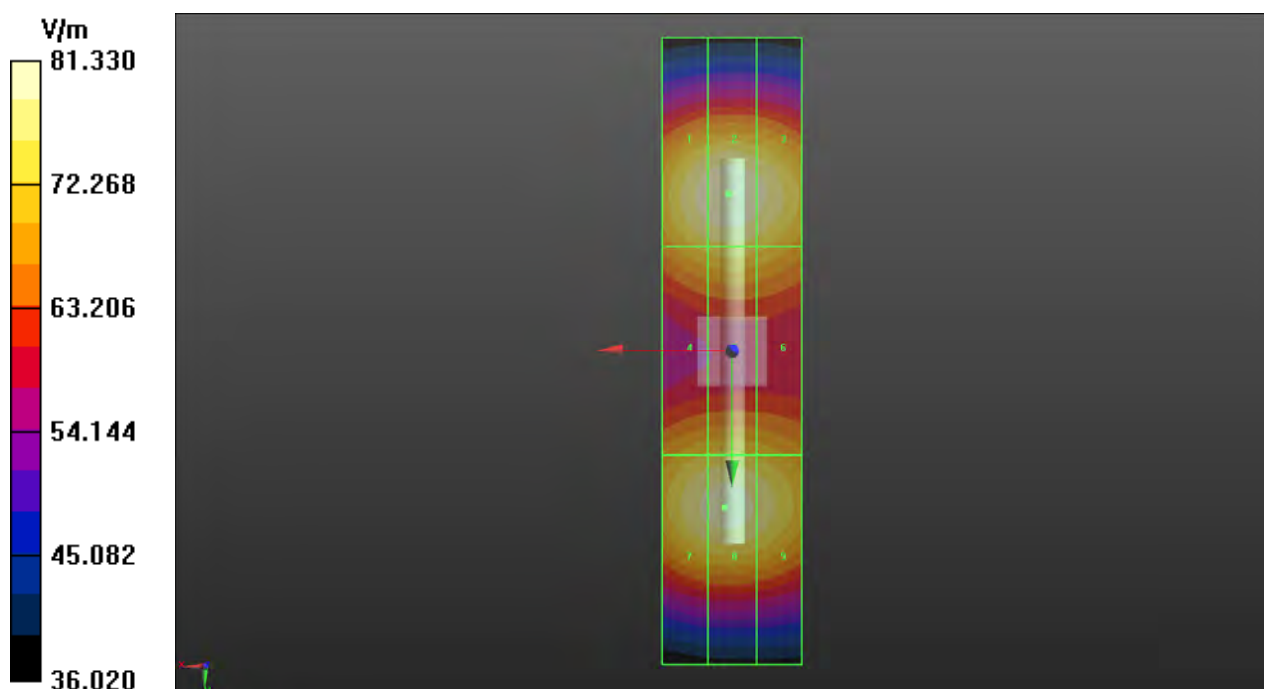
Hearing Aid Compatibility (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 62.46 V/m; Power Drift = 0.03 dB

E-field emissions = 81.33 V/m

Grid 1 M3 80.21 V/m	Grid 2 M3 81.33 V/m	Grid 3 M3 79.60 V/m
Grid 4 M3 73.86 V/m	Grid 5 M3 74.79 V/m	Grid 6 M3 73.51 V/m
Grid 7 M3 79.19 V/m	Grid 8 M3 79.94 V/m	Grid 9 M3 78.02 V/m



System Check_E-Field_3500_210324**DUT: HAC Dipole 3500 MHz; Type: CD3500V3; SN:1004**

Communication System: UID 0, CW (0); Frequency: 3500 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3500 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

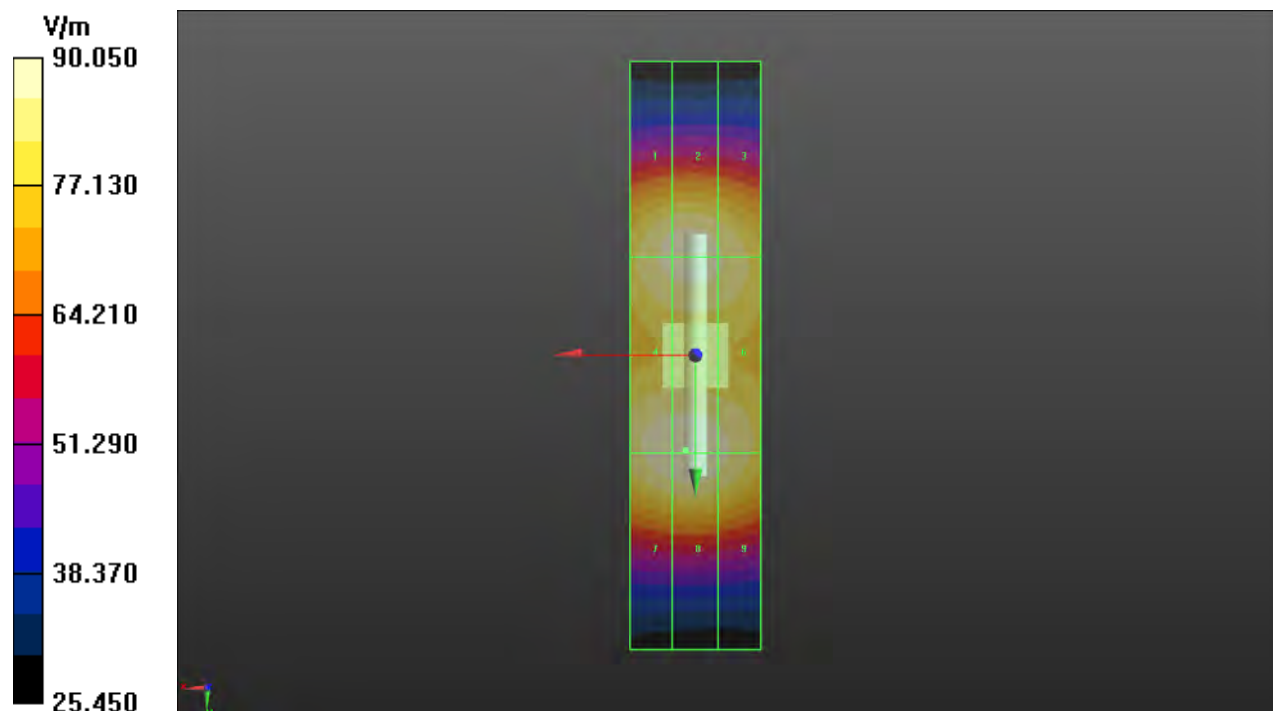
Hearing Aid Compatibility (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 36.23 V/m; Power Drift = 0.02 dB

E-field emissions = 90.05 V/m

Grid 1 M3 87.62 V/m	Grid 2 M3 88.51 V/m	Grid 3 M3 86.41 V/m
Grid 4 M3 89.73 V/m	Grid 5 M3 90.05 V/m	Grid 6 M3 87.60 V/m
Grid 7 M3 89.64 V/m	Grid 8 M3 89.99 V/m	Grid 9 M3 87.51 V/m



System Check_E-Field_5500_210324**DUT: HAC Dipole 5500 MHz; Type: CD5500V3; SN:1003**

Communication System: UID 0, CW (0); Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5500 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

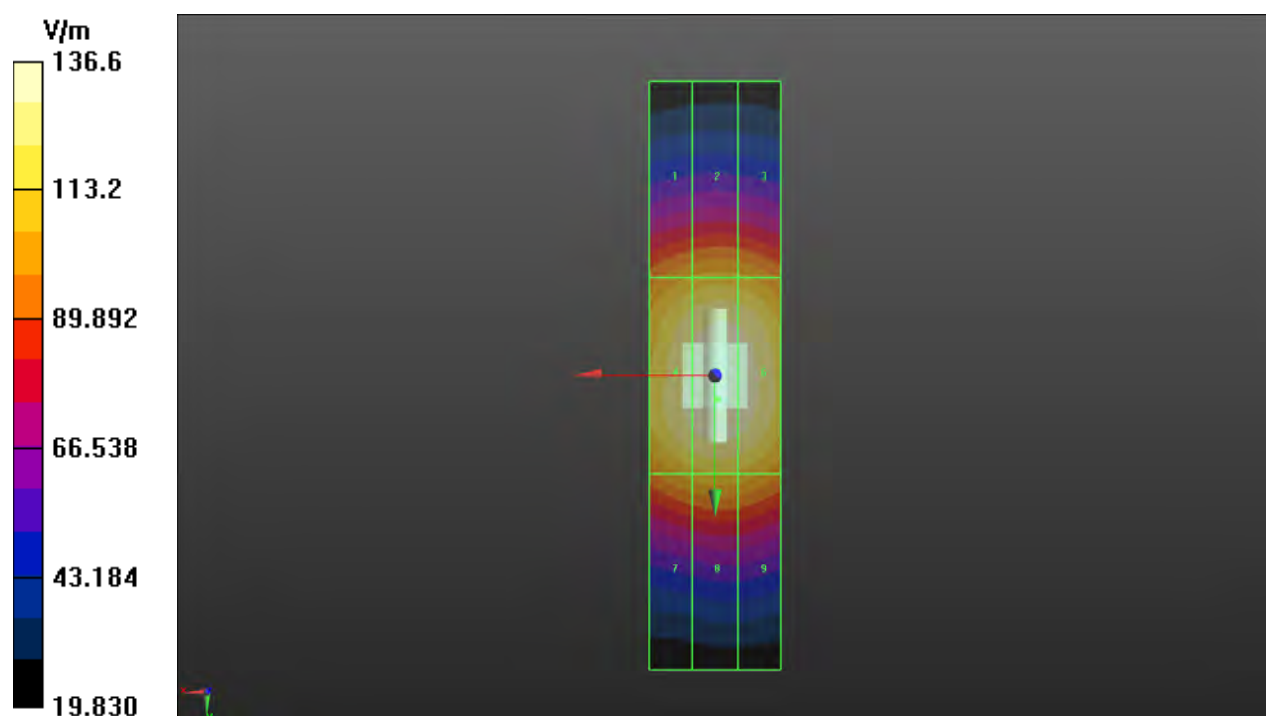
Hearing Aid Compatibility (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 35.61 V/m; Power Drift = -0.13 dB

E-field emissions = 136.6 V/m

Grid 1 M3 106.6 V/m	Grid 2 M3 109.2 V/m	Grid 3 M3 108.2 V/m
Grid 4 M2 132.1 V/m	Grid 5 M2 136.6 V/m	Grid 6 M2 134.8 V/m
Grid 7 M3 109.9 V/m	Grid 8 M2 113.2 V/m	Grid 9 M3 111.5 V/m



Appendix B. Plots of HAC RF Emission Measurement

The HAC plots for highest measured result in each wireless mode and frequency band combination are shown as follows.

P01 RF_E-Field_GSM850_GSM_Ch251_Ant 0**DUT: BFLF-WTW-P20120540**

Communication System: UID 10021 - DAC, GSM-FDD (TDMA, GMSK); Frequency: 848.8 MHz; Duty Cycle: 1:8.70

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 848.8 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

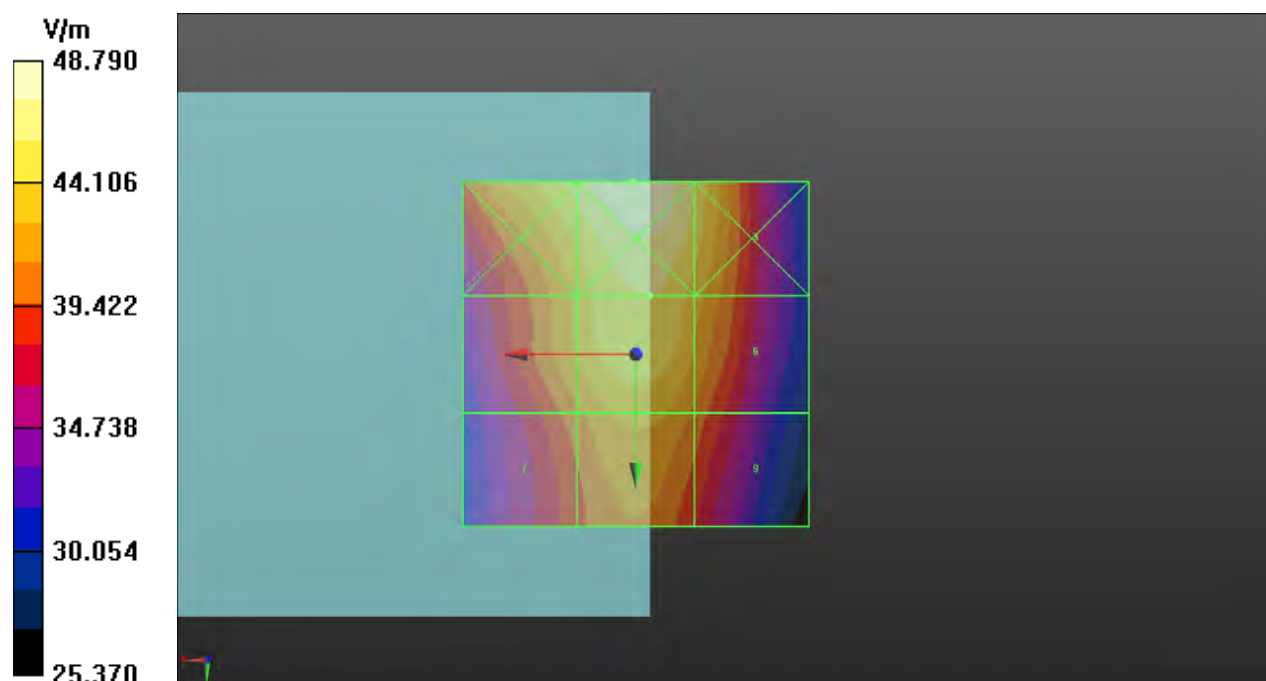
Reference Value = 40.58 V/m; Power Drift = 0.01 dB

MIF = 3.63 dB

RF audio interference level = 33.19 dBV/m

Emission category: M4

Grid 1 M4 33.36 dBV/m	Grid 2 M4 33.77 dBV/m	Grid 3 M4 33.2 dBV/m
Grid 4 M4 32.69 dBV/m	Grid 5 M4 33.19 dBV/m	Grid 6 M4 32.76 dBV/m
Grid 7 M4 32.18 dBV/m	Grid 8 M4 32.68 dBV/m	Grid 9 M4 32.18 dBV/m



P02 RF_E-Field_GSM1900_GSM_Ch810_Ant 1**DUT: BFLF-WTW-P20120540**

Communication System: UID 10021 - DAC, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz; Duty Cycle: 1:8.70

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

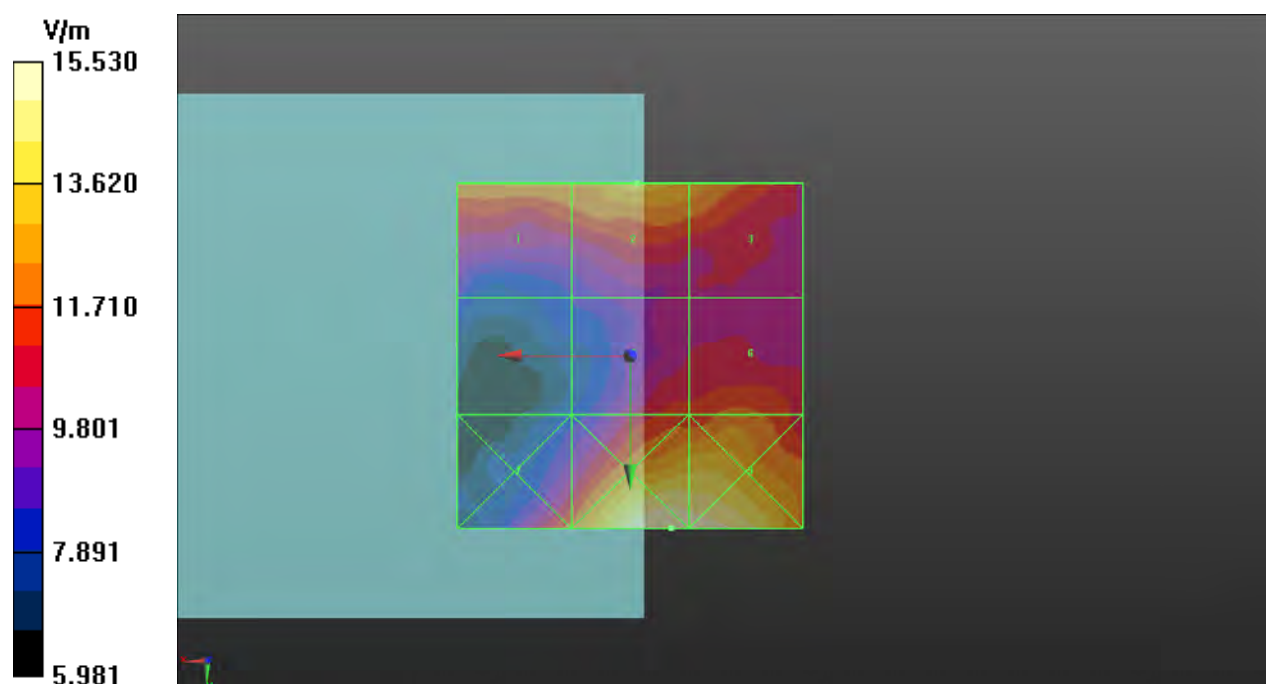
Reference Value = 5.986 V/m; Power Drift = 0.11 dB

MIF = 3.63 dB

RF audio interference level = 22.53 dBV/m

Emission category: M4

Grid 1 M4 21.99 dBV/m	Grid 2 M4 22.53 dBV/m	Grid 3 M4 22.18 dBV/m
Grid 4 M4 18.84 dBV/m	Grid 5 M4 21.13 dBV/m	Grid 6 M4 21.58 dBV/m
Grid 7 M4 21.72 dBV/m	Grid 8 M4 23.82 dBV/m	Grid 9 M4 23.74 dBV/m



P03 RF_E-Field_CDMA BC0_RC1+SO3 Eighth_Ch777_Ant 0**DUT: BFLF-WTW-P20120540**

Communication System: UID 10295 - AAB, CDMA2000, RC1, SO3, 1/8th Rate 25 fr.; Frequency: 848.31 MHz; Duty Cycle: 1:17.75

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 848.31 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

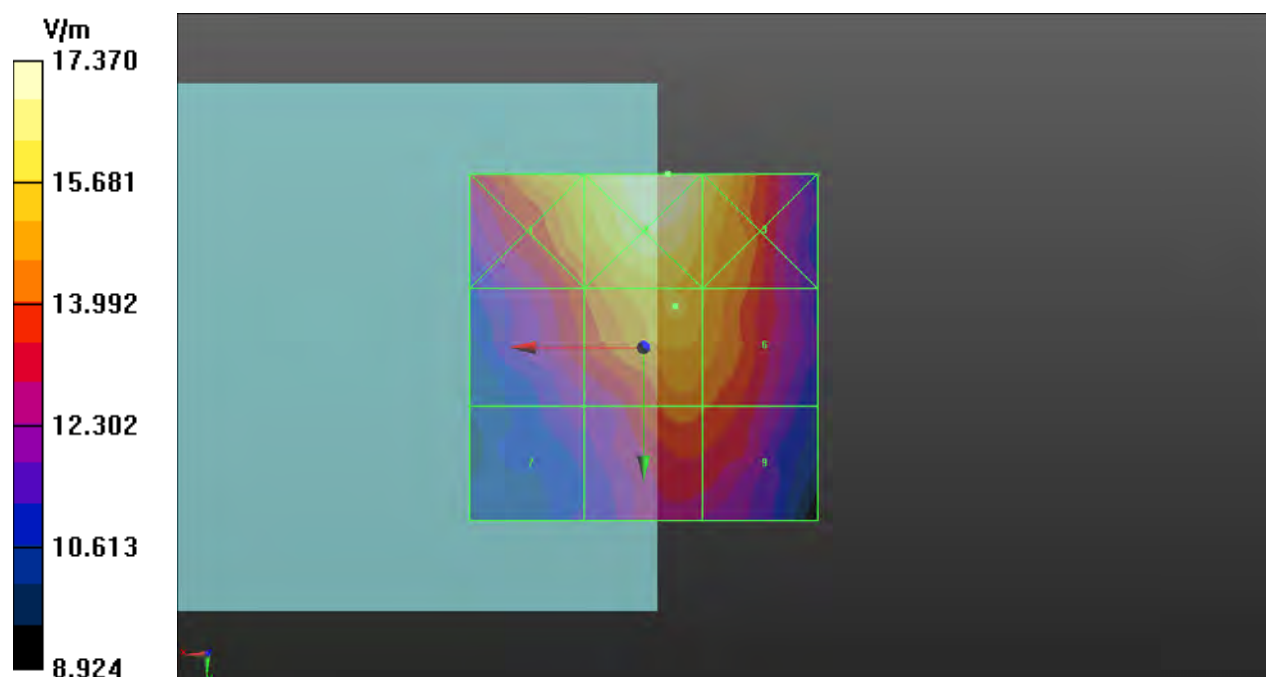
Reference Value = 14.11 V/m; Power Drift = -0.07 dB

MIF = 3.26 dB

RF audio interference level = 23.98 dBV/m

Emission category: M4

Grid 1 M4 24.14 dBV/m	Grid 2 M4 24.79 dBV/m	Grid 3 M4 24.36 dBV/m
Grid 4 M4 22.95 dBV/m	Grid 5 M4 23.98 dBV/m	Grid 6 M4 23.66 dBV/m
Grid 7 M4 21.7 dBV/m	Grid 8 M4 23.11 dBV/m	Grid 9 M4 22.97 dBV/m



P04 RF_E-Field_CDMA BC1_RC1+SO3 Eighth_Ch25_Ant 1**DUT: BFLF-WTW-P20120540**

Communication System: UID 10295 - AAB, CDMA2000, RC1, SO3, 1/8th Rate 25 fr.; Frequency: 1851.25 MHz; Duty Cycle: 1:17.75

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 1851.25 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

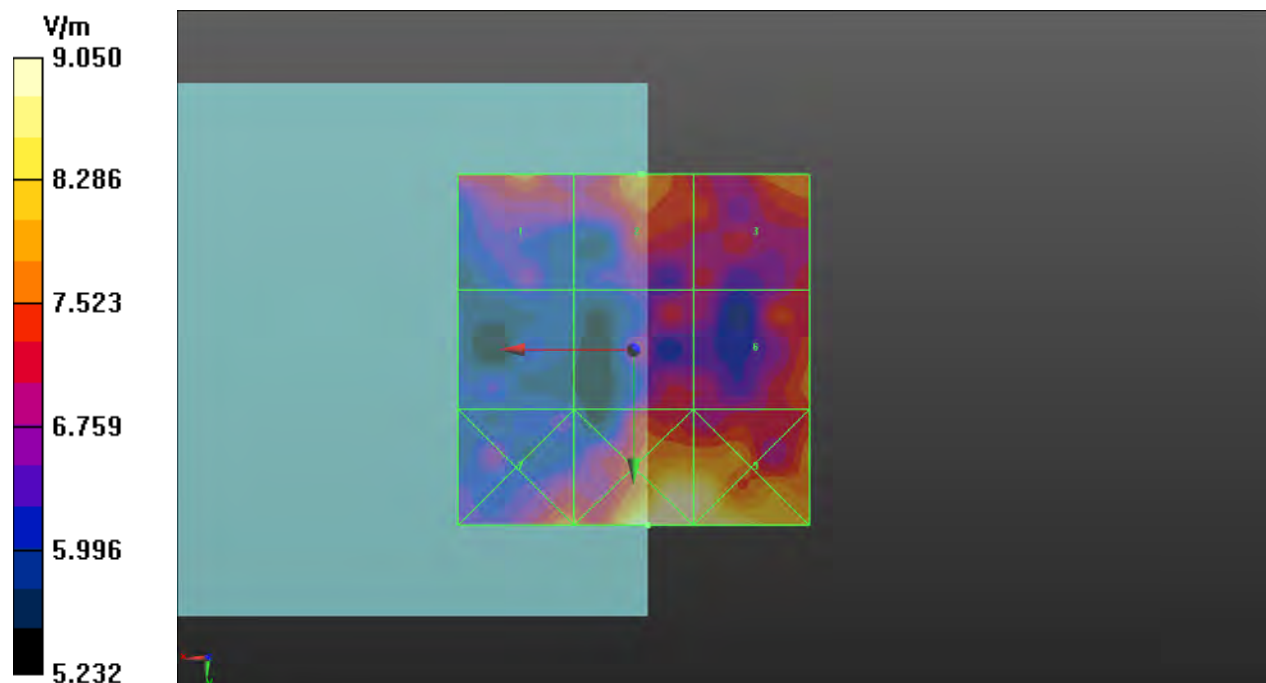
Reference Value = 4.211 V/m; Power Drift = -0.15 dB

MIF = 3.26 dB

RF audio interference level = 17.96 dBV/m

Emission category: M4

Grid 1 M4 17.69 dBV/m	Grid 2 M4 17.96 dBV/m	Grid 3 M4 17.88 dBV/m
Grid 4 M4 16.04 dBV/m	Grid 5 M4 17.12 dBV/m	Grid 6 M4 17.67 dBV/m
Grid 7 M4 17.74 dBV/m	Grid 8 M4 19.13 dBV/m	Grid 9 M4 18.96 dBV/m



P05 RF_E-Field_CDMA BC10_RC1+SO3 Eighth_Ch476_Ant 0**DUT: BFLF-WTW-P20120540**

Communication System: UID 10295 - AAB, CDMA2000, RC1, SO3, 1/8th Rate 25 fr.; Frequency: 817.9 MHz; Duty Cycle: 1:17.75

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 817.9 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

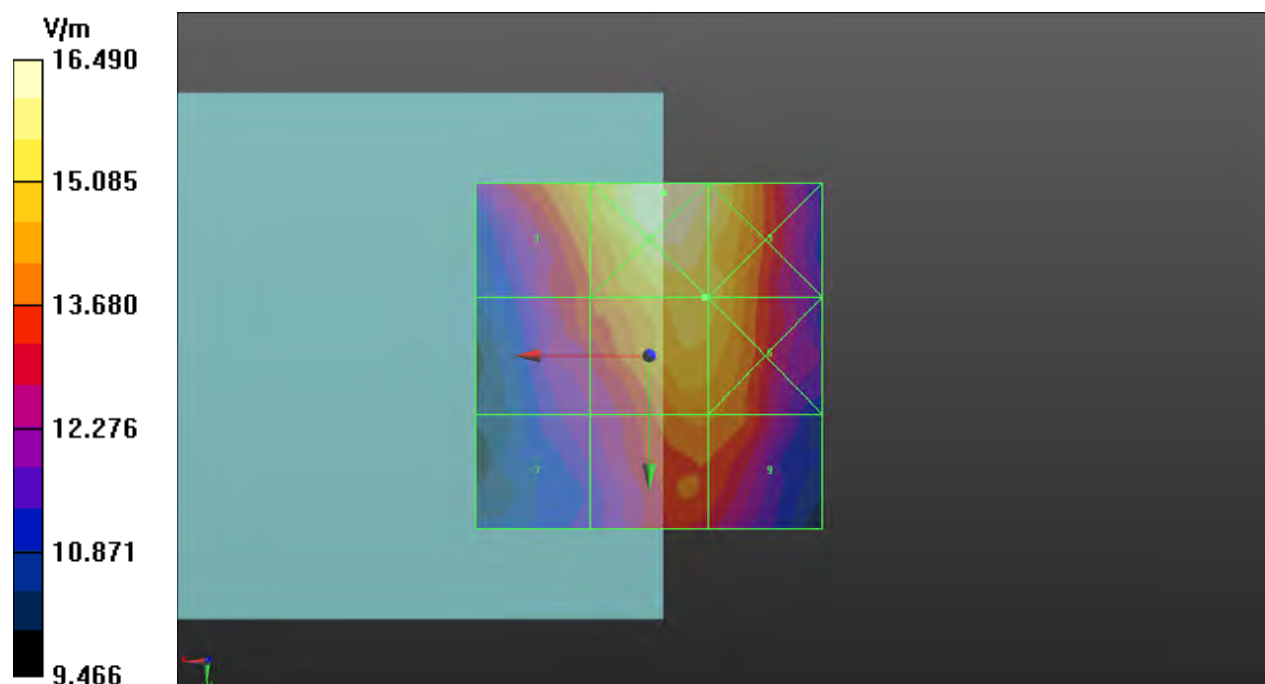
Reference Value = 13.52 V/m; Power Drift = -0.08 dB

MIF = 3.26 dB

RF audio interference level = 23.73 dBV/m

Emission category: M4

Grid 1 M4 23.54 dBV/m	Grid 2 M4 24.34 dBV/m	Grid 3 M4 24.07 dBV/m
Grid 4 M4 22.69 dBV/m	Grid 5 M4 23.73 dBV/m	Grid 6 M4 23.72 dBV/m
Grid 7 M4 21.8 dBV/m	Grid 8 M4 23.1 dBV/m	Grid 9 M4 23.09 dBV/m



P06 RF_E-Field_LTE 38_QPSK20M_Ch38000_1RB_OS0_Ant 1**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2595 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2595 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

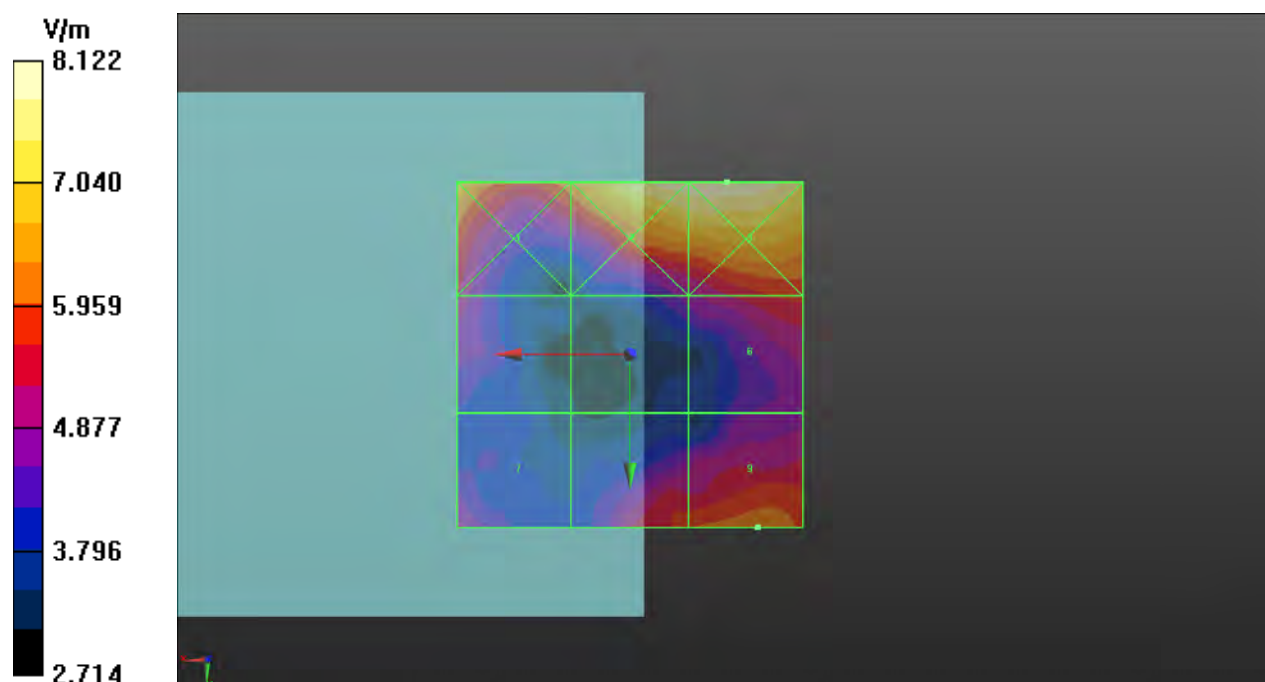
Reference Value = 4.201 V/m; Power Drift = -0.18 dB

MIF = -1.62 dB

RF audio interference level = 15.82 dBV/m

Emission category: M4

Grid 1 M4 16.91 dBV/m	Grid 2 M4 18.07 dBV/m	Grid 3 M4 18.19 dBV/m
Grid 4 M4 14.44 dBV/m	Grid 5 M4 13.5 dBV/m	Grid 6 M4 15.13 dBV/m
Grid 7 M4 14.24 dBV/m	Grid 8 M4 15.39 dBV/m	Grid 9 M4 15.82 dBV/m



P07 RF_E-Field_LTE 38_QPSK20M_Ch37850_1RB_OS0_Ant 2**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2580 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2580 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

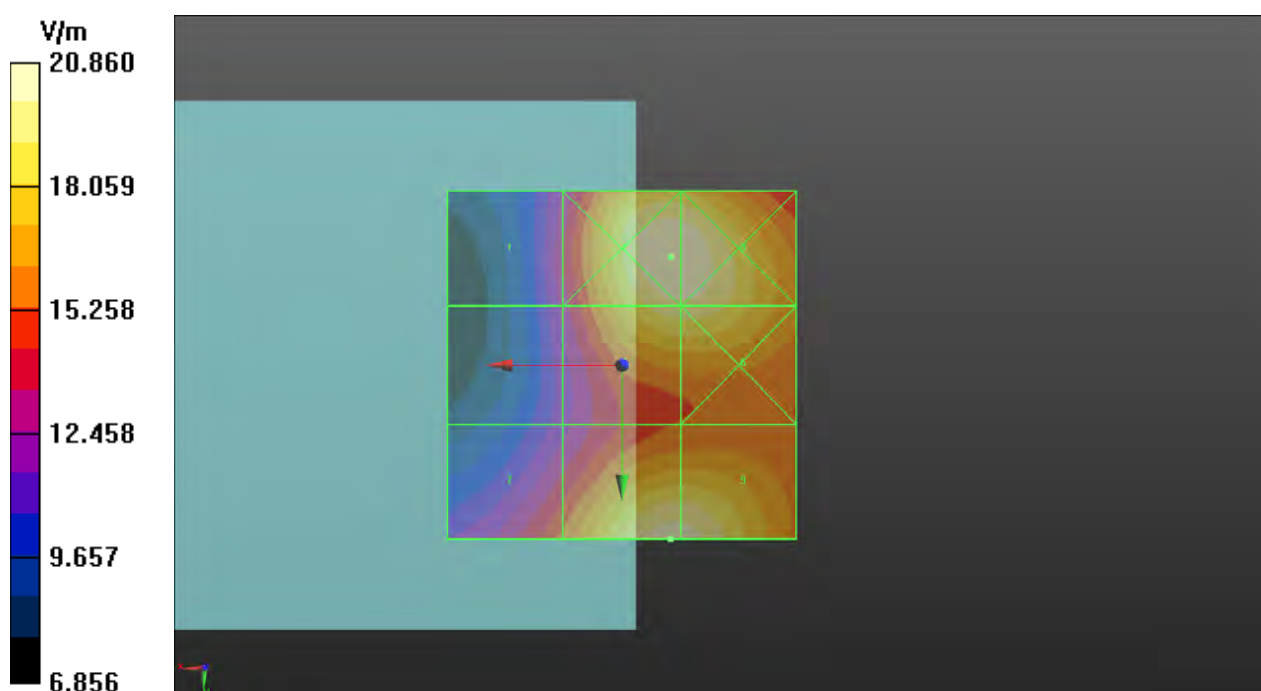
Reference Value = 27.74 V/m; Power Drift = -0.02 dB

MIF = -1.62 dB

RF audio interference level = 26.24 dBV/m

Emission category: M4

Grid 1 M4 22.56 dBV/m	Grid 2 M4 26.39 dBV/m	Grid 3 M4 26.34 dBV/m
Grid 4 M4 22.19 dBV/m	Grid 5 M4 25.87 dBV/m	Grid 6 M4 25.87 dBV/m
Grid 7 M4 23.87 dBV/m	Grid 8 M4 26.24 dBV/m	Grid 9 M4 26.2 dBV/m



P08 RF_E-Field_LTE 38_QPSK20M_Ch37850_1RB_OS0_Ant 8**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2580 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2580 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

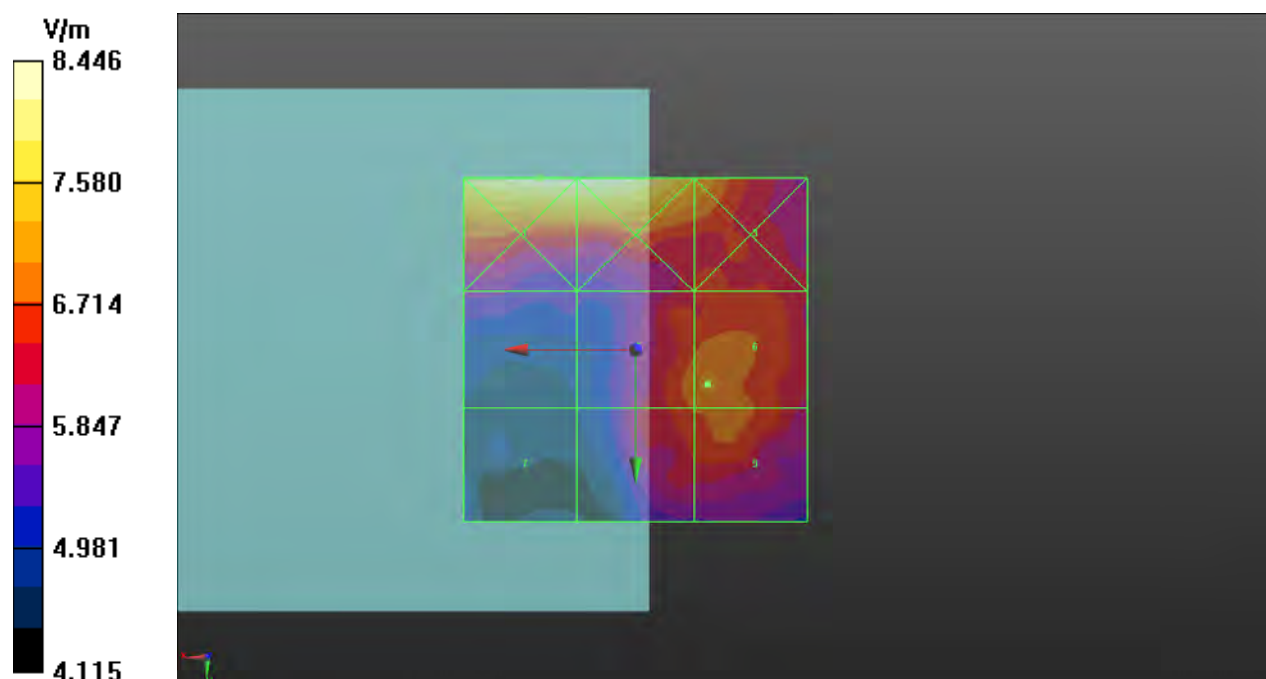
Reference Value = 9.049 V/m; Power Drift = -0.17 dB

MIF = -1.62 dB

RF audio interference level = 16.99 dBV/m

Emission category: M4

Grid 1 M4 18.53 dBV/m	Grid 2 M4 18.51 dBV/m	Grid 3 M4 17.39 dBV/m
Grid 4 M4 15.06 dBV/m	Grid 5 M4 16.81 dBV/m	Grid 6 M4 16.99 dBV/m
Grid 7 M4 14.19 dBV/m	Grid 8 M4 16.56 dBV/m	Grid 9 M4 16.75 dBV/m



P09 RF_E-Field_LTE 40_QPSK20M_Ch39150_1RB_OS0_Ant 1**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2350 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2350 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

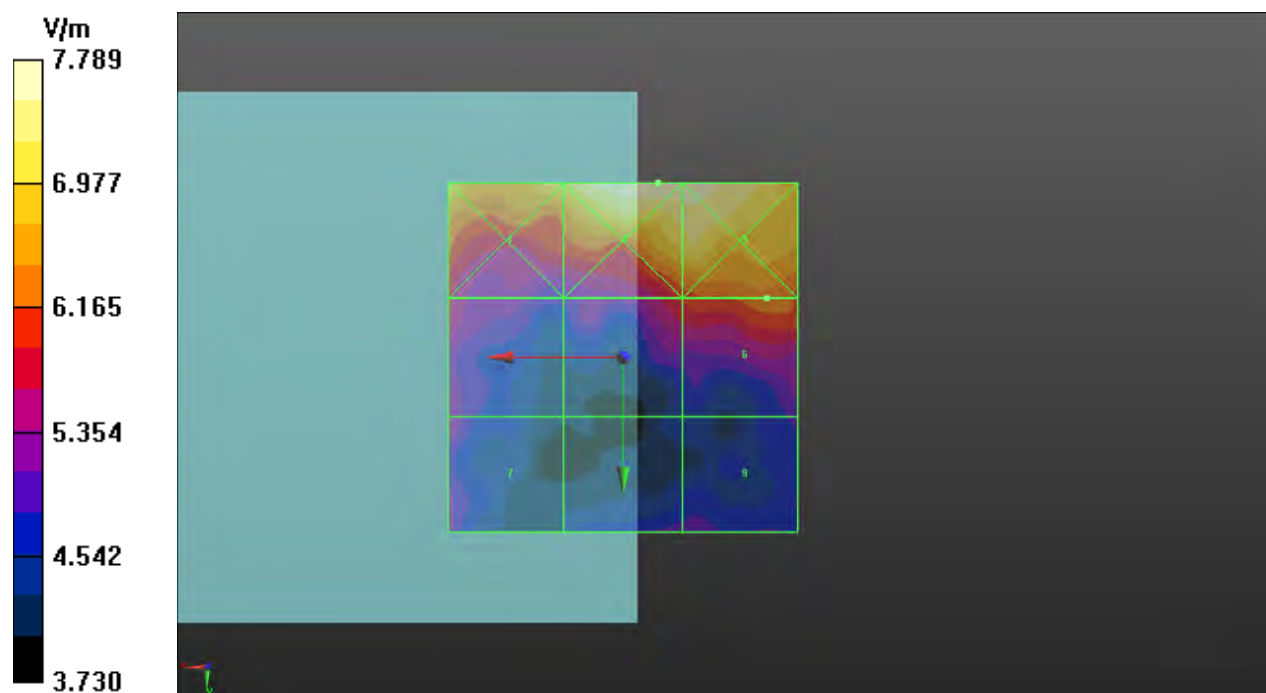
Reference Value = 6.108 V/m; Power Drift = 0.15 dB

MIF = -1.62 dB

RF audio interference level = 16.04 dBV/m

Emission category: M4

Grid 1 M4 17.28 dBV/m	Grid 2 M4 17.83 dBV/m	Grid 3 M4 17.73 dBV/m
Grid 4 M4 15.13 dBV/m	Grid 5 M4 15.55 dBV/m	Grid 6 M4 16.04 dBV/m
Grid 7 M4 14.85 dBV/m	Grid 8 M4 13.91 dBV/m	Grid 9 M4 13.91 dBV/m



P10 RF_E-Field_LTE 40_QPSK20M_Ch39150_1RB_OS0_Ant 2**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2350 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2350 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

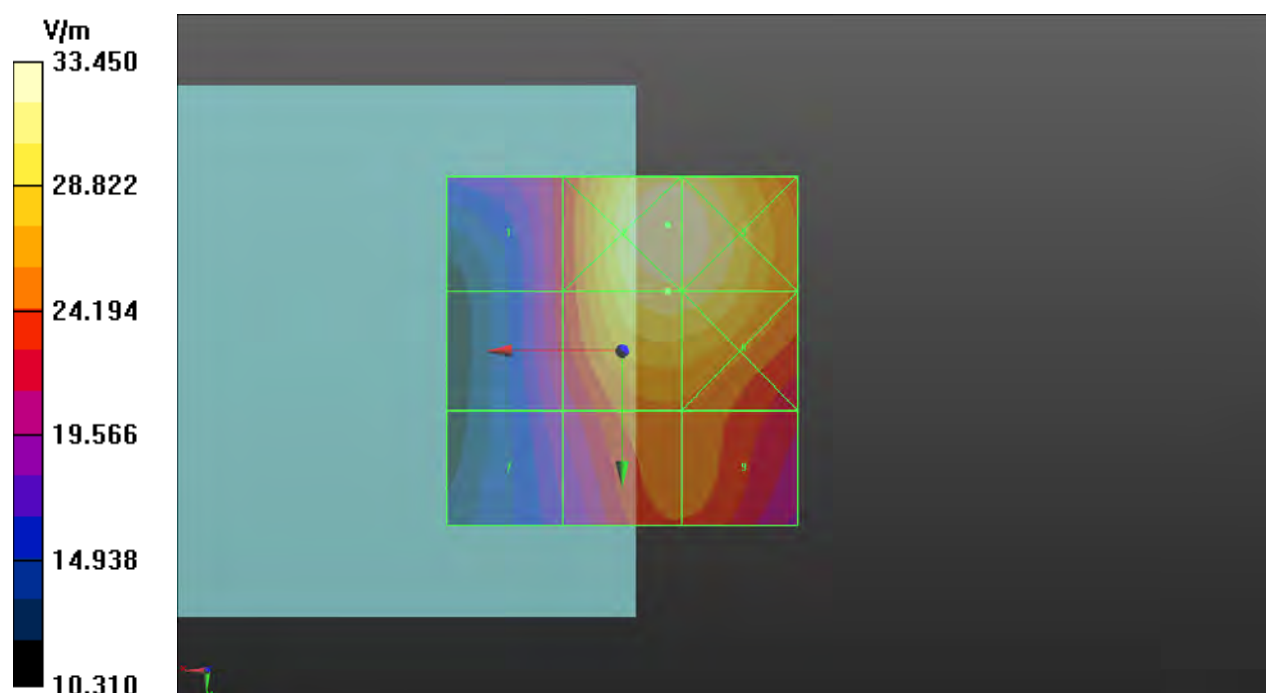
Reference Value = 52.69 V/m; Power Drift = -0.03 dB

MIF = -1.62 dB

RF audio interference level = 29.98 dBV/m

Emission category: M4

Grid 1 M4 27.02 dBV/m	Grid 2 M3 30.49 dBV/m	Grid 3 M3 30.42 dBV/m
Grid 4 M4 26.96 dBV/m	Grid 5 M4 29.98 dBV/m	Grid 6 M4 29.95 dBV/m
Grid 7 M4 25.99 dBV/m	Grid 8 M4 28.16 dBV/m	Grid 9 M4 28.12 dBV/m



P11 RF_E-Field_LTE 40_QPSK20M_Ch39150_1RB_OS0_Ant 8**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2350 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2350 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

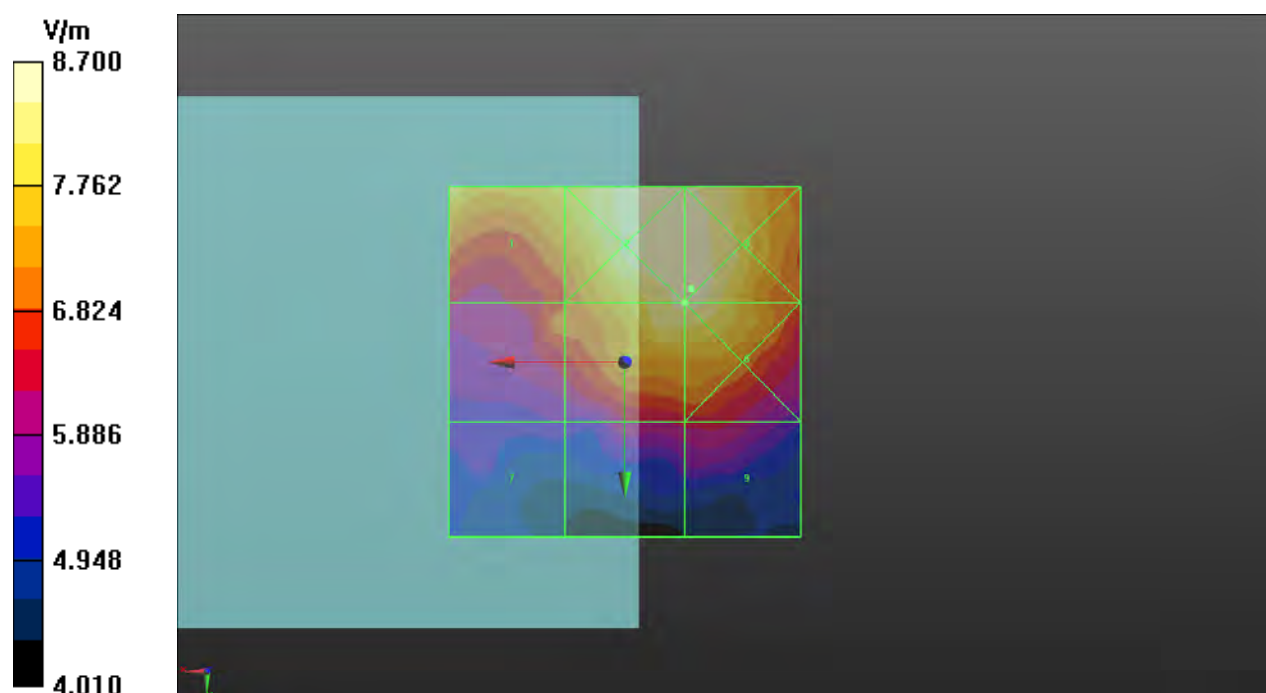
Reference Value = 11.45 V/m; Power Drift = 0.01 dB

MIF = -1.62 dB

RF audio interference level = 18.61 dBV/m

Emission category: M4

Grid 1 M4 18.27 dBV/m	Grid 2 M4 18.76 dBV/m	Grid 3 M4 18.79 dBV/m
Grid 4 M4 16.87 dBV/m	Grid 5 M4 18.61 dBV/m	Grid 6 M4 18.62 dBV/m
Grid 7 M4 14.95 dBV/m	Grid 8 M4 16.04 dBV/m	Grid 9 M4 16.1 dBV/m



P12 RF_E-Field_LTE 41_QPSK20M_Ch39750_1RB_OS0_Ant 1_HPUE PC2**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2506 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2506 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

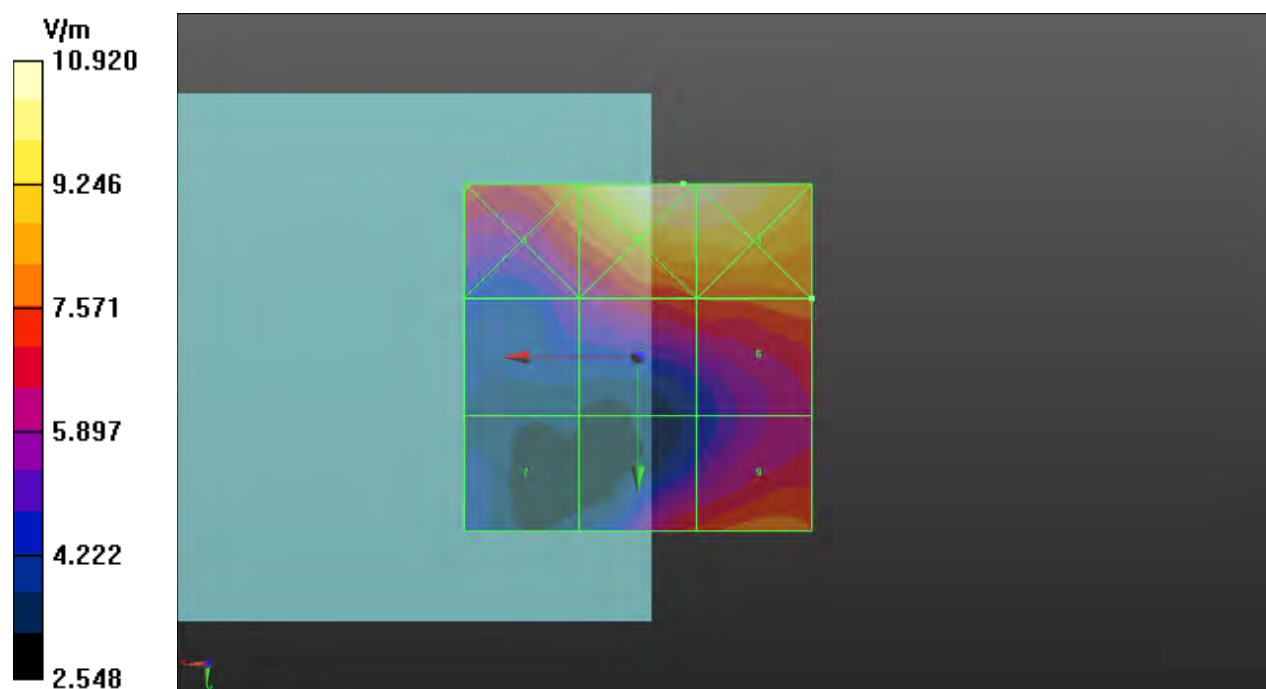
Reference Value = 6.852 V/m; Power Drift = 0.18 dB

MIF = -1.62 dB

RF audio interference level = 18.12 dBV/m

Emission category: M4

Grid 1 M4 19.07 dBV/m	Grid 2 M4 20.76 dBV/m	Grid 3 M4 20.74 dBV/m
Grid 4 M4 15.15 dBV/m	Grid 5 M4 17.59 dBV/m	Grid 6 M4 18.12 dBV/m
Grid 7 M4 12.97 dBV/m	Grid 8 M4 17.12 dBV/m	Grid 9 M4 18.04 dBV/m



P13 RF_E-Field_LTE 41_QPSK20M_Ch41055_1RB_OS0_Ant 2_HPUE PC2**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2636.5 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2636.5 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

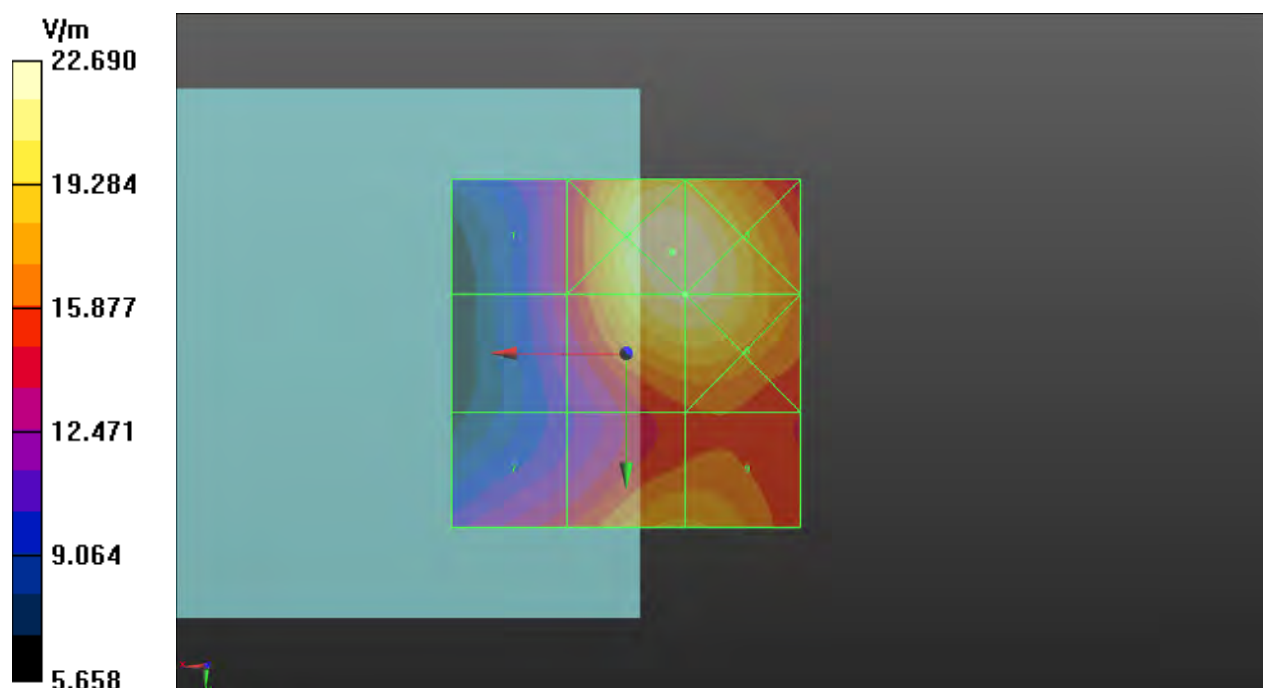
Reference Value = 31.11 V/m; Power Drift = -0.03 dB

MIF = -1.62 dB

RF audio interference level = 26.86 dBV/m

Emission category: M4

Grid 1 M4 22.94 dBV/m	Grid 2 M4 27.12 dBV/m	Grid 3 M4 27.07 dBV/m
Grid 4 M4 22.82 dBV/m	Grid 5 M4 26.86 dBV/m	Grid 6 M4 26.86 dBV/m
Grid 7 M4 23.31 dBV/m	Grid 8 M4 25.35 dBV/m	Grid 9 M4 25.34 dBV/m



P14 RF_E-Field_LTE 41_QPSK20M_Ch40185_1RB_OS0_Ant 8_HPUE PC2**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2549.5 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2549.5 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

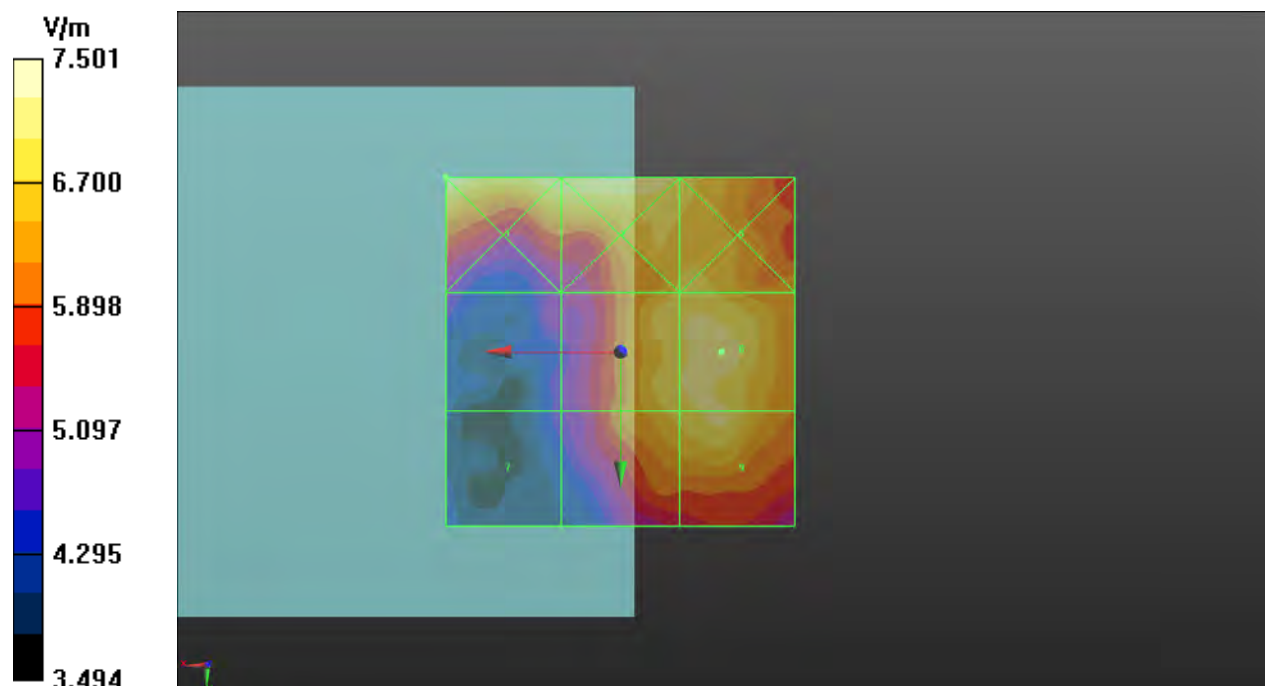
Reference Value = 9.788 V/m; Power Drift = -0.10 dB

MIF = -1.62 dB

RF audio interference level = 17.17 dBV/m

Emission category: M4

Grid 1 M4 17.5 dBV/m	Grid 2 M4 17.29 dBV/m	Grid 3 M4 16.77 dBV/m
Grid 4 M4 14.16 dBV/m	Grid 5 M4 16.85 dBV/m	Grid 6 M4 17.17 dBV/m
Grid 7 M4 13.59 dBV/m	Grid 8 M4 16.69 dBV/m	Grid 9 M4 16.96 dBV/m



P15 RF_E-Field_LTE 41_QPSK20M_Ch39750_1RB_OS0_Ant 1_HPUE PC3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2506 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2506 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

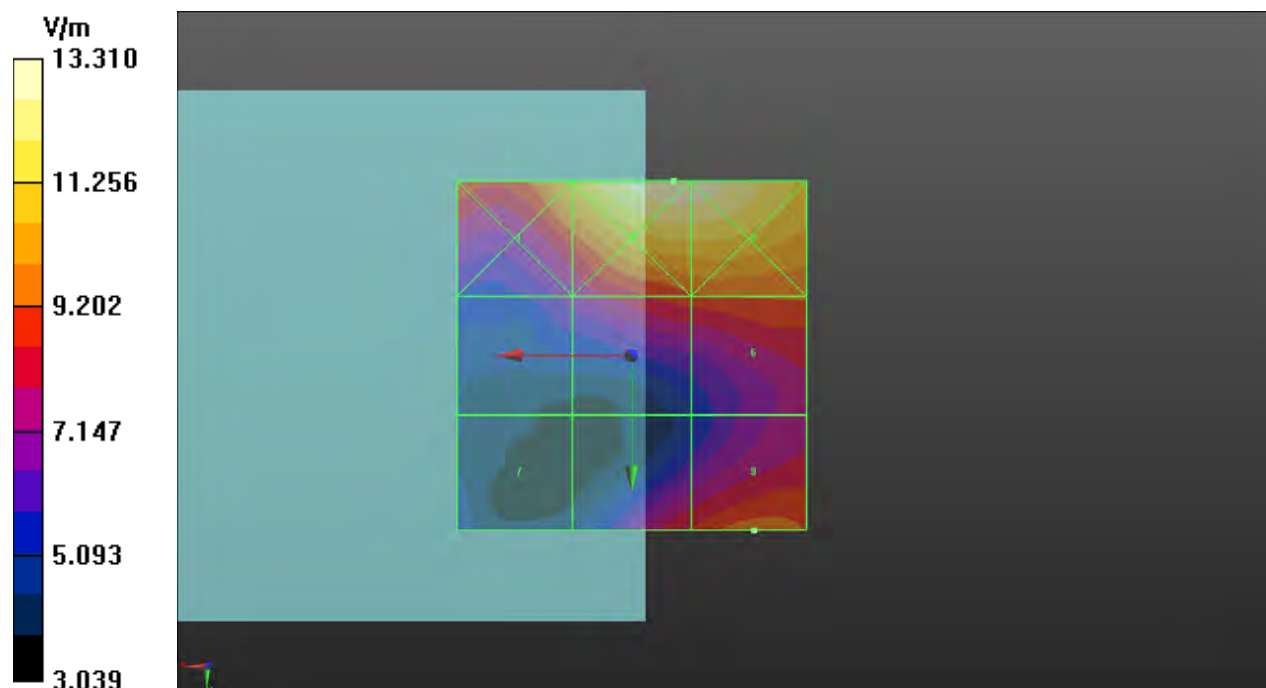
Reference Value = 7.485 V/m; Power Drift = 0.15 dB

MIF = -1.62 dB

RF audio interference level = 19.63 dBV/m

Emission category: M4

Grid 1 M4 20.78 dBV/m	Grid 2 M4 22.48 dBV/m	Grid 3 M4 22.43 dBV/m
Grid 4 M4 16.79 dBV/m	Grid 5 M4 19.13 dBV/m	Grid 6 M4 19.4 dBV/m
Grid 7 M4 14.72 dBV/m	Grid 8 M4 18.74 dBV/m	Grid 9 M4 19.63 dBV/m



P16 RF_E-Field_LTE 41_QPSK20M_Ch41055_1RB_OS0_Ant 2_HPUE PC3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2636.5 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2636.5 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

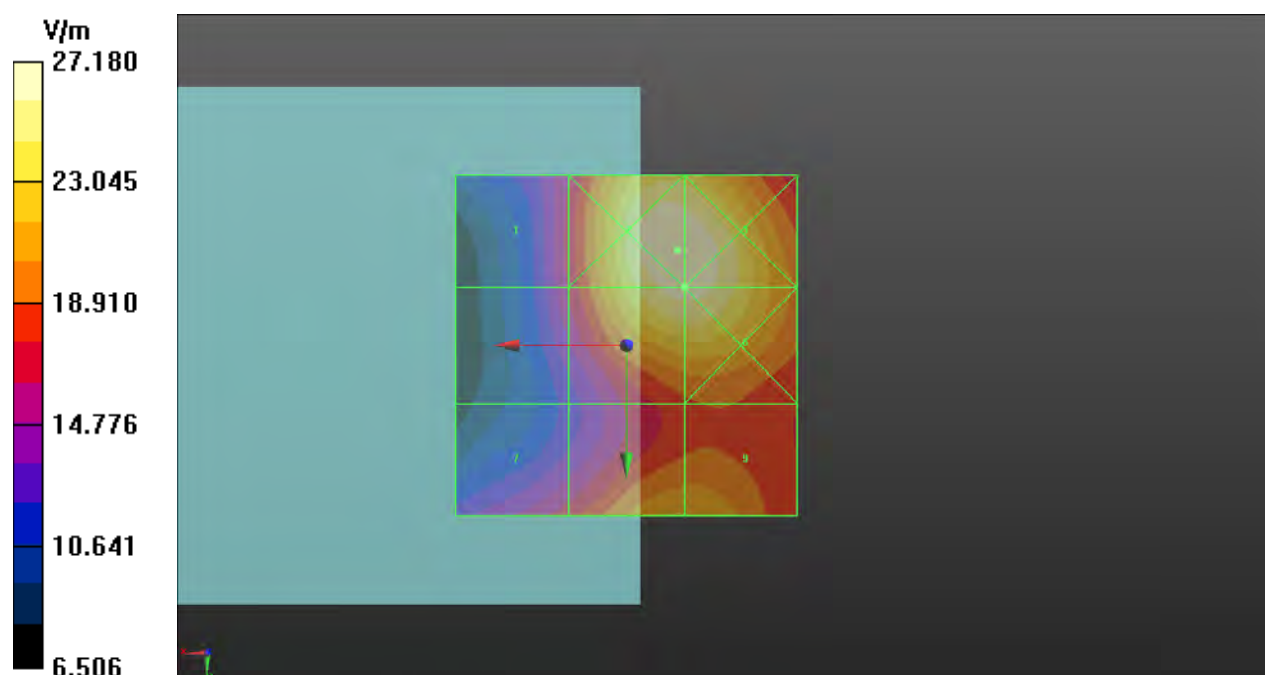
Reference Value = 37.25 V/m; Power Drift = -0.02 dB

MIF = -1.62 dB

RF audio interference level = 28.45 dBV/m

Emission category: M4

Grid 1 M4 24.48 dBV/m	Grid 2 M4 28.69 dBV/m	Grid 3 M4 28.67 dBV/m
Grid 4 M4 24.25 dBV/m	Grid 5 M4 28.45 dBV/m	Grid 6 M4 28.45 dBV/m
Grid 7 M4 24.67 dBV/m	Grid 8 M4 26.78 dBV/m	Grid 9 M4 26.77 dBV/m



P17 RF_E-Field_LTE 41_QPSK20M_Ch40185_1RB_OS0_Ant 8_HPUE PC3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2549.5 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2549.5 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

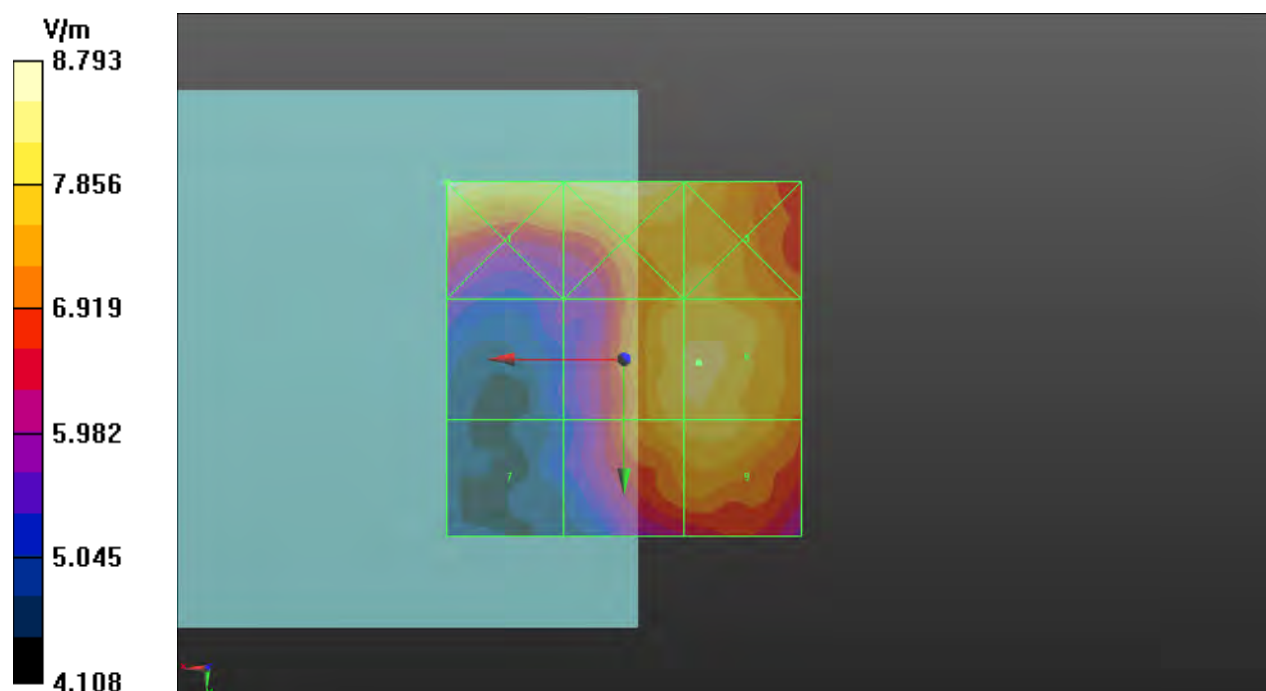
Reference Value = 11.42 V/m; Power Drift = -0.06 dB

MIF = -1.62 dB

RF audio interference level = 18.43 dBV/m

Emission category: M4

Grid 1 M4 18.88 dBV/m	Grid 2 M4 18.56 dBV/m	Grid 3 M4 18.15 dBV/m
Grid 4 M4 15.36 dBV/m	Grid 5 M4 18.31 dBV/m	Grid 6 M4 18.43 dBV/m
Grid 7 M4 14.57 dBV/m	Grid 8 M4 18.04 dBV/m	Grid 9 M4 18.13 dBV/m



P18 RF_E-Field_LTE 42_QPSK20M_Ch43490_1RB_OS0_Ant 11**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3590 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3590 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

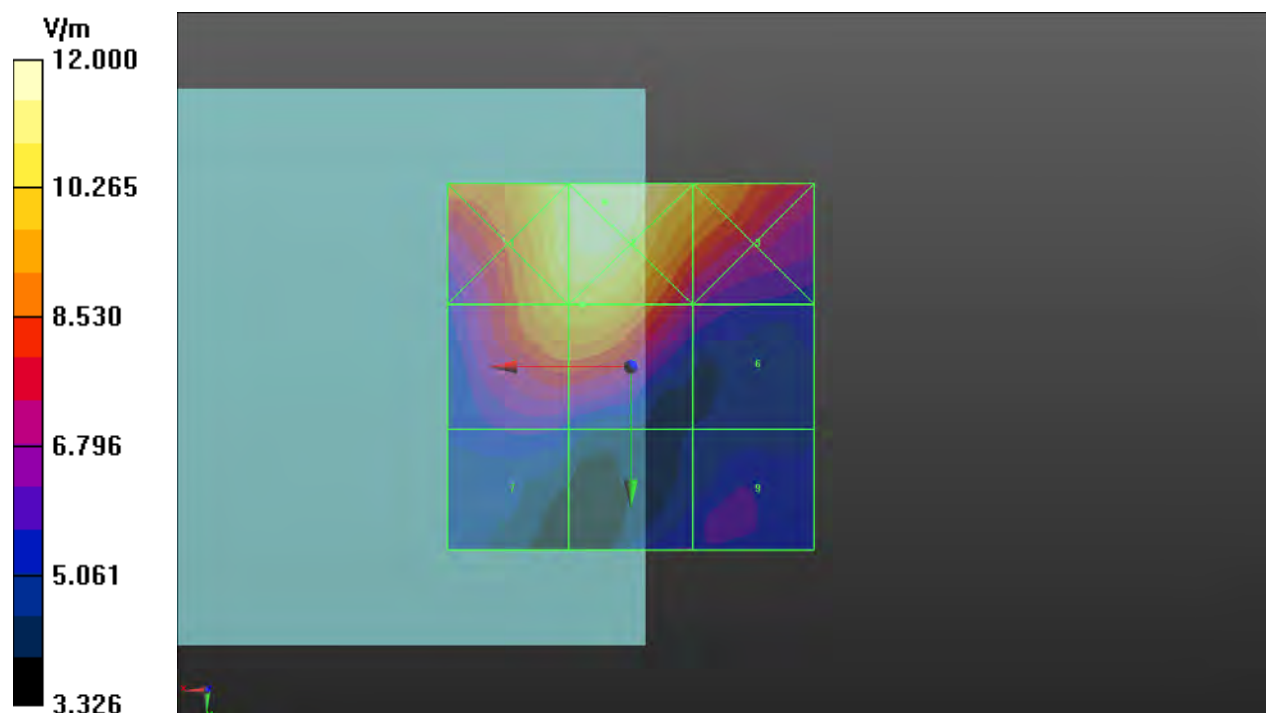
Reference Value = 11.22 V/m; Power Drift = 0.08 dB

MIF = -1.62 dB

RF audio interference level = 20.27 dBV/m

Emission category: M4

Grid 1 M4 21.15 dBV/m	Grid 2 M4 21.59 dBV/m	Grid 3 M4 20.25 dBV/m
Grid 4 M4 20.18 dBV/m	Grid 5 M4 20.27 dBV/m	Grid 6 M4 16.35 dBV/m
Grid 7 M4 15.32 dBV/m	Grid 8 M4 15.21 dBV/m	Grid 9 M4 15.43 dBV/m



P19 RF_E-Field_LTE 42_QPSK20M_Ch43490_1RB_OS0_Ant 5**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3590 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3590 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

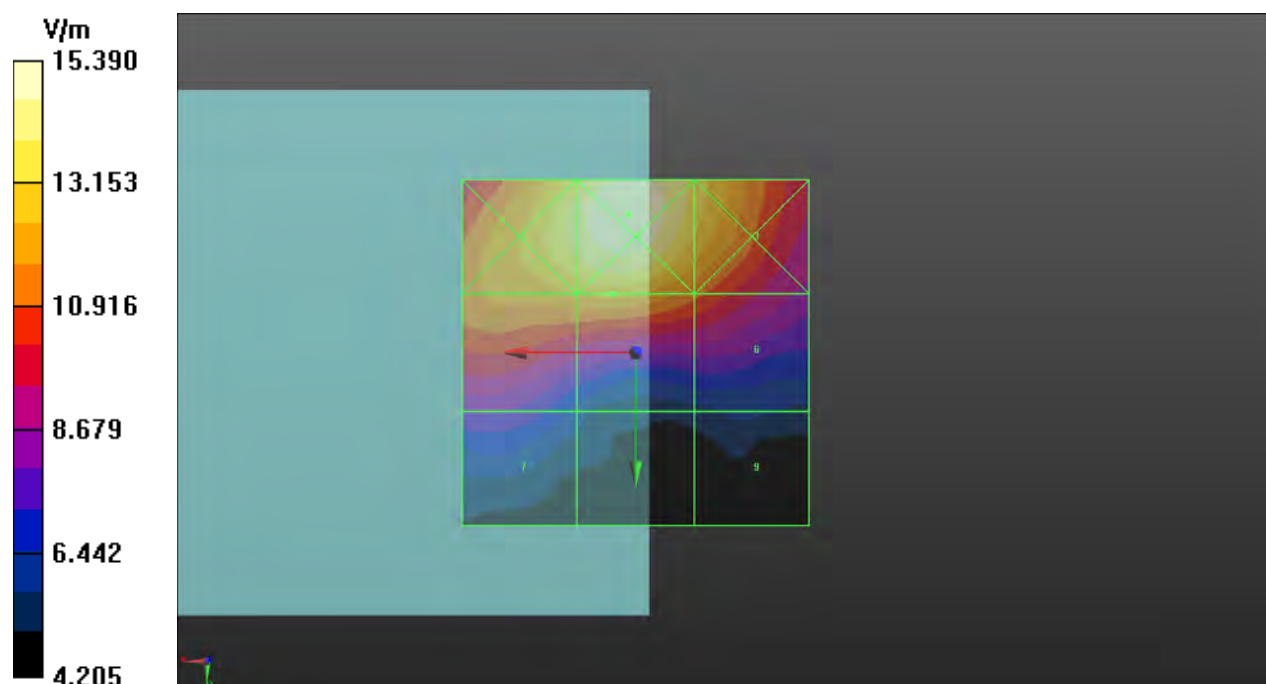
Reference Value = 11.55 V/m; Power Drift = -0.01 dB

MIF = -1.62 dB

RF audio interference level = 22.07 dBV/m

Emission category: M4

Grid 1 M4 23.08 dBV/m	Grid 2 M4 23.75 dBV/m	Grid 3 M4 22.7 dBV/m
Grid 4 M4 21.88 dBV/m	Grid 5 M4 22.07 dBV/m	Grid 6 M4 20.97 dBV/m
Grid 7 M4 18.13 dBV/m	Grid 8 M4 15.93 dBV/m	Grid 9 M4 15.51 dBV/m



P20 RF_E-Field_LTE 43_QPSK20M_Ch44240_1RB_OS0_Ant 11**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3665 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3665 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

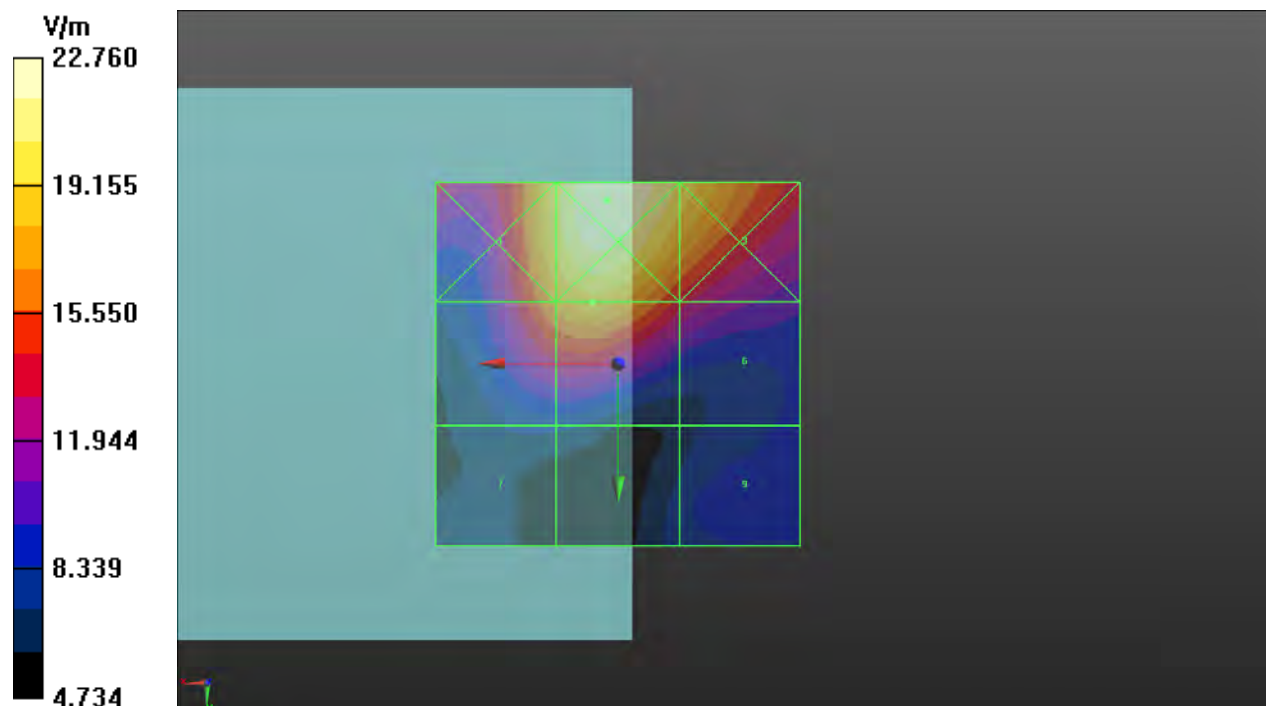
Reference Value = 21.16 V/m; Power Drift = -0.10 dB

MIF = -1.62 dB

RF audio interference level = 25.39 dBV/m

Emission category: M4

Grid 1 M4 25.98 dBV/m	Grid 2 M4 27.14 dBV/m	Grid 3 M4 26.08 dBV/m
Grid 4 M4 24.74 dBV/m	Grid 5 M4 25.39 dBV/m	Grid 6 M4 22.83 dBV/m
Grid 7 M4 17.68 dBV/m	Grid 8 M4 17.92 dBV/m	Grid 9 M4 19.03 dBV/m



P21 RF_E-Field_LTE 43_QPSK20M_Ch44240_1RB_OS0_Ant 5**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3665 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3665 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

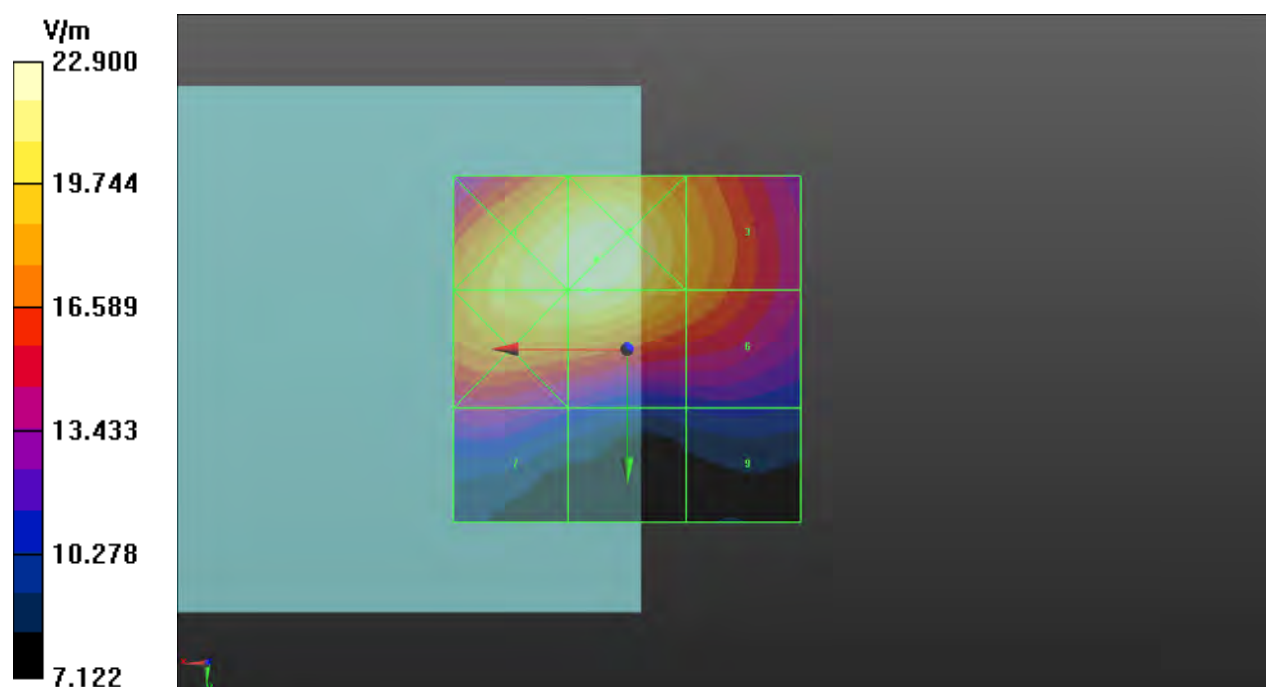
Reference Value = 26.24 V/m; Power Drift = 0.01 dB

MIF = -1.62 dB

RF audio interference level = 26.90 dBV/m

Emission category: M4

Grid 1 M4 26.96 dBV/m	Grid 2 M4 27.2 dBV/m	Grid 3 M4 25.56 dBV/m
Grid 4 M4 26.77 dBV/m	Grid 5 M4 26.9 dBV/m	Grid 6 M4 25.28 dBV/m
Grid 7 M4 22.81 dBV/m	Grid 8 M4 21.39 dBV/m	Grid 9 M4 20.74 dBV/m



P22 RF_E-Field_LTE 48_QPSK20M_Ch56210_1RB_OS0_Ant 11**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3647 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3647 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

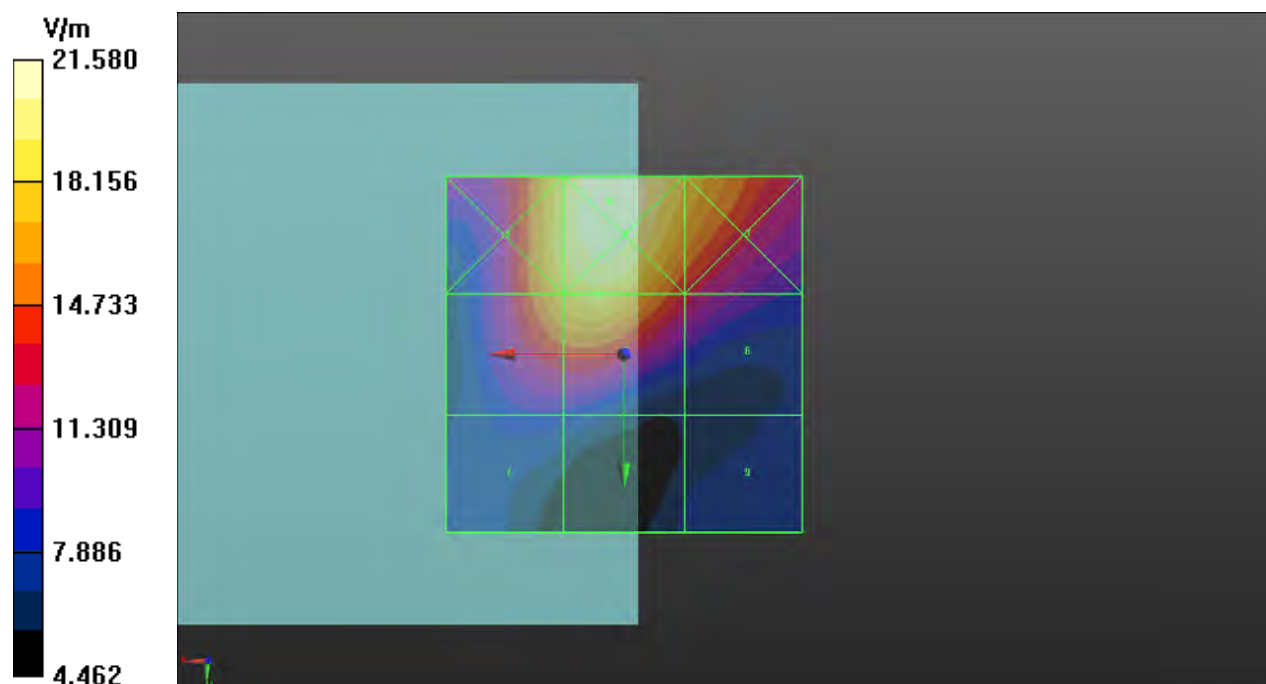
Reference Value = 21.35 V/m; Power Drift = -0.01 dB

MIF = -1.62 dB

RF audio interference level = 25.49 dBV/m

Emission category: M4

Grid 1 M4 25.79 dBV/m	Grid 2 M4 26.68 dBV/m	Grid 3 M4 25.27 dBV/m
Grid 4 M4 25.02 dBV/m	Grid 5 M4 25.49 dBV/m	Grid 6 M4 22.52 dBV/m
Grid 7 M4 19.05 dBV/m	Grid 8 M4 18.81 dBV/m	Grid 9 M4 17.87 dBV/m



P23 RF_E-Field_LTE 48_QPSK20M_Ch55780_1RB_OS0_Ant 5**DUT: BFLF-WTW-P20120540**

Communication System: UID 10172 - CAG, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 3603 MHz; Duty Cycle: 1:8.33

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 3603 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

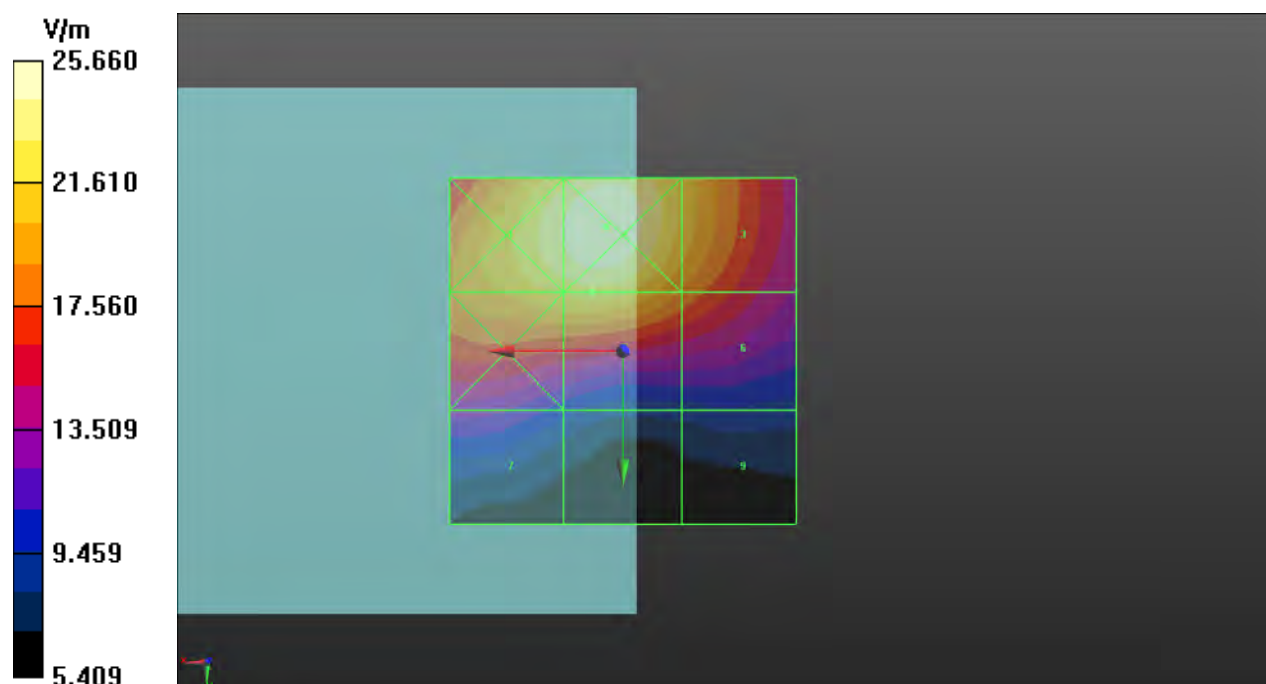
Reference Value = 21.26 V/m; Power Drift = -0.03 dB

MIF = -1.62 dB

RF audio interference level = 27.00 dBV/m

Emission category: M4

Grid 1 M4 27.76 dBV/m	Grid 2 M4 28.18 dBV/m	Grid 3 M4 26.64 dBV/m
Grid 4 M4 26.83 dBV/m	Grid 5 M4 27 dBV/m	Grid 6 M4 25.46 dBV/m
Grid 7 M4 22.19 dBV/m	Grid 8 M4 20.11 dBV/m	Grid 9 M4 19.48 dBV/m



P24 RF_E-Field_WLAN2.4G_802.11g_Ch6_Ant 6**DUT: BFLF-WTW-P20120540**

Communication System: UID 10013 - CAB, IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps);

Frequency: 2437 MHz; Duty Cycle: 1:8.83

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

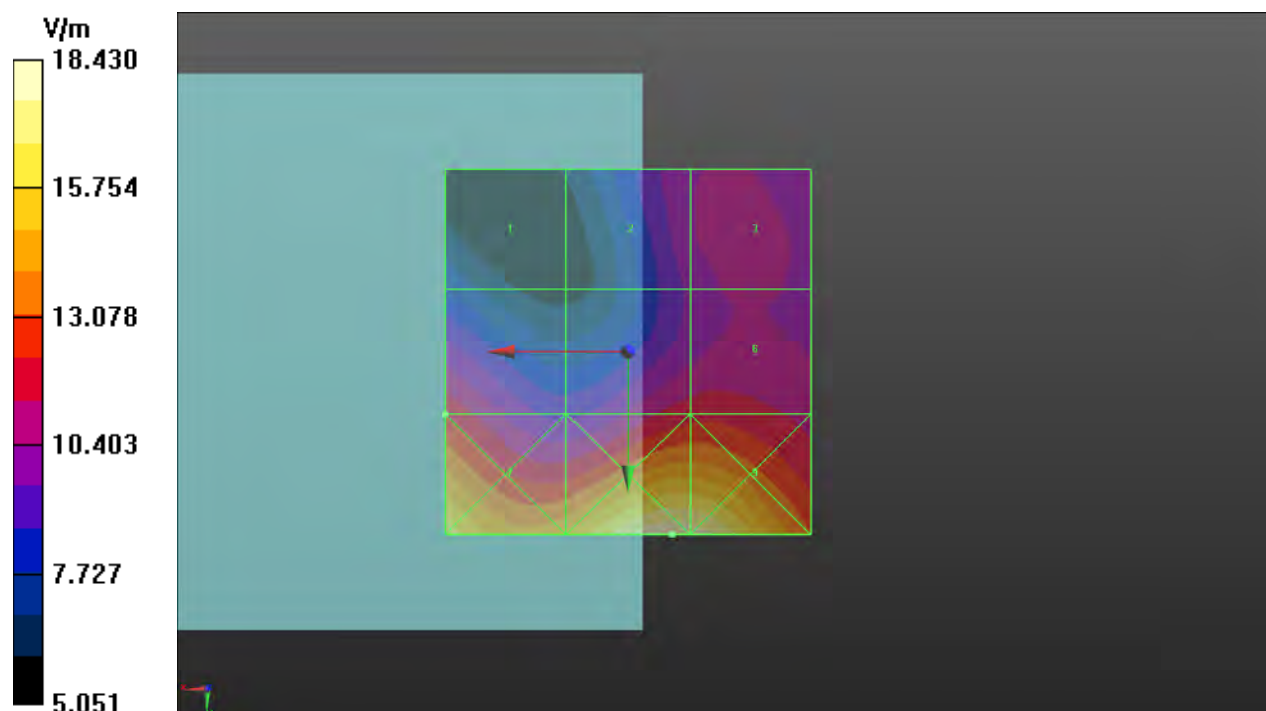
Reference Value = 14.00 V/m; Power Drift = -0.04 dB

MIF = -3.16 dB

RF audio interference level = 21.70 dBV/m

Emission category: M4

Grid 1 M4 17.82 dBV/m	Grid 2 M4 20.29 dBV/m	Grid 3 M4 20.79 dBV/m
Grid 4 M4 21.7 dBV/m	Grid 5 M4 21.49 dBV/m	Grid 6 M4 21.56 dBV/m
Grid 7 M4 24.36 dBV/m	Grid 8 M4 25.31 dBV/m	Grid 9 M4 25.19 dBV/m



P25 RF_E-Field_WLAN2.4G_802.11g_Ch11_Ant 3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10013 - CAB, IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps);

Frequency: 2462 MHz; Duty Cycle: 1:8.83

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2462 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

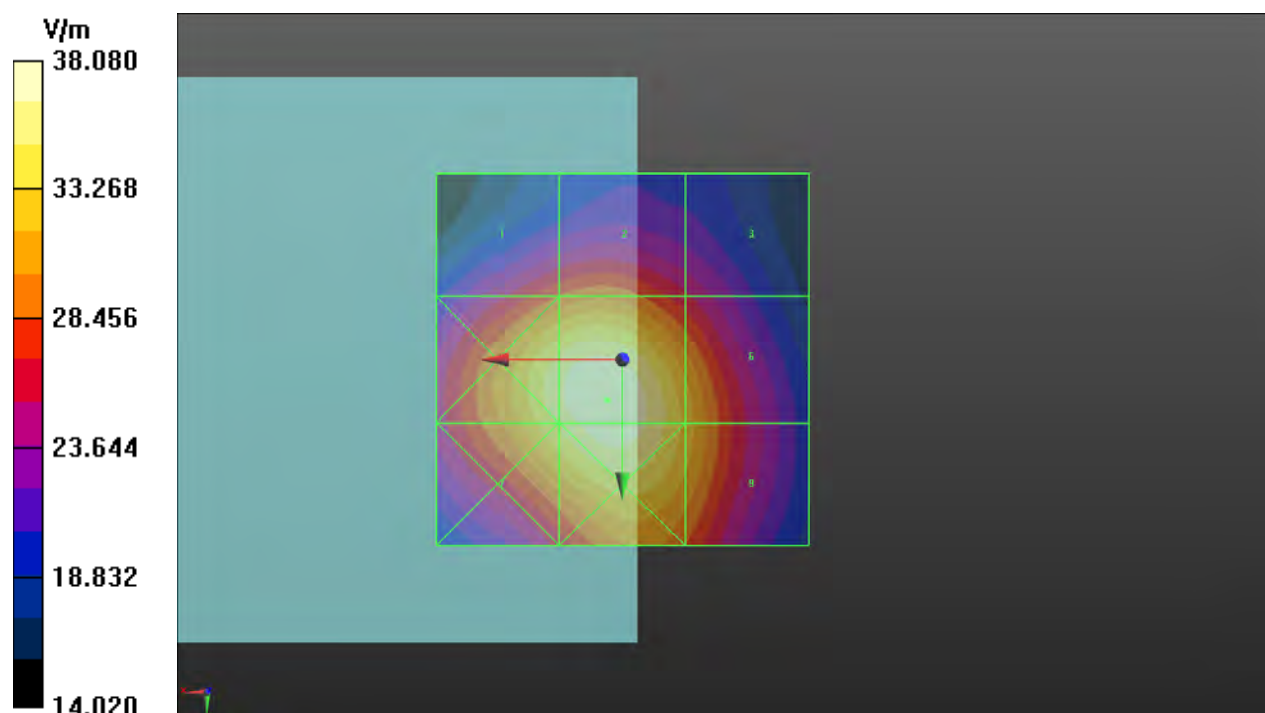
Reference Value = 80.49 V/m; Power Drift = 0.11 dB

MIF = -3.16 dB

RF audio interference level = 31.61 dBV/m

Emission category: M3

Grid 1 M4 29.13 dBV/m	Grid 2 M4 29.48 dBV/m	Grid 3 M4 28.19 dBV/m
Grid 4 M3 31.17 dBV/m	Grid 5 M3 31.61 dBV/m	Grid 6 M3 30.29 dBV/m
Grid 7 M3 30.94 dBV/m	Grid 8 M3 31.5 dBV/m	Grid 9 M3 30.29 dBV/m



P26 RF_E-Field_WLAN2.4G_802.11g_Ch11_Ant 4**DUT: BFLF-WTW-P20120540**

Communication System: UID 10013 - CAB, IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps);

Frequency: 2462 MHz; Duty Cycle: 1:8.83

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2462 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

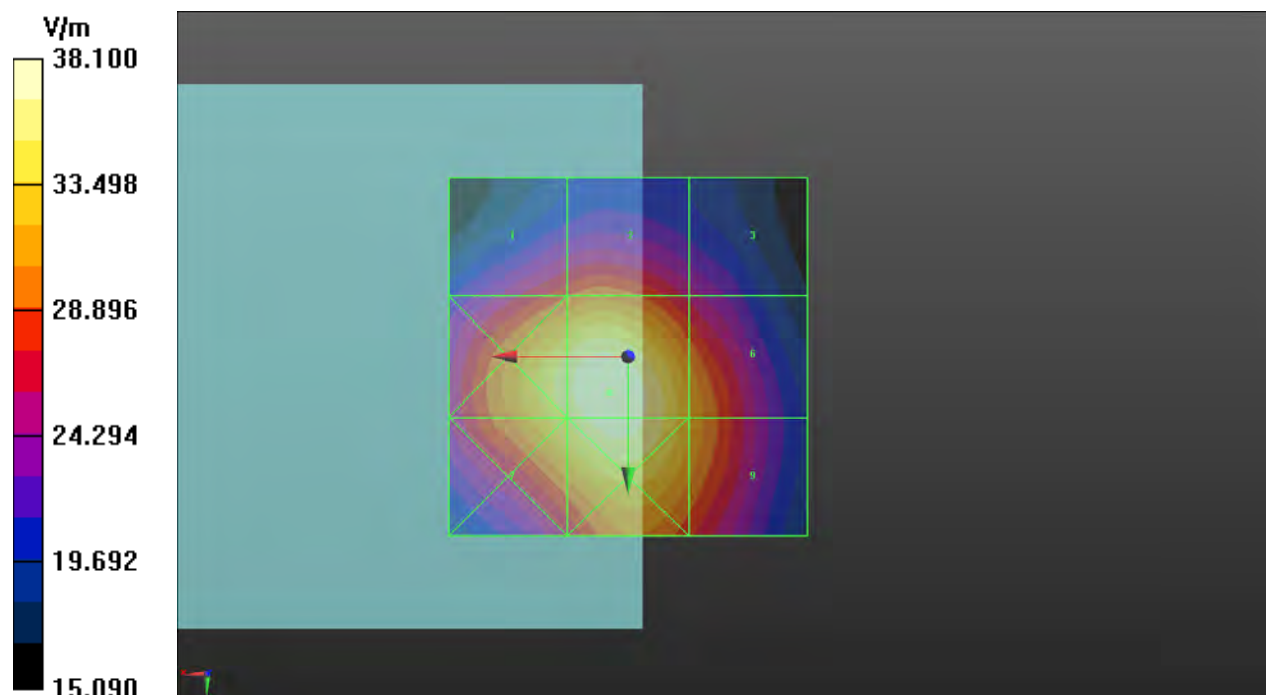
Reference Value = 80.88 V/m; Power Drift = -0.05 dB

MIF = -3.16 dB

RF audio interference level = 31.62 dBV/m

Emission category: M3

Grid 1 M4 29.16 dBV/m	Grid 2 M4 29.55 dBV/m	Grid 3 M4 28.07 dBV/m
Grid 4 M3 31.16 dBV/m	Grid 5 M3 31.62 dBV/m	Grid 6 M3 30.14 dBV/m
Grid 7 M3 30.93 dBV/m	Grid 8 M3 31.49 dBV/m	Grid 9 M3 30.14 dBV/m



P27 RF_E-Field_WLAN2.4G_802.11g_Ch6_Ant 6+4**DUT: BFLF-WTW-P20120540**

Communication System: UID 10013 - CAB, IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps);

Frequency: 2437 MHz; Duty Cycle: 1:8.83

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

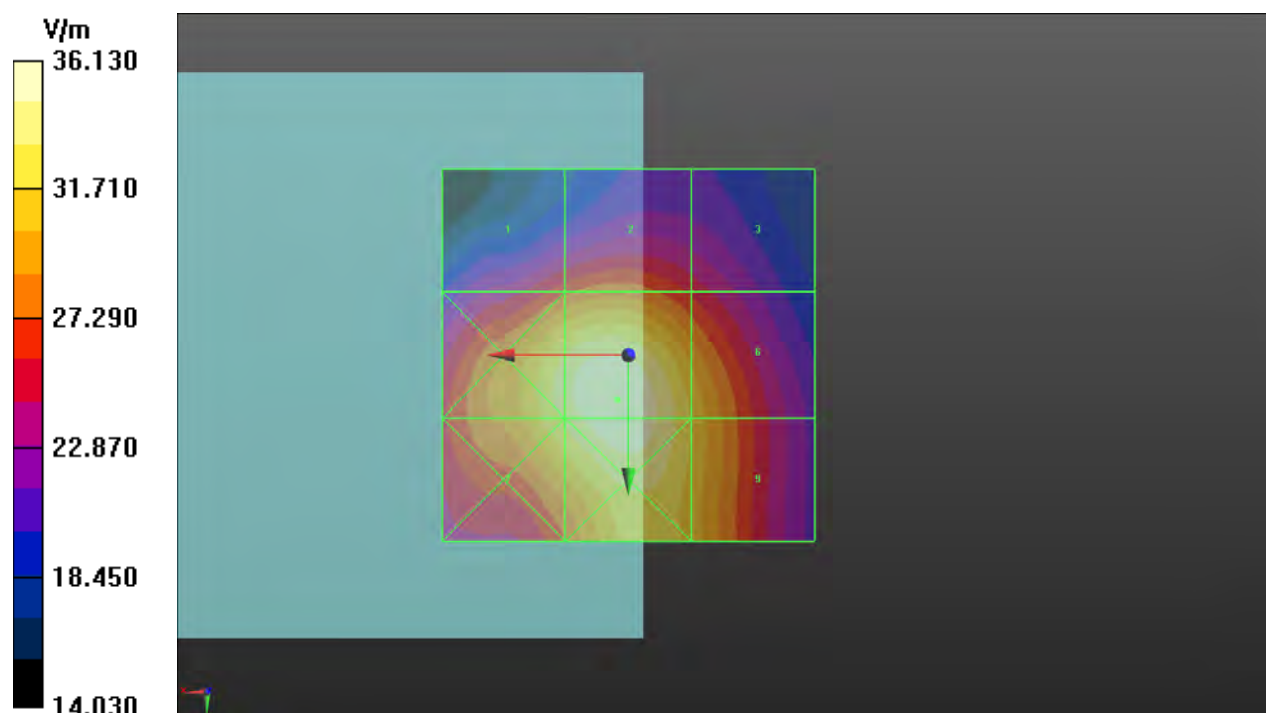
Reference Value = 76.02 V/m; Power Drift = -0.01 dB

MIF = -3.16 dB

RF audio interference level = 31.16 dBV/m

Emission category: M3

Grid 1 M4 28.61 dBV/m	Grid 2 M4 29.05 dBV/m	Grid 3 M4 28.14 dBV/m
Grid 4 M3 30.68 dBV/m	Grid 5 M3 31.16 dBV/m	Grid 6 M4 29.99 dBV/m
Grid 7 M3 30.51 dBV/m	Grid 8 M3 31.08 dBV/m	Grid 9 M4 30 dBV/m



P28 RF_E-Field_WLAN2.4G_802.11g_Ch6_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10013 - CAB, IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps);

Frequency: 2437 MHz; Duty Cycle: 1:8.83

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

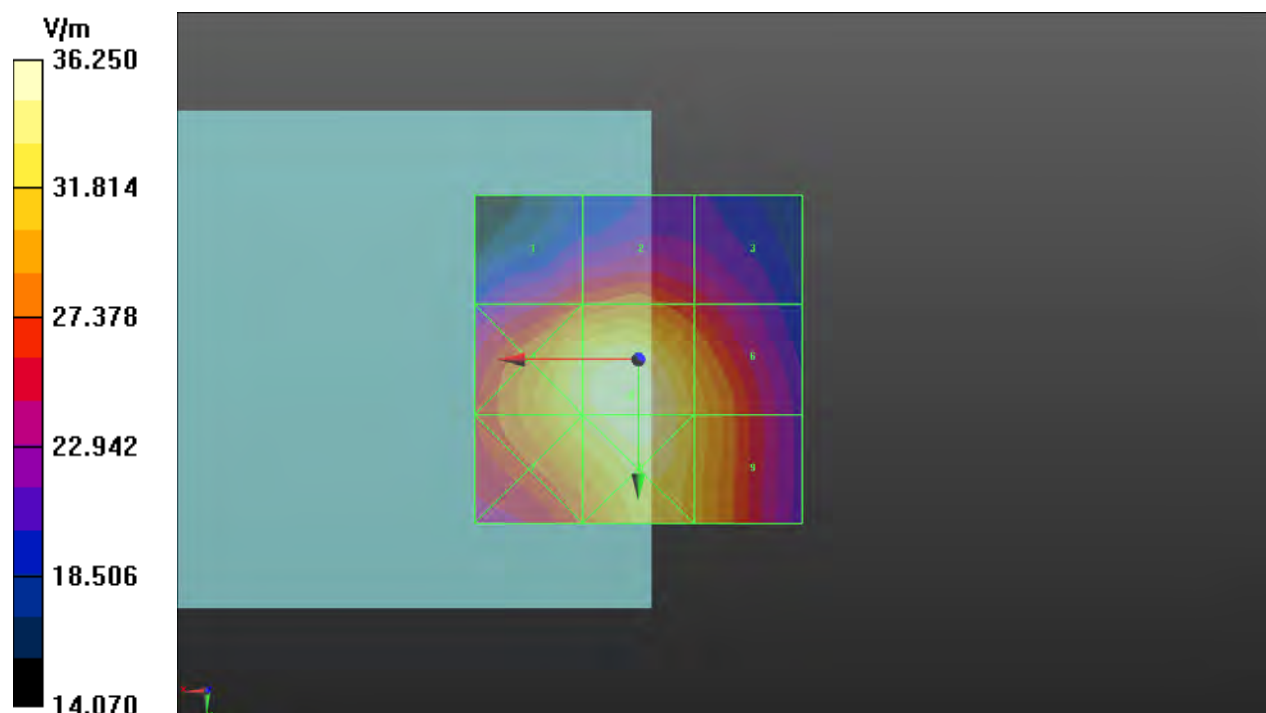
Reference Value = 75.65 V/m; Power Drift = 0.04 dB

MIF = -3.16 dB

RF audio interference level = 31.19 dBV/m

Emission category: M3

Grid 1 M4 28.72 dBV/m	Grid 2 M4 29.15 dBV/m	Grid 3 M4 28.21 dBV/m
Grid 4 M3 30.74 dBV/m	Grid 5 M3 31.19 dBV/m	Grid 6 M4 29.99 dBV/m
Grid 7 M3 30.56 dBV/m	Grid 8 M3 31.09 dBV/m	Grid 9 M3 30 dBV/m



P29 RF_E-Field_WLAN2.4G_802.11ac VHT20_Ch1_Ant 6+4**DUT: BFLF-WTW-P20120540**

Communication System: UID 10525 - AAC, IEEE 802.11ac WiFi (20MHz, MCS0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2412 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

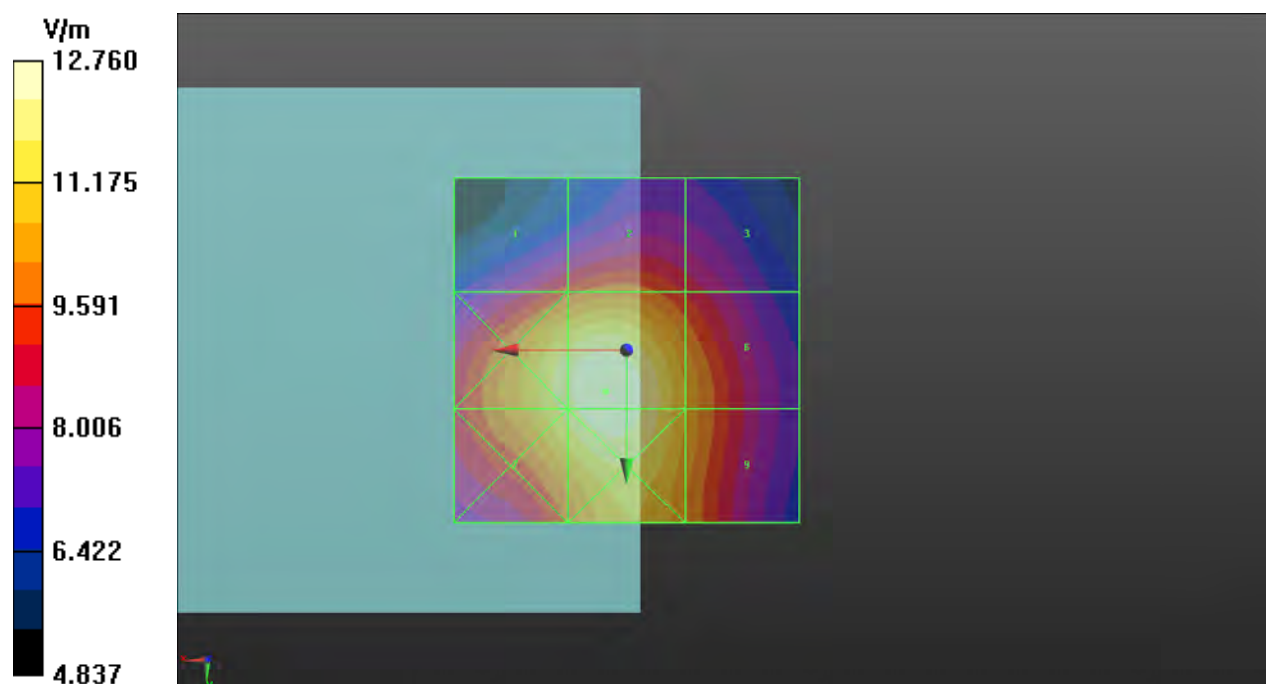
Reference Value = 74.61 V/m; Power Drift = 0.05 dB

MIF = -12.23 dB

RF audio interference level = 22.12 dBV/m

Emission category: M4

Grid 1 M4 19.46 dBV/m	Grid 2 M4 19.93 dBV/m	Grid 3 M4 19.09 dBV/m
Grid 4 M4 21.69 dBV/m	Grid 5 M4 22.12 dBV/m	Grid 6 M4 20.57 dBV/m
Grid 7 M4 21.56 dBV/m	Grid 8 M4 22.03 dBV/m	Grid 9 M4 20.56 dBV/m



P30 RF_E-Field_WLAN2.4G_802.11ac VHT20_Ch6_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10525 - AAC, IEEE 802.11ac WiFi (20MHz, MCS0); Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

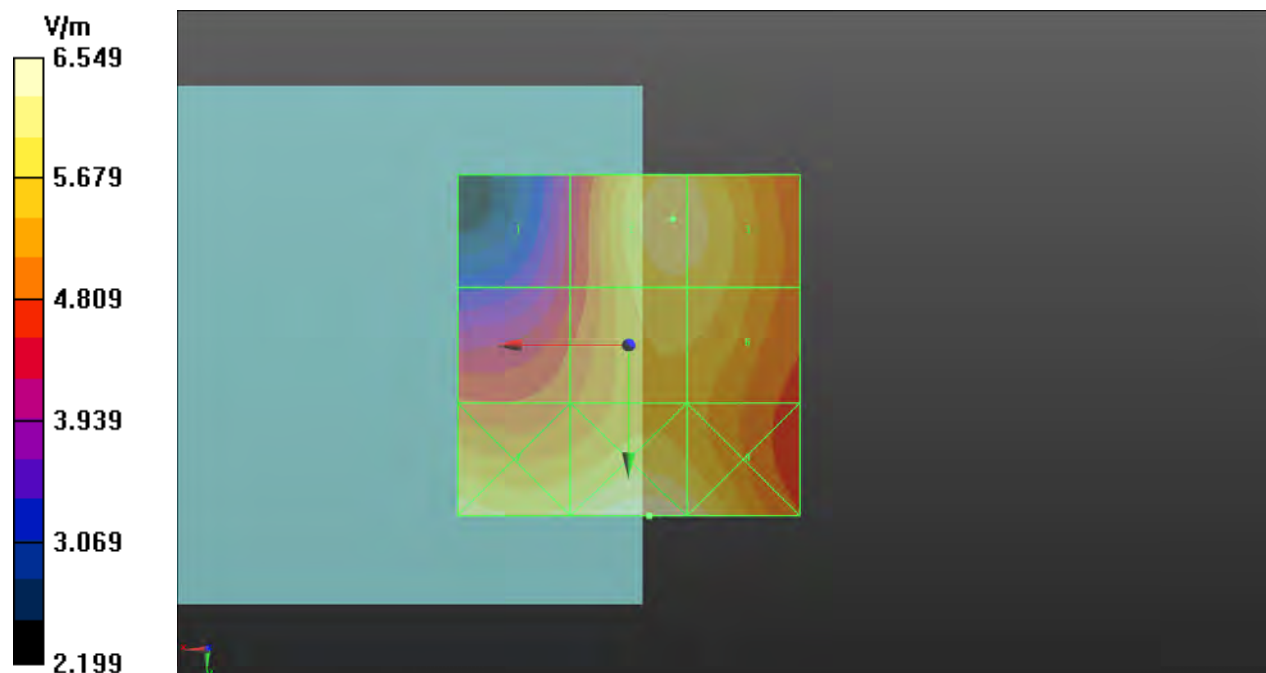
Reference Value = 33.65 V/m; Power Drift = 0.05 dB

MIF = -12.23 dB

RF audio interference level = 15.77 dBV/m

Emission category: M4

Grid 1 M4 13.02 dBV/m	Grid 2 M4 15.77 dBV/m	Grid 3 M4 15.72 dBV/m
Grid 4 M4 14.08 dBV/m	Grid 5 M4 15.46 dBV/m	Grid 6 M4 15.43 dBV/m
Grid 7 M4 15.94 dBV/m	Grid 8 M4 16.32 dBV/m	Grid 9 M4 15.97 dBV/m



P31 RF_E-Field_WLAN2.4G_802.11ac VHT40_Ch6_Ant 6+4**DUT: BFLF-WTW-P20120540**

Communication System: UID 10534 - AAC, IEEE 802.11ac WiFi (40MHz, MCS0); Frequency: 2437 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

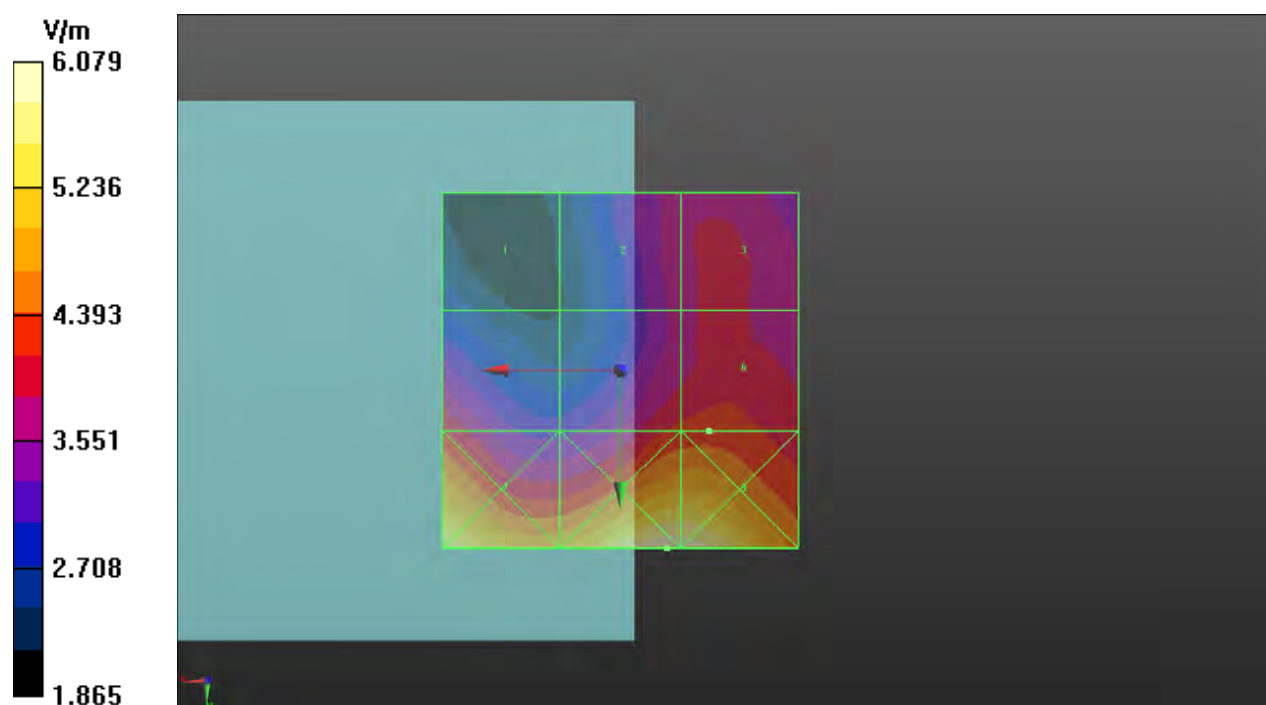
Reference Value = 14.35 V/m; Power Drift = 0.07 dB

MIF = -11.92 dB

RF audio interference level = 12.61 dBV/m

Emission category: M4

Grid 1 M4 8.71 dBV/m	Grid 2 M4 11.51 dBV/m	Grid 3 M4 11.86 dBV/m
Grid 4 M4 12.36 dBV/m	Grid 5 M4 12.47 dBV/m	Grid 6 M4 12.61 dBV/m
Grid 7 M4 15.33 dBV/m	Grid 8 M4 15.68 dBV/m	Grid 9 M4 15.61 dBV/m



P32 RF_E-Field_WLAN2.4G_802.11ac VHT40_Ch6_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10534 - AAC, IEEE 802.11ac WiFi (40MHz, MCS0); Frequency: 2437 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 2437 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

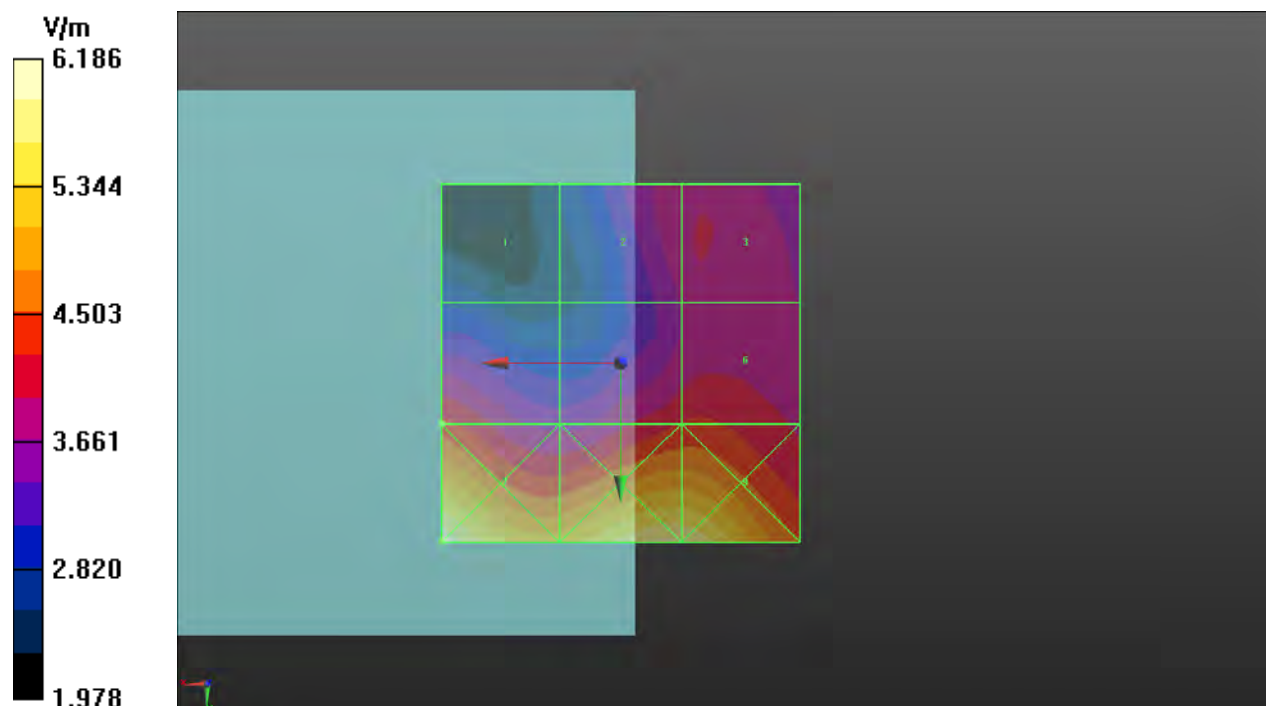
Reference Value = 16.35 V/m; Power Drift = -0.03 dB

MIF = -11.92 dB

RF audio interference level = 12.69 dBV/m

Emission category: M4

Grid 1 M4 8.93 dBV/m	Grid 2 M4 11.79 dBV/m	Grid 3 M4 11.97 dBV/m
Grid 4 M4 12.69 dBV/m	Grid 5 M4 12.56 dBV/m	Grid 6 M4 12.64 dBV/m
Grid 7 M4 15.83 dBV/m	Grid 8 M4 15.49 dBV/m	Grid 9 M4 15.43 dBV/m



P33 RF_E-Field_WLAN5.2G_802.11a_Ch36_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10062 - CAD, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps);

Frequency: 5180 MHz; Duty Cycle: 1:7.38

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5180 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

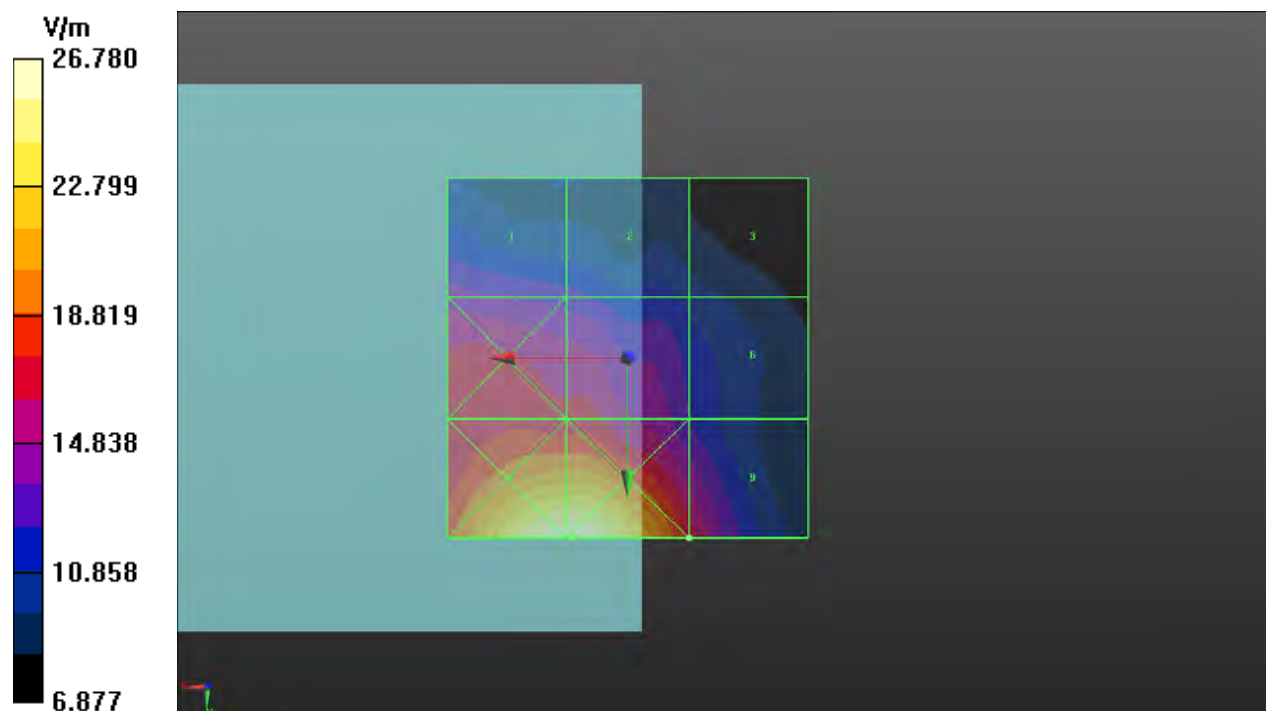
Reference Value = 32.91 V/m; Power Drift = 0.15 dB

MIF = -5.82 dB

RF audio interference level = 24.65 dBV/m

Emission category: M4

Grid 1 M4 23.04 dBV/m	Grid 2 M4 22.16 dBV/m	Grid 3 M4 20.32 dBV/m
Grid 4 M4 24.75 dBV/m	Grid 5 M4 24.55 dBV/m	Grid 6 M4 21.85 dBV/m
Grid 7 M4 28.53 dBV/m	Grid 8 M4 28.56 dBV/m	Grid 9 M4 24.65 dBV/m



P34 RF_E-Field_WLAN5.2G_802.11ac VHT20_Ch44_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10525 - AAC, IEEE 802.11ac WiFi (20MHz, MCS0); Frequency: 5220 MHz; Duty Cycle: 1:6.85

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5220 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

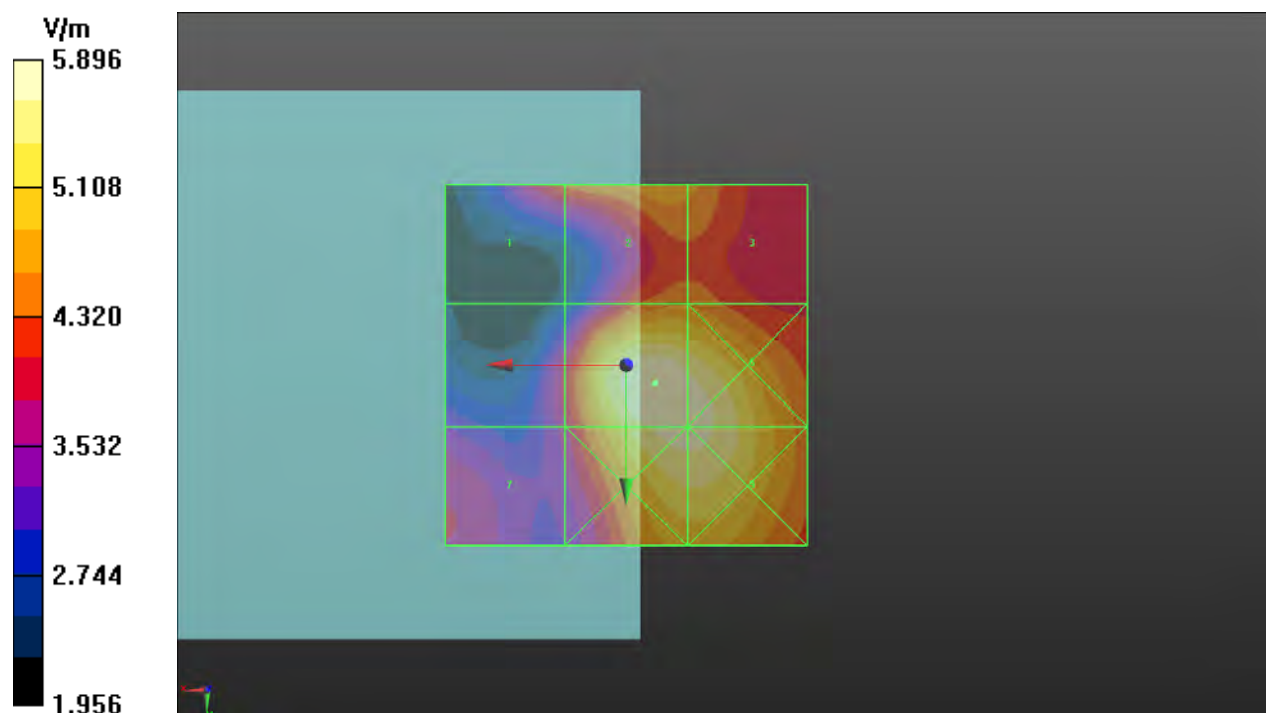
Reference Value = 37.09 V/m; Power Drift = 0.02 dB

MIF = -12.23 dB

RF audio interference level = 15.41 dBV/m

Emission category: M4

Grid 1 M4 12.86 dBV/m	Grid 2 M4 13.7 dBV/m	Grid 3 M4 13.42 dBV/m
Grid 4 M4 11.88 dBV/m	Grid 5 M4 15.41 dBV/m	Grid 6 M4 15.3 dBV/m
Grid 7 M4 11.67 dBV/m	Grid 8 M4 15.23 dBV/m	Grid 9 M4 15.21 dBV/m



P35 RF_E-Field_WLAN5.2G_802.11ac VHT40_Ch46_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10534 - AAC, IEEE 802.11ac WiFi (40MHz, MCS0); Frequency: 5230 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5230 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

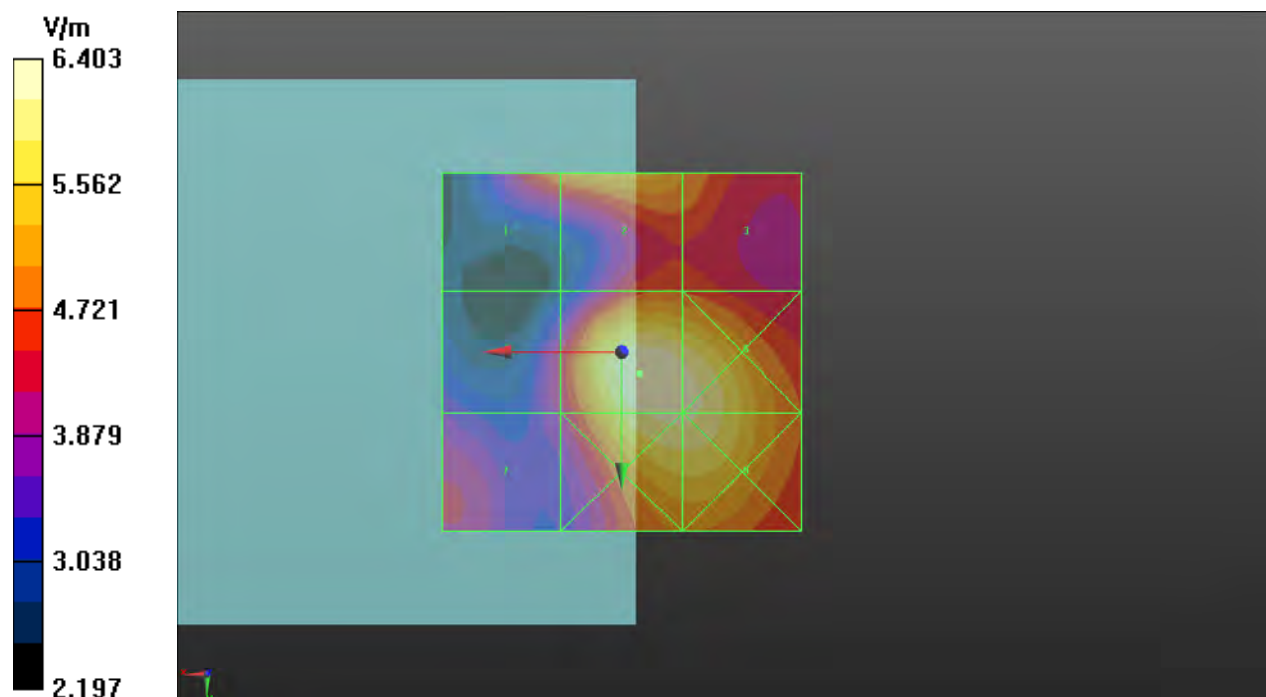
Reference Value = 40.08 V/m; Power Drift = 0.00 dB

MIF = -11.92 dB

RF audio interference level = 16.13 dBV/m

Emission category: M4

Grid 1 M4 14.16 dBV/m	Grid 2 M4 14.66 dBV/m	Grid 3 M4 14.08 dBV/m
Grid 4 M4 12.59 dBV/m	Grid 5 M4 16.13 dBV/m	Grid 6 M4 15.96 dBV/m
Grid 7 M4 12.48 dBV/m	Grid 8 M4 15.89 dBV/m	Grid 9 M4 15.86 dBV/m



P36 RF_E-Field_WLAN5.3G_802.11a_Ch52_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10062 - CAD, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps);

Frequency: 5260 MHz; Duty Cycle: 1:7.38

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5260 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

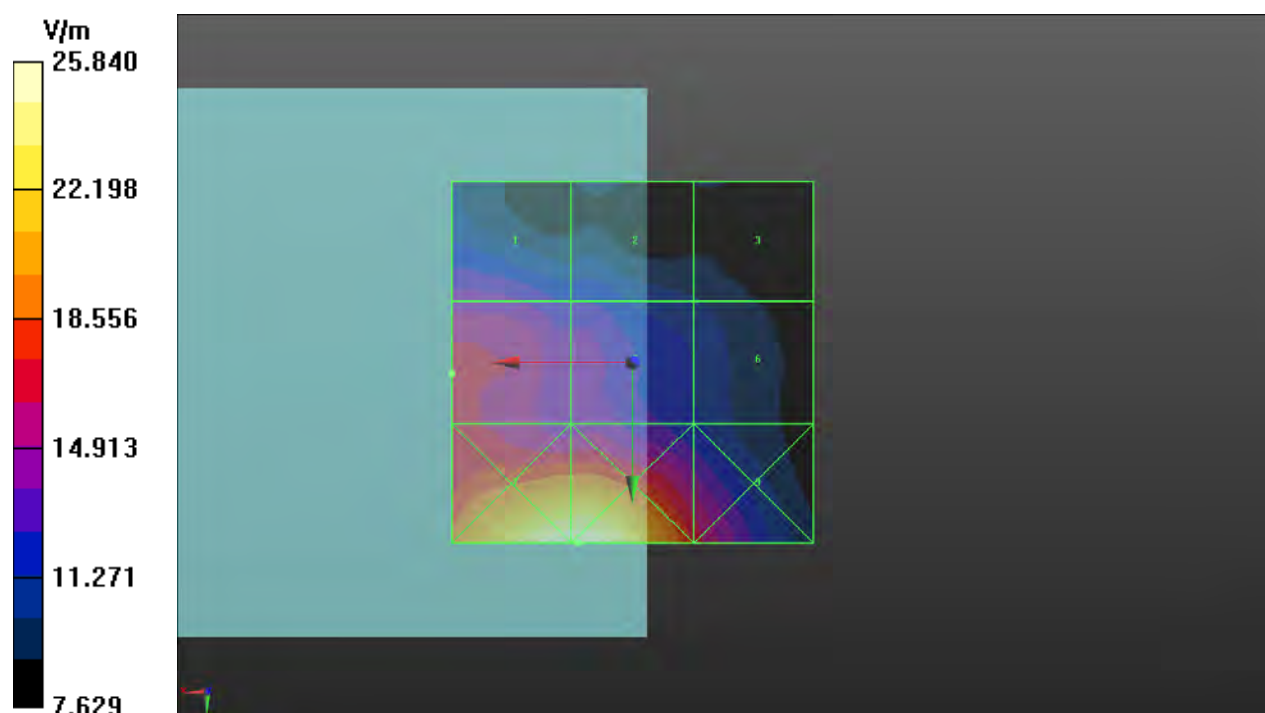
Reference Value = 32.76 V/m; Power Drift = 0.13 dB

MIF = -5.82 dB

RF audio interference level = 24.54 dBV/m

Emission category: M4

Grid 1 M4 23.17 dBV/m	Grid 2 M4 21.99 dBV/m	Grid 3 M4 20.21 dBV/m
Grid 4 M4 24.54 dBV/m	Grid 5 M4 23.3 dBV/m	Grid 6 M4 21.33 dBV/m
Grid 7 M4 28.23 dBV/m	Grid 8 M4 28.24 dBV/m	Grid 9 M4 24.66 dBV/m



P37 RF_E-Field_WLAN5.3G_802.11ac VHT20_Ch64_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10525 - AAC, IEEE 802.11ac WiFi (20MHz, MCS0); Frequency: 5320 MHz; Duty Cycle: 1:6.85

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5320 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

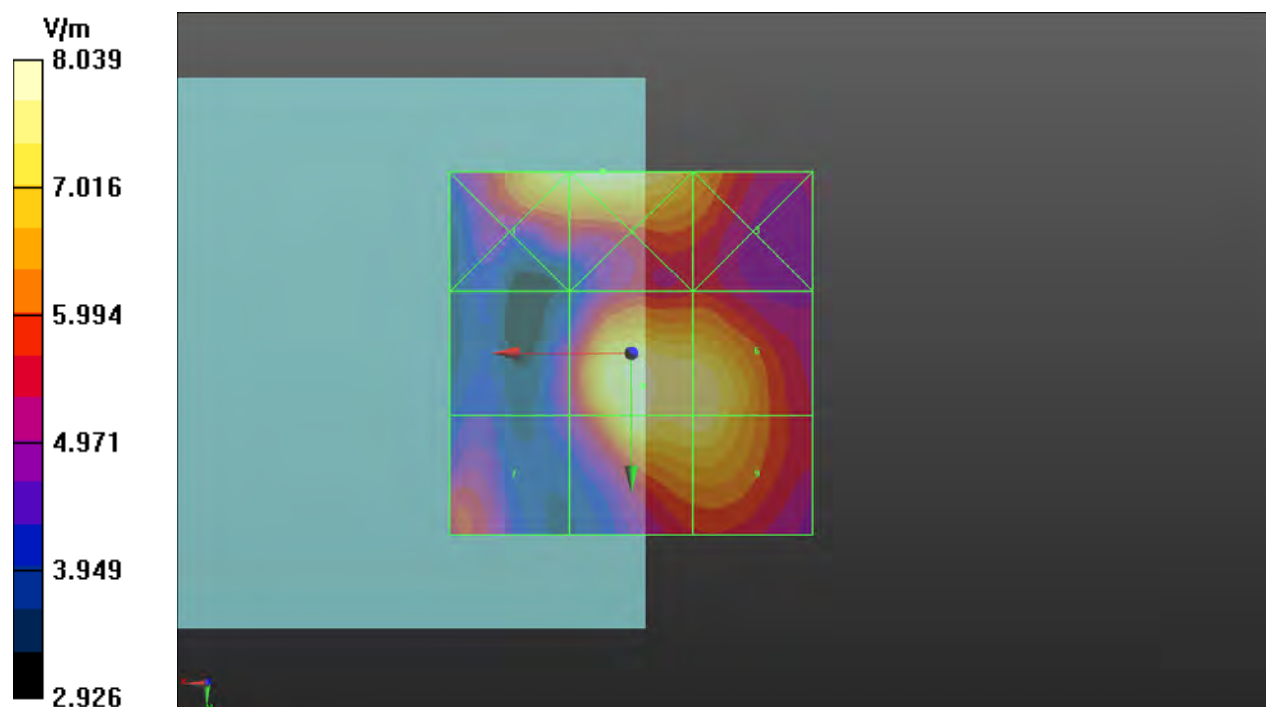
Reference Value = 49.51 V/m; Power Drift = -0.02 dB

MIF = -12.23 dB

RF audio interference level = 17.90 dBV/m

Emission category: M4

Grid 1 M4 17.92 dBV/m	Grid 2 M4 18.1 dBV/m	Grid 3 M4 16.68 dBV/m
Grid 4 M4 14.35 dBV/m	Grid 5 M4 17.9 dBV/m	Grid 6 M4 17.72 dBV/m
Grid 7 M4 15.17 dBV/m	Grid 8 M4 17.79 dBV/m	Grid 9 M4 17.6 dBV/m



P38 RF_E-Field_WLAN5.3G_802.11ac VHT40_Ch54_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10534 - AAC, IEEE 802.11ac WiFi (40MHz, MCS0); Frequency: 5270 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5270 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

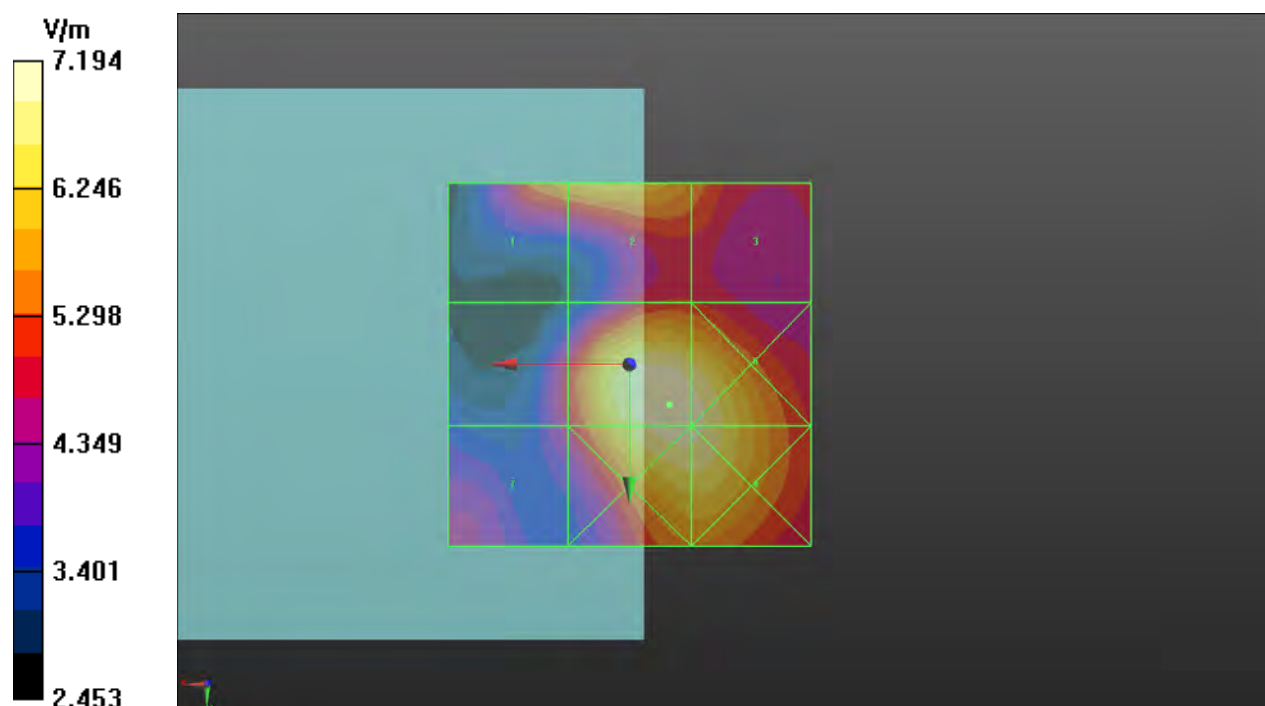
Reference Value = 43.13 V/m; Power Drift = -0.09 dB

MIF = -11.92 dB

RF audio interference level = 17.14 dBV/m

Emission category: M4

Grid 1 M4 15.38 dBV/m	Grid 2 M4 15.84 dBV/m	Grid 3 M4 14.91 dBV/m
Grid 4 M4 13.88 dBV/m	Grid 5 M4 17.14 dBV/m	Grid 6 M4 16.96 dBV/m
Grid 7 M4 13.33 dBV/m	Grid 8 M4 16.98 dBV/m	Grid 9 M4 16.91 dBV/m



P39 RF_E-Field_WLAN5.6G_802.11a_Ch124_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10062 - CAD, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps);

Frequency: 5620 MHz; Duty Cycle: 1:7.38

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5620 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

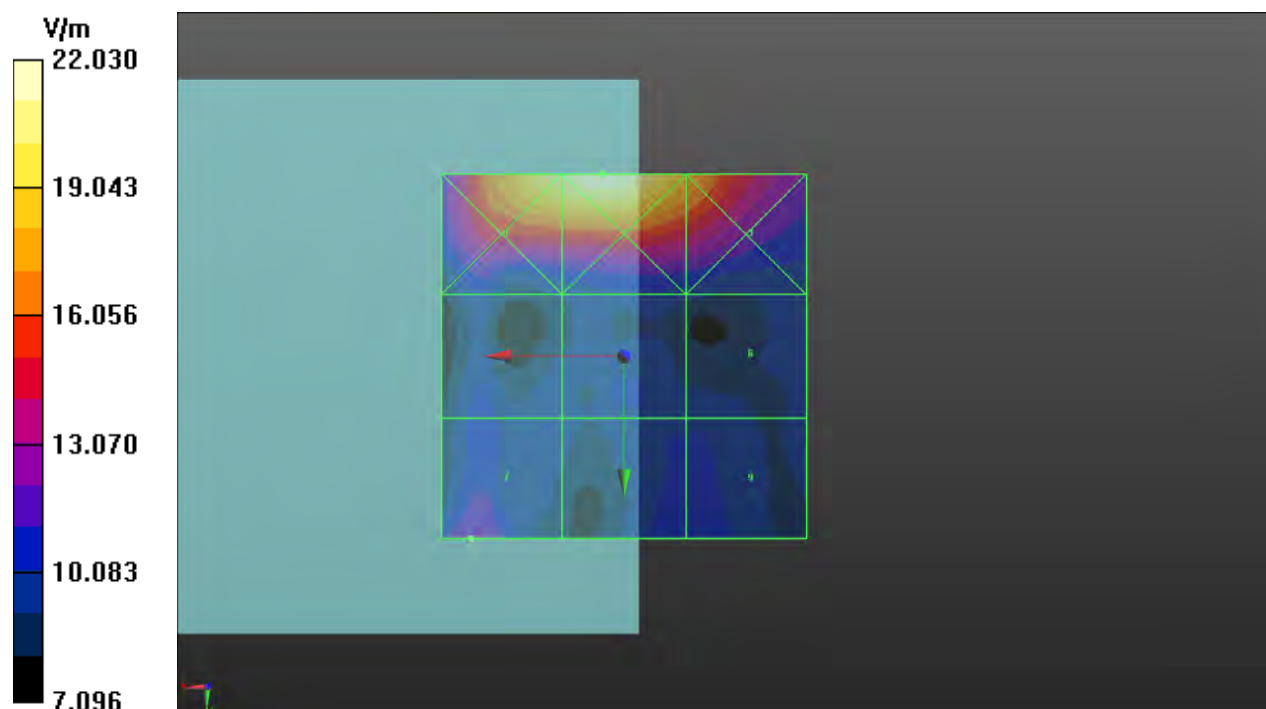
Reference Value = 21.89 V/m; Power Drift = -0.03 dB

MIF = -5.82 dB

RF audio interference level = 21.87 dBV/m

Emission category: M4

Grid 1 M4 26.43 dBV/m	Grid 2 M4 26.86 dBV/m	Grid 3 M4 25.21 dBV/m
Grid 4 M4 20.58 dBV/m	Grid 5 M4 20.54 dBV/m	Grid 6 M4 19.91 dBV/m
Grid 7 M4 21.87 dBV/m	Grid 8 M4 20.67 dBV/m	Grid 9 M4 20.62 dBV/m



P40 RF_E-Field_WLAN5.8G_802.11a_Ch157_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10062 - CAD, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps);

Frequency: 5785 MHz; Duty Cycle: 1:7.38

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5785 MHz; Calibrated: 2021/01/25

- Sensor-Surface: (Fix Surface)

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;

- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

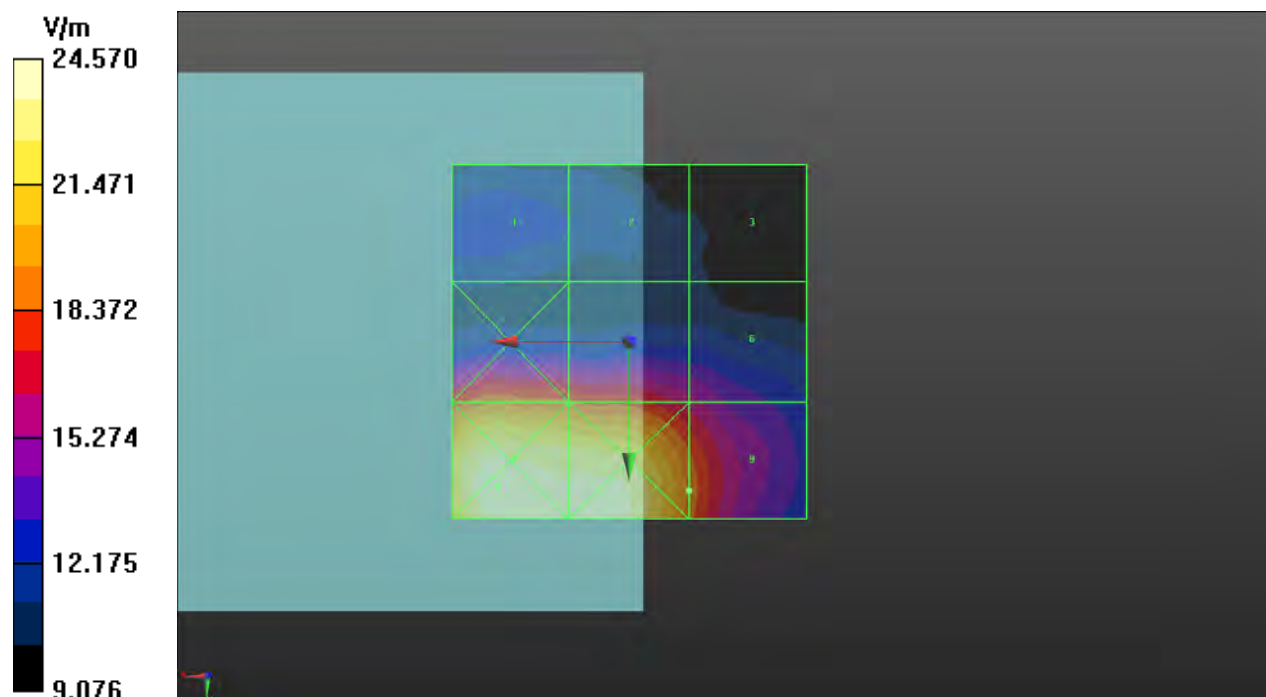
Reference Value = 30.10 V/m; Power Drift = -0.11 dB

MIF = -5.82 dB

RF audio interference level = 25.63 dBV/m

Emission category: M4

Grid 1 M4 22.19 dBV/m	Grid 2 M4 21.74 dBV/m	Grid 3 M4 20.34 dBV/m
Grid 4 M4 25.7 dBV/m	Grid 5 M4 25.39 dBV/m	Grid 6 M4 24.01 dBV/m
Grid 7 M4 27.81 dBV/m	Grid 8 M4 27.65 dBV/m	Grid 9 M4 25.63 dBV/m



P41 RF_E-Field_WLAN5.8G_802.11ac VHT20_Ch149_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10525 - AAC, IEEE 802.11ac WiFi (20MHz, MCS0); Frequency: 5745 MHz; Duty Cycle: 1:6.85

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5745 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

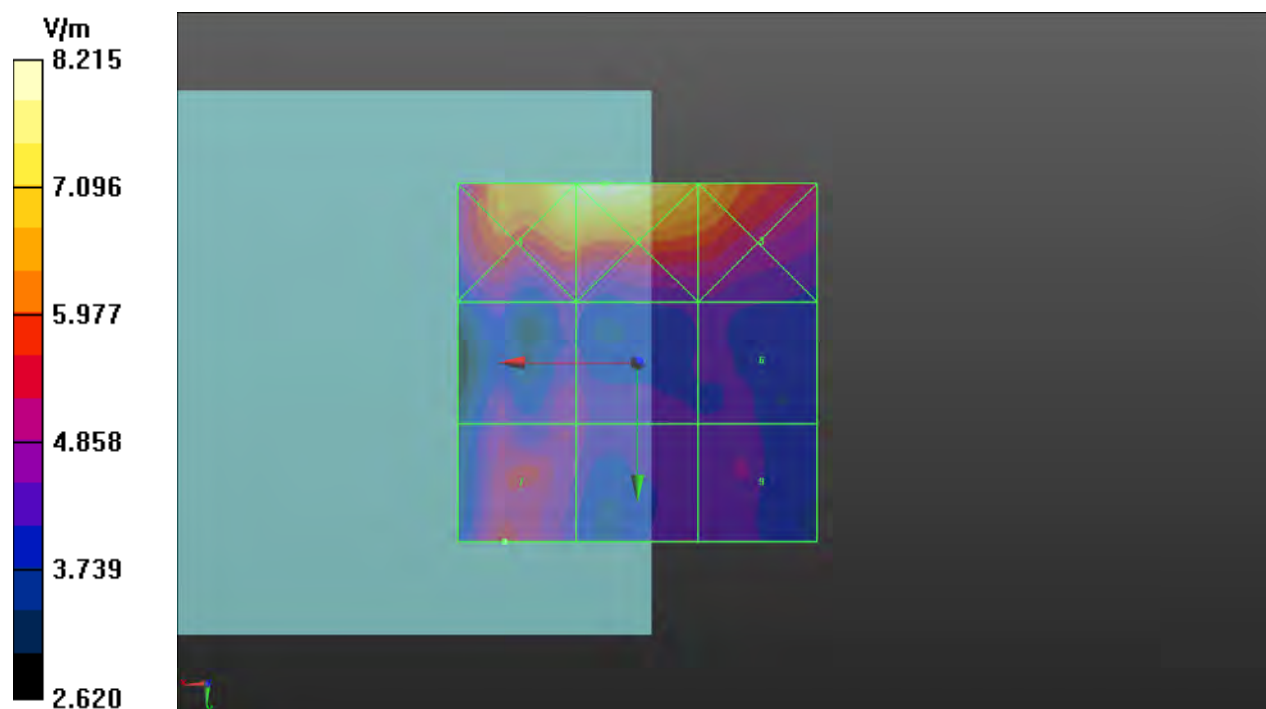
Reference Value = 19.88 V/m; Power Drift = 0.06 dB

MIF = -12.23 dB

RF audio interference level = 14.87 dBV/m

Emission category: M4

Grid 1 M4 18.04 dBV/m	Grid 2 M4 18.29 dBV/m	Grid 3 M4 16.8 dBV/m
Grid 4 M4 13.63 dBV/m	Grid 5 M4 13.5 dBV/m	Grid 6 M4 12.9 dBV/m
Grid 7 M4 14.87 dBV/m	Grid 8 M4 13.56 dBV/m	Grid 9 M4 13.18 dBV/m



P42 RF_E-Field_WLAN5.8G_802.11ac VHT40_Ch151_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10534 - AAC, IEEE 802.11ac WiFi (40MHz, MCS0); Frequency: 5775 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5775 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

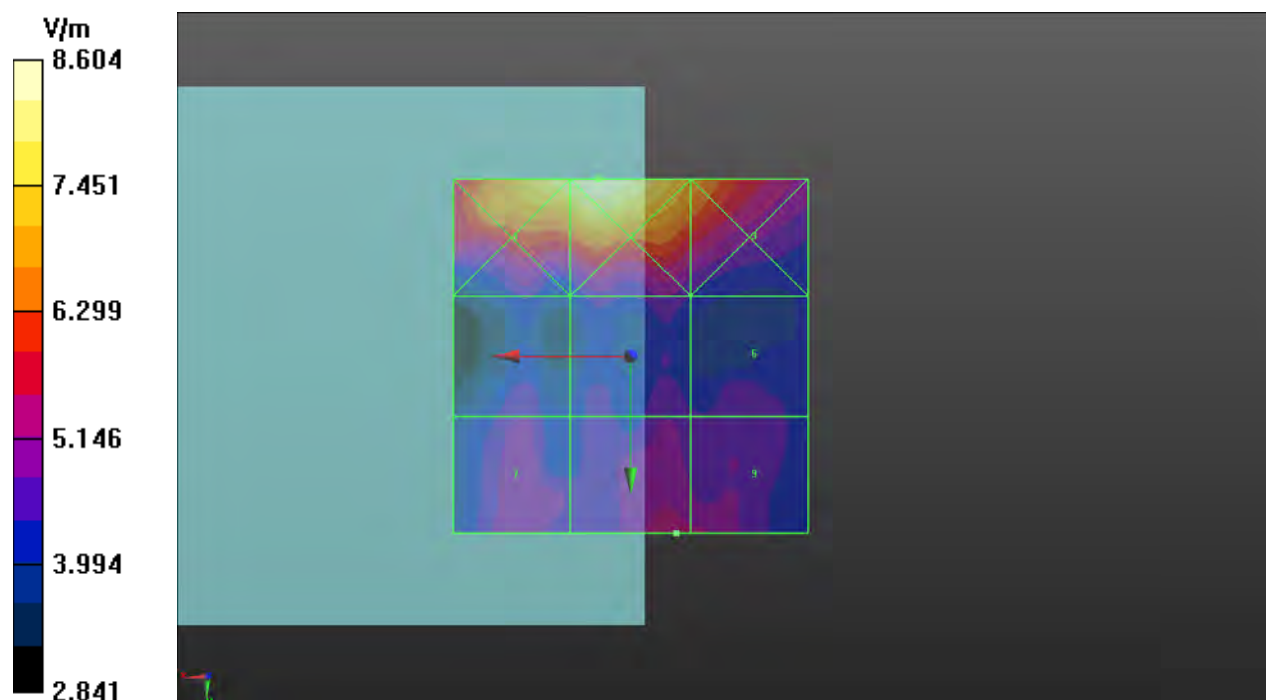
Reference Value = 20.00 V/m; Power Drift = 0.09 dB

MIF = -11.92 dB

RF audio interference level = 14.55 dBV/m

Emission category: M4

Grid 1 M4 18.4 dBV/m	Grid 2 M4 18.69 dBV/m	Grid 3 M4 16.86 dBV/m
Grid 4 M4 13.62 dBV/m	Grid 5 M4 13.62 dBV/m	Grid 6 M4 13.51 dBV/m
Grid 7 M4 14.22 dBV/m	Grid 8 M4 14.55 dBV/m	Grid 9 M4 14.49 dBV/m



P43 RF_E-Field_WLAN5.8G_802.11ac VHT80_Ch155_Ant 6+3**DUT: BFLF-WTW-P20120540**

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5795 MHz; Duty Cycle: 1:7

Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C

DASY5 Configuration:

- Probe: EF3DV3 - SN4049; ConvF(1, 1, 1) @ 5795 MHz; Calibrated: 2021/01/25
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Hearing Aid Compatibility (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

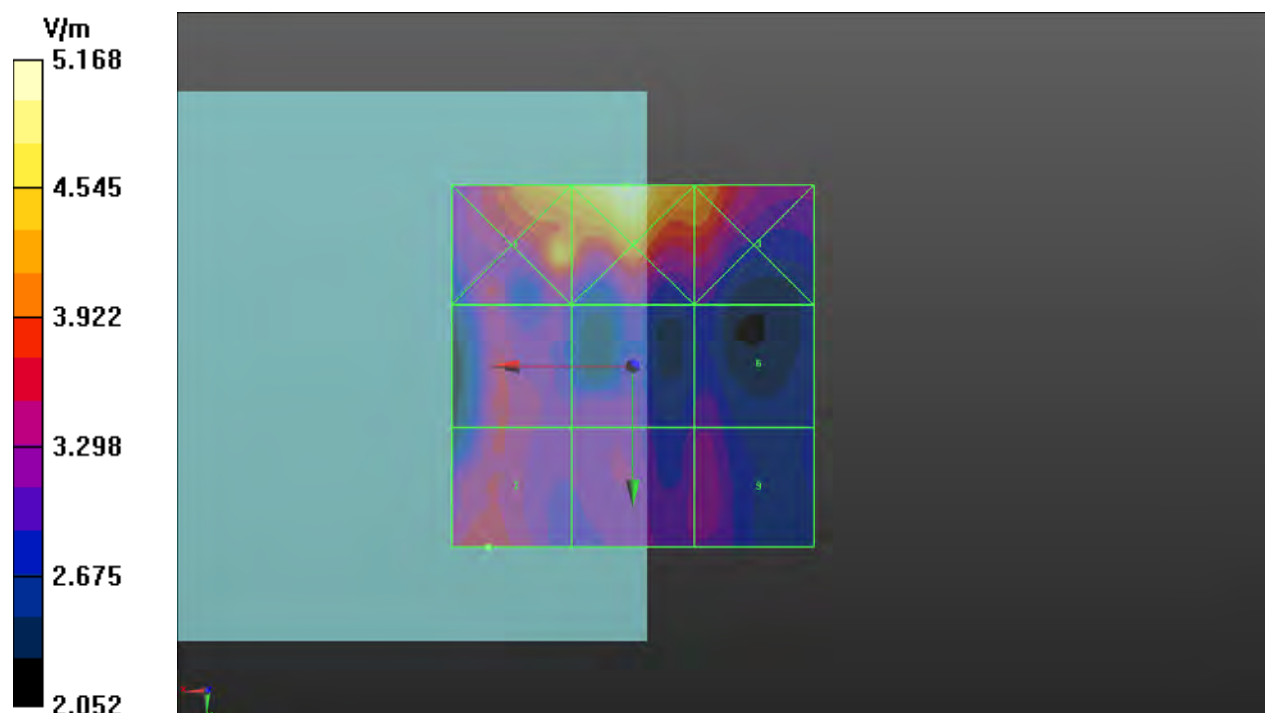
Reference Value = 20.76 V/m; Power Drift = -0.07 dB

MIF = -13.78 dB

RF audio interference level = 11.33 dBV/m

Emission category: M4

Grid 1 M4 13.25 dBV/m	Grid 2 M4 14.27 dBV/m	Grid 3 M4 12.7 dBV/m
Grid 4 M4 11.17 dBV/m	Grid 5 M4 10.34 dBV/m	Grid 6 M4 9.72 dBV/m
Grid 7 M4 11.33 dBV/m	Grid 8 M4 10.48 dBV/m	Grid 9 M4 10.39 dBV/m



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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 **B.V. ADT (Auden)**

Certificate No: **CD835V3-1041_Jan20**

CALIBRATION CERTIFICATE

Object **CD835V3 - SN: 1041**

Calibration procedure(s) **QA CAL-20.v7
 Calibration Procedure for Validation Sources in air**

Calibration date: **January 22, 2020**

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 $(22 \pm 3)^{\circ}\text{C}$ 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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Claudio Leubler** Laboratory Technician

Signature

Approved by: **Katja Pokovic** Technical Manager

Issued: January 23, 2020

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



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**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.3
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 835 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	107.7 V/m = 40.64 dBV/m
Maximum measured above low end	100 mW input power	105.7 V/m = 40.48 dBV/m
Averaged maximum above arm	100 mW input power	106.7 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
800 MHz	15.6 dB	38.4 Ω - 9.1 j Ω
835 MHz	33.2 dB	50.1 Ω + 2.2 j Ω
880 MHz	18.1 dB	58.4 Ω - 10.6 j Ω
900 MHz	17.7 dB	50.3 Ω - 13.2 j Ω
945 MHz	21.7 dB	48.9 Ω + 8.0 j Ω

3.2 Antenna Design and Handling

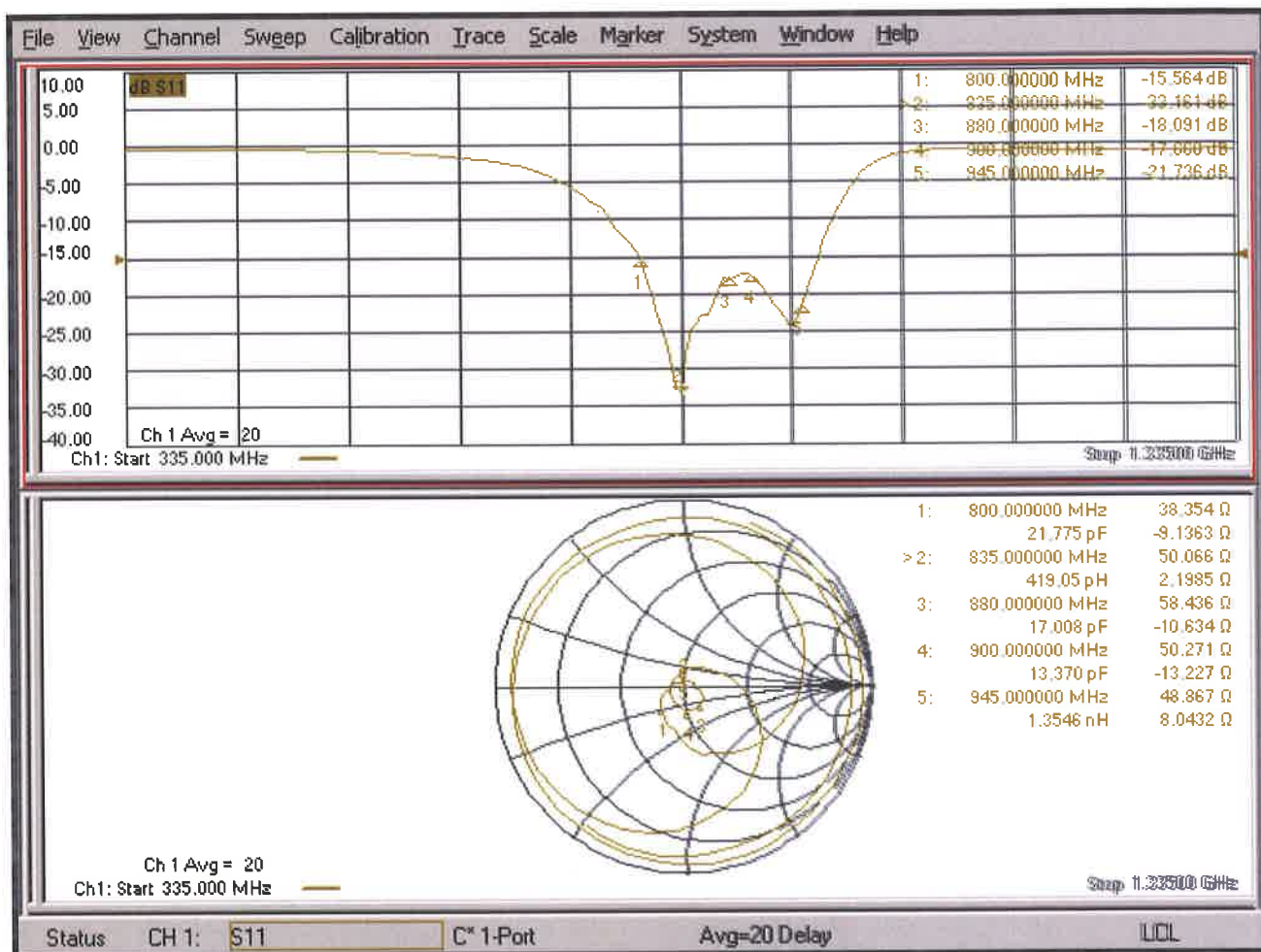
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 22.01.2020

Test Laboratory: SPEAG Lab2

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN: 1041

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 835 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

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

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 125.0 V/m; Power Drift = -0.01 dB

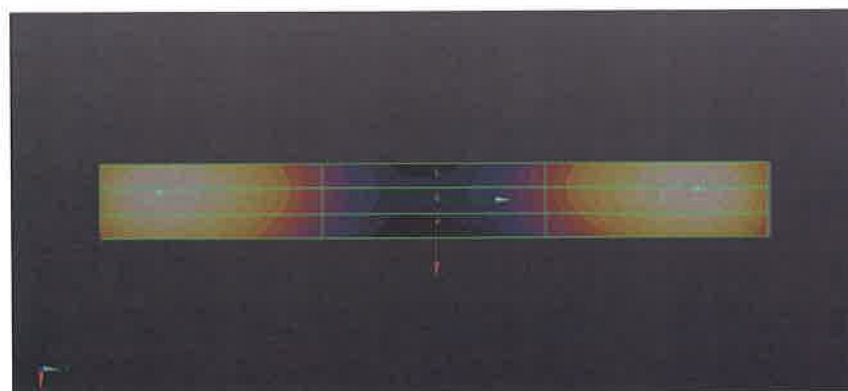
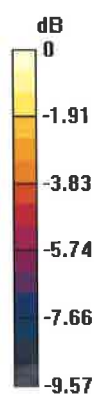
Applied MIF = 0.00 dB

RF audio interference level = 40.64 dBV/m

Emission category: M3

MIF scaled E-field

Grid 1 M3 40.1 dBV/m	Grid 2 M3 40.64 dBV/m	Grid 3 M3 40.63 dBV/m
Grid 4 M4 35.29 dBV/m	Grid 5 M4 35.81 dBV/m	Grid 6 M4 35.81 dBV/m
Grid 7 M4 39.89 dBV/m	Grid 8 M3 40.48 dBV/m	Grid 9 M3 40.48 dBV/m



0 dB = 107.7 V/m = 40.64 dBV/m



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **B.V. ADT (Auden)**

Certificate No: **CD1880V3-1032_Jan20**

CALIBRATION CERTIFICATE

Object **CD1880V3 - SN: 1032**

Calibration procedure(s) **QA CAL-20.v7
Calibration Procedure for Validation Sources in air**

Calibration date: **January 22, 2020**

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 $(22 \pm 3)^\circ\text{C}$ 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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: January 23, 2020

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.3
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz $\pm$ 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 1880 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	89.8 V/m = 39.06 dBV/m
Maximum measured above low end	100 mW input power	86.6 V/m = 38.75 dBV/m
Averaged maximum above arm	100 mW input power	88.2 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
1730 MHz	25.6 dB	54.6 Ω + 3.0 j Ω
1880 MHz	22.4 dB	57.3 Ω + 3.5 j Ω
1900 MHz	22.7 dB	57.8 Ω + 1.0 j Ω
1950 MHz	28.5 dB	52.8 Ω - 2.6 j Ω
2000 MHz	24.9 dB	47.7 Ω + 5.0 j Ω

3.2 Antenna Design and Handling

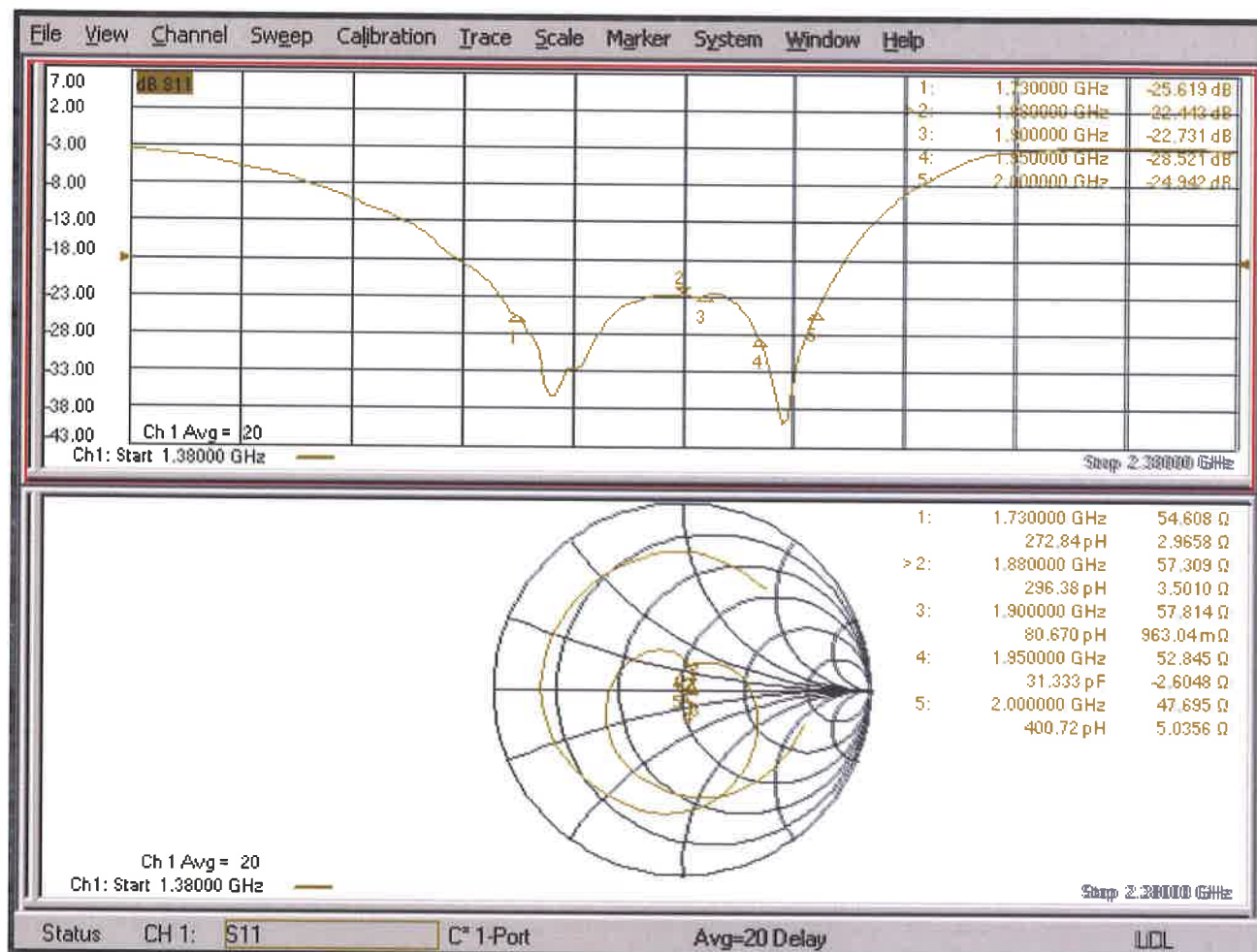
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 22.01.2020

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1032

Communication System: UID 0 - CW; Frequency: 1880 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

Dipole E-Field measurement @ 1880MHz/E-Scan - 1880MHz d=15mm/Hearing Aid Compatibility Test (41x181x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 147.5 V/m; Power Drift = -0.01 dB

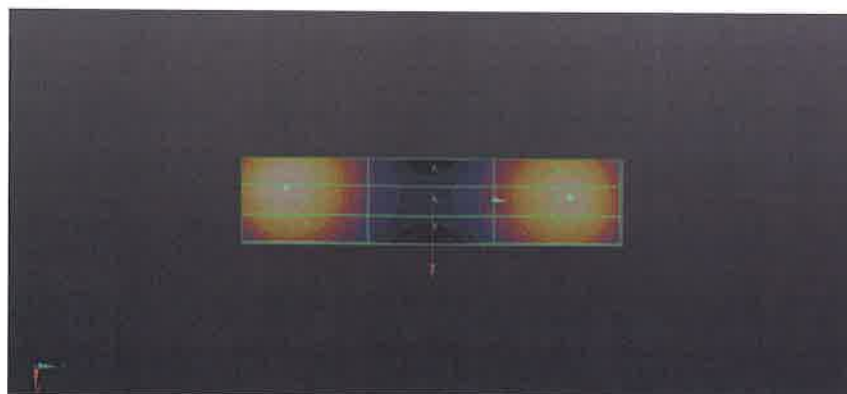
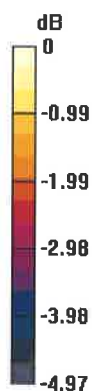
Applied MIF = 0.00 dB

RF audio interference level = 39.06 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38.37 dBV/m	Grid 2 M2 39.06 dBV/m	Grid 3 M2 39.06 dBV/m
Grid 4 M2 35.95 dBV/m	Grid 5 M2 36.15 dBV/m	Grid 6 M2 36.12 dBV/m
Grid 7 M2 38.45 dBV/m	Grid 8 M2 38.75 dBV/m	Grid 9 M2 38.66 dBV/m



0 dB = 89.78 V/m = 39.06 dBV/m



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 **B.V. ADT (Auden)**

Certificate No: **CD2450V3-1033_Jan20**

CALIBRATION CERTIFICATE

Object **CD2450V3 - SN: 1033**

Calibration procedure(s) **QA CAL-20.v7
Calibration Procedure for Validation Sources in air**

Calibration date: **January 22, 2020**

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Name** **Function**
Claudio Leubler **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: January 23, 2020

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.3
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 2450 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	85.1 V/m = 38.59 dBV/m
Maximum measured above low end	100 mW input power	85.0 V/m = 38.59 dBV/m
Averaged maximum above arm	100 mW input power	85.1 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
2250 MHz	17.7 dB	65.0 Ω - 1.3 j Ω
2350 MHz	29.9 dB	51.8 Ω - 2.7 j Ω
2450 MHz	31.2 dB	52.3 Ω - 1.7 j Ω
2550 MHz	37.2 dB	51.0 Ω - 0.9 j Ω
2650 MHz	18.3 dB	58.2 Ω - 10.5 j Ω

3.2 Antenna Design and Handling

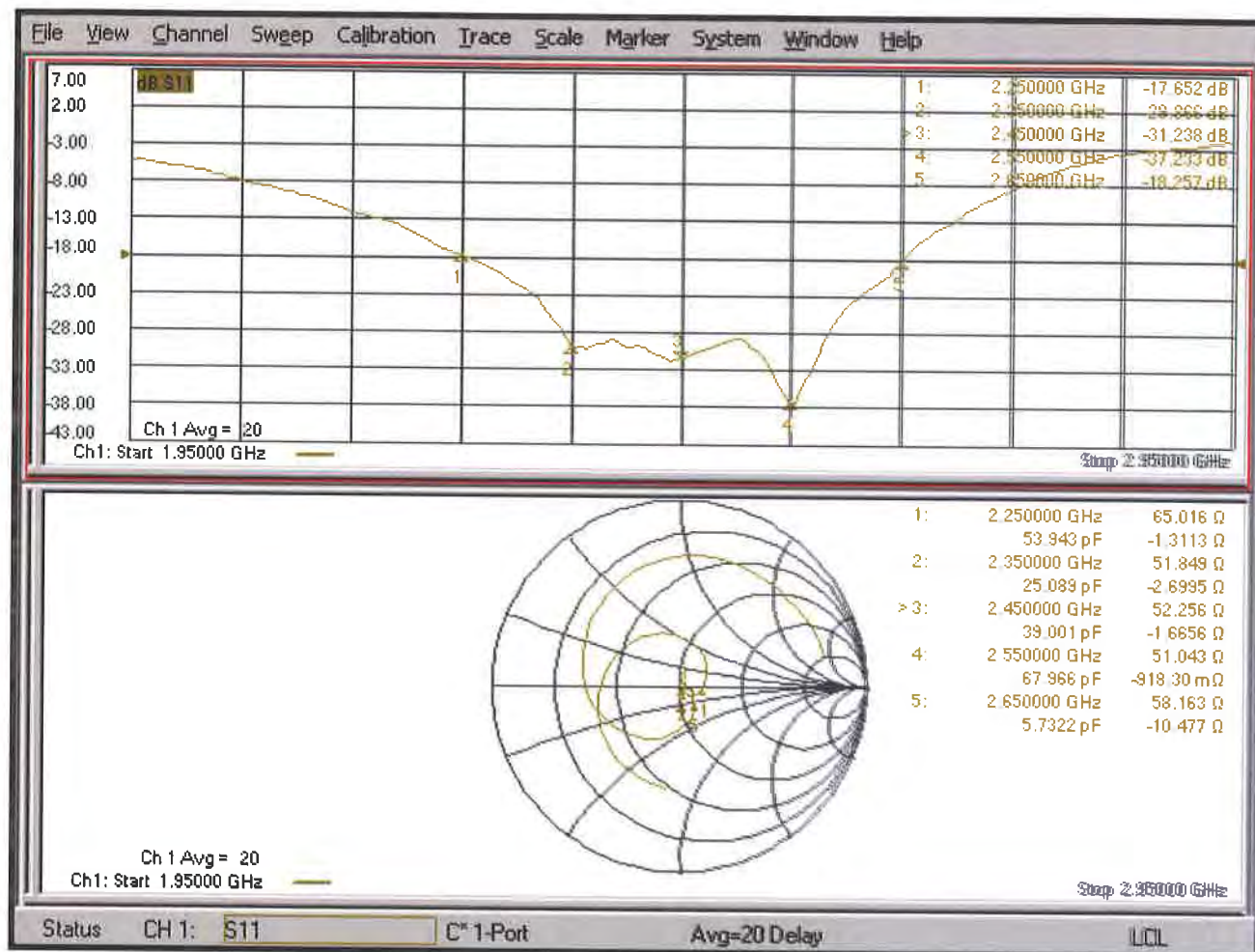
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 22.01.2020

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 2450 MHz; Type: CD2450V3; Serial: CD2450V3 - SN: 1033

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 2450 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474)

Dipole E-Field measurement @ 2450MHz/E-Scan - 2450MHz d=15mm/Hearing Aid Compatibility Test (41x181x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 71.71 V/m; Power Drift = -0.02 dB

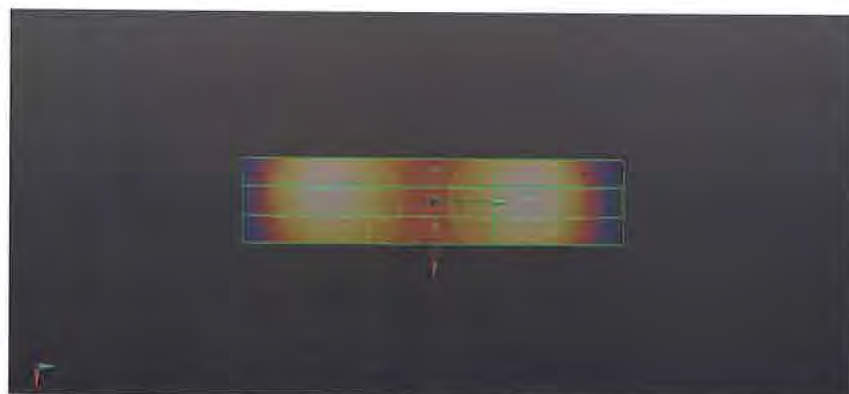
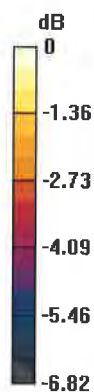
Applied MIF = 0.00 dB

RF audio interference level = 38.59 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38 dBV/m	Grid 2 M2 38.59 dBV/m	Grid 3 M2 38.59 dBV/m
Grid 4 M2 37.53 dBV/m	Grid 5 M2 37.76 dBV/m	Grid 6 M2 37.71 dBV/m
Grid 7 M2 38.32 dBV/m	Grid 8 M2 38.59 dBV/m	Grid 9 M2 38.5 dBV/m



0 dB = 85.02 V/m = 38.59 dBV/m



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Accreditation No.: **SCS 0108**

Client **B.V. ADT (Auden)**

Certificate No: **CD2600V3-1005_Mar20**

CALIBRATION CERTIFICATE

Object **CD2600V3 - SN: 1005**

Calibration procedure(s) **QA CAL-20.v7**
Calibration Procedure for Validation Sources in air

Calibration date: **March 18, 2020**

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Jeton Kastrati** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: March 20, 2020

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Accreditation No.: **SCS 0108**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

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

Maximum Field values at 2600 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	85.1 V/m = 38.60 dBV/m
Maximum measured above low end	100 mW input power	84.7 V/m = 38.56 dBV/m
Averaged maximum above arm	100 mW input power	84.9 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
2450 MHz	23.6 dB	45.1 Ω - 4.0 j Ω
2550 MHz	29.5 dB	51.9 Ω + 2.8 j Ω
2600 MHz	26.4 dB	55.0 Ω + 0.4 j Ω
2650 MHz	25.6 dB	54.7 Ω - 2.8 j Ω
2750 MHz	18.5 dB	48.4 Ω - 11.7 j Ω

3.2 Antenna Design and Handling

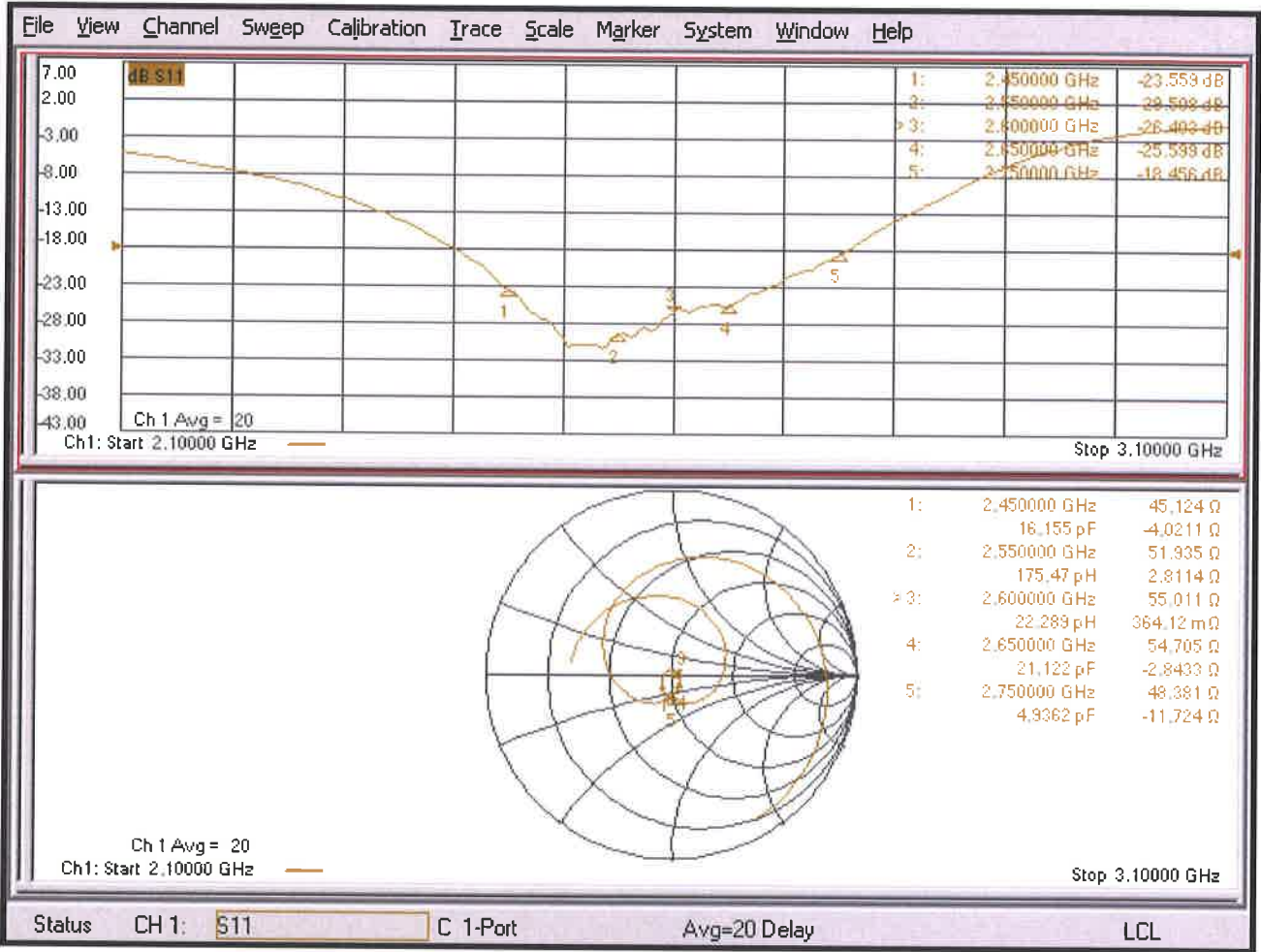
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 18.03.2020

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 2600 MHz; Type: CD2600V3; Serial: CD2600V3 - SN: 1005

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 2600 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

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

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 64.95 V/m; Power Drift = -0.02 dB

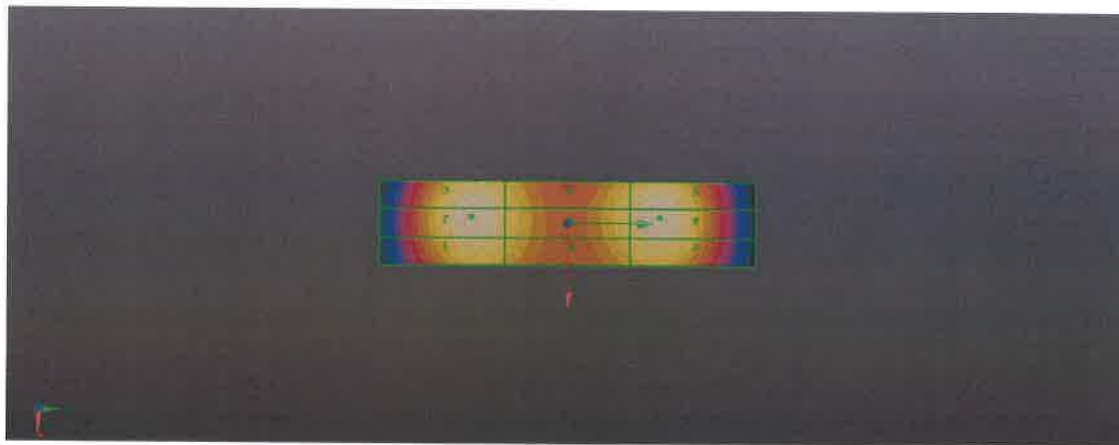
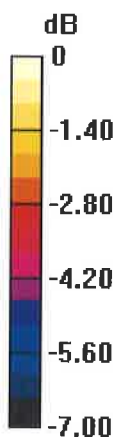
Applied MIF = 0.00 dB

RF audio interference level = 38.60 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38.28 dBV/m	Grid 2 M2 38.6 dBV/m	Grid 3 M2 38.55 dBV/m
Grid 4 M2 37.68 dBV/m	Grid 5 M2 37.92 dBV/m	Grid 6 M2 37.89 dBV/m
Grid 7 M2 38.27 dBV/m	Grid 8 M2 38.56 dBV/m	Grid 9 M2 38.5 dBV/m



0 dB = 85.09 V/m = 38.60 dBV/m



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Client **B.V.ADT (Auden)**

Certificate No: **CD3500V3-1004_Sep20**

CALIBRATION CERTIFICATE

Object **CD3500V3 - SN: 1004**

Calibration procedure(s) **QA CAL-20.v7
Calibration Procedure for Validation Sources in air**

Calibration date: **September 15, 2020**

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	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
Probe H3DV6	SN: 6065	31-Dec-19 (No. H3-6065_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 18, 2020

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Accreditation No.: **SCS 0108**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	3500 MHz $\pm$ 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 3500 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	84.7 V/m = 38.55 dBV/m
Maximum measured above low end	100 mW input power	83.1 V/m = 38.39 dBV/m
Averaged maximum above arm	100 mW input power	83.9 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
3300 MHz	21.9 dB	58.7 Ω - 0.1 j Ω
3400 MHz	33.6 dB	50.2 Ω - 2.1 j Ω
3500 MHz	31.4 dB	52.7 Ω + 0.5 j Ω
3600 MHz	24.0 dB	52.8 Ω - 5.8 j Ω
3700 MHz	20.6 dB	44.5 Ω - 7.0 j Ω

3.2 Antenna Design and Handling

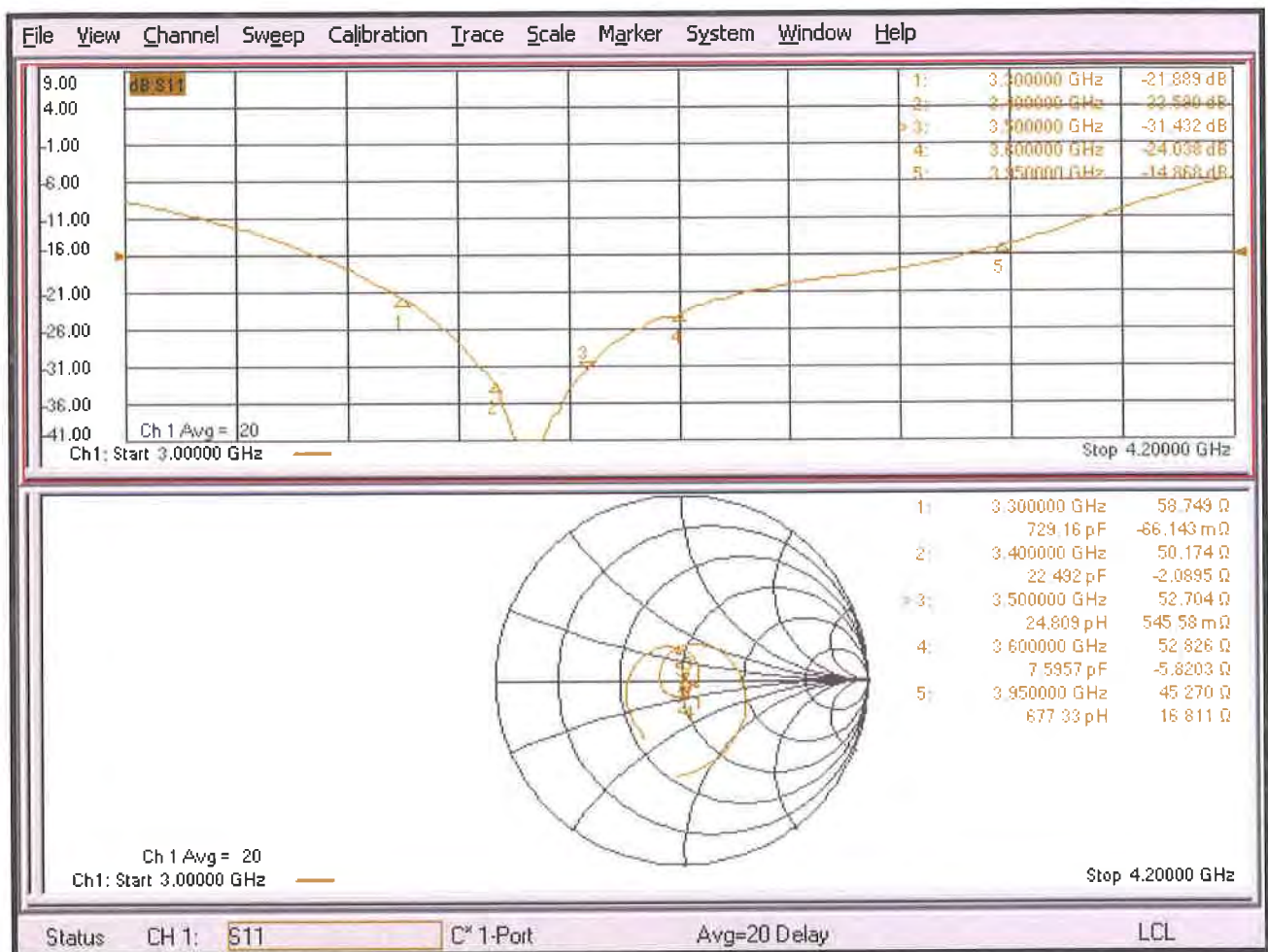
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 15.09.2020

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 3500 MHz; Type: CD3500V3; Serial: CD3500V3 - SN: 1004

Communication System: UID 0 - CW ; Frequency: 3500 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 3500 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole E-Field measurement @ 3500MHz/E-Scan - 3500MHz d=15mm/Hearing Aid Compatibility Test (41x181x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 34.68 V/m; Power Drift = -0.02 dB

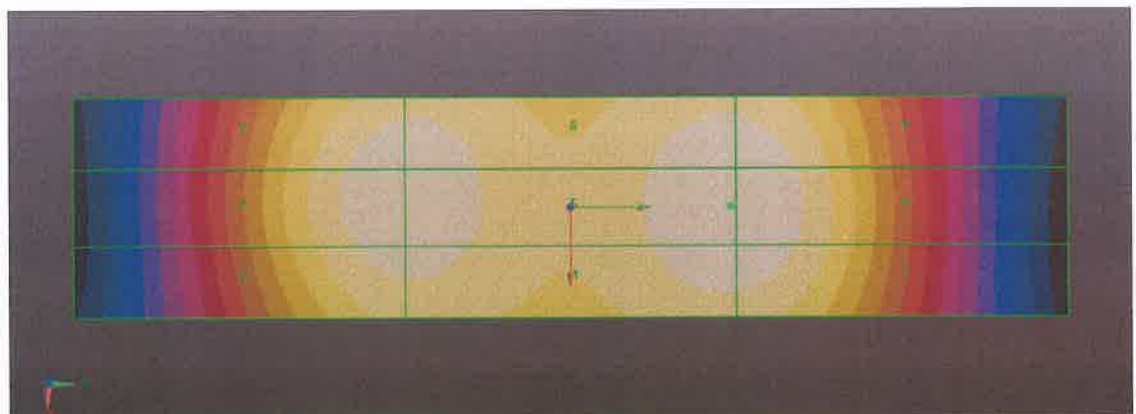
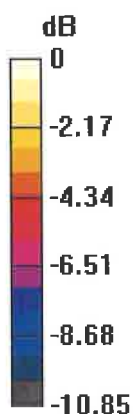
Applied MIF = 0.00 dB

RF audio interference level = 38.55 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38.16 dBV/m	Grid 2 M2 38.39 dBV/m	Grid 3 M2 38.31 dBV/m
Grid 4 M2 38.38 dBV/m	Grid 5 M2 38.55 dBV/m	Grid 6 M2 38.4 dBV/m
Grid 7 M2 38.38 dBV/m	Grid 8 M2 38.55 dBV/m	Grid 9 M2 38.4 dBV/m



0 dB = 84.67 V/m = 38.55 dBV/m



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Accreditation No.: **SCS 0108**

Client **B.V. ADT (Auden)**

Certificate No: **CD5500V3-1003_Mar20**

CALIBRATION CERTIFICATE

Object **CD5500V3 - SN: 1003**

Calibration procedure(s) **QA CAL-20.v7**
Calibration Procedure for Validation Sources in air

Calibration date: **March 18, 2020**

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Probe EF3DV3	SN: 4013	31-Dec-19 (No. EF3-4013_Dec19)	Dec-20
DAE4	SN: 781	27-Dec-19 (No. DAE4-781_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-17)	In house check: Oct-20
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-17)	In house check: Oct-20
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Jan-19)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 20, 2020

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Accreditation No.: **SCS 0108**

References

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

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	5500 MHz $\pm$ 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 5500 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum above arm	100 mW input power	103.6 V/m $\pm$ 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
5000 MHz	18.4 dB	41.0 Ω - 6.2 j Ω
5200 MHz	33.2 dB	52.2 Ω - 0.5 j Ω
5500 MHz	24.0 dB	55.8 Ω - 3.3 j Ω
5800 MHz	21.4 dB	42.2 Ω + 0.0 j Ω
5900 MHz	24.3 dB	48.7 Ω + 5.9 j Ω

3.2 Antenna Design and Handling

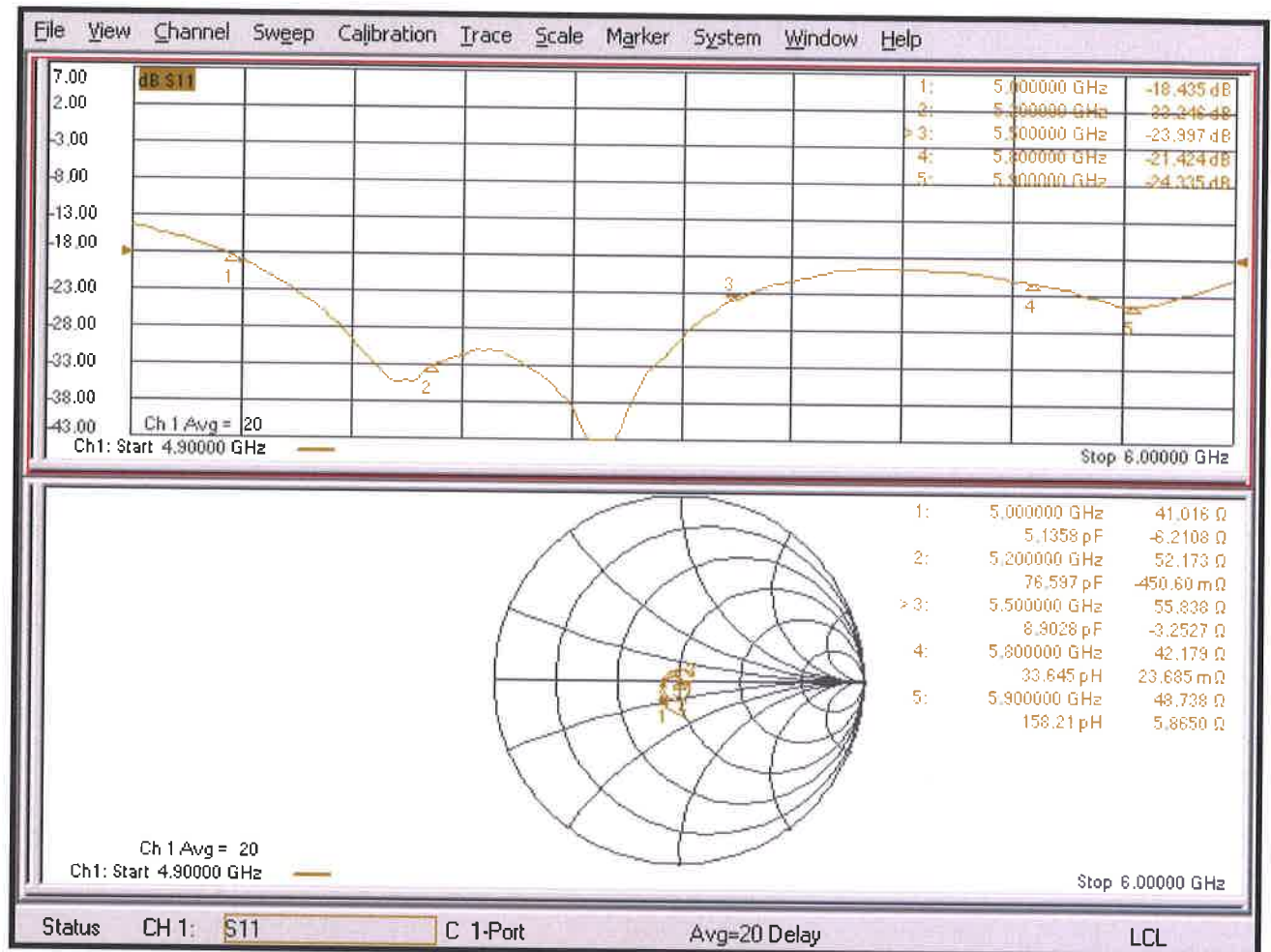
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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

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

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

Impedance Measurement Plot



DASY5 E-field Result

Date: 18.03.2020

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 5500 MHz; Type: CD5500V3; Serial: CD5500V3 - SN: 1003

Communication System: UID 0 - CW; Frequency: 5500 MHz

Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 5500 MHz; Calibrated: 31.12.2019
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 27.12.2019
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole E-Field measurement @ 5500MHz/E-Scan - 5500MHz d=15mm/Hearing Aid Compatibility Test (41x121x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 131.6 V/m; Power Drift = 0.00 dB

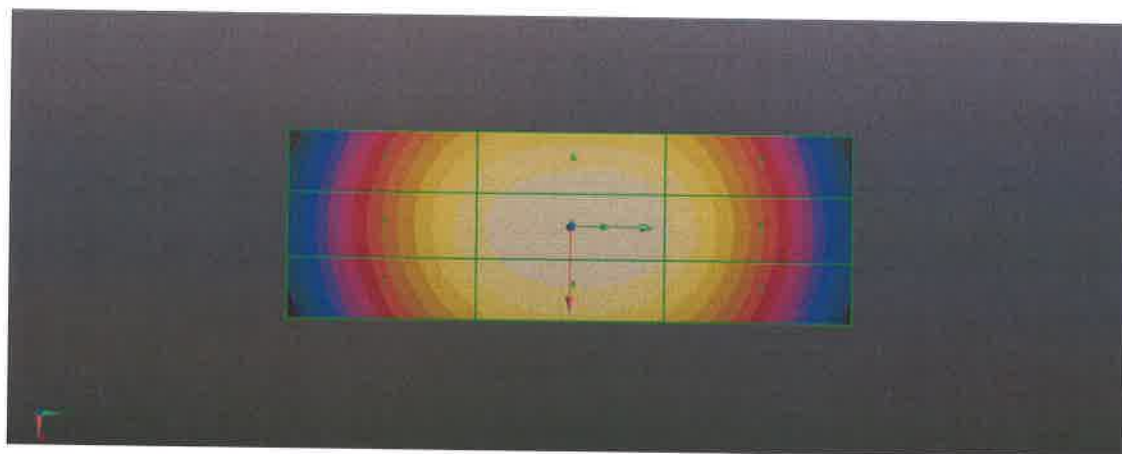
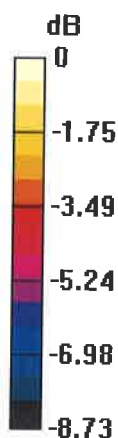
Applied MIF = 0.00 dB

RF audio interference level = 40.31 dBV/m

Emission category: M1

MIF scaled E-field

Grid 1 M2	Grid 2 M2	Grid 3 M2
39.4 dBV/m	39.57 dBV/m	39.41 dBV/m
Grid 4 M1	Grid 5 M1	Grid 6 M1
40.13 dBV/m	40.31 dBV/m	40.1 dBV/m
Grid 7 M2	Grid 8 M2	Grid 9 M2
39.64 dBV/m	39.85 dBV/m	39.65 dBV/m



0 dB = 103.6 V/m = 40.31 dBV/m



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Client **B.V. ADT (Auden)**

Certificate No: **EF3-4049_Jan21**

CALIBRATION CERTIFICATE

Object **EF3DV3- SN:4049**

Calibration procedure(s) **QA CAL-02.v9, QA CAL-25.v7
Calibration procedure for E-field probes optimized for close near field
evaluations in air**

Calibration date: **January 25, 2021**

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	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: CC2552 (20x)	31-Mar-20 (No. 217-03106)	Apr-21
DAE4	SN: 789	23-Dec-20 (No. DAE4-789_Dec20)	Dec-21
Reference Probe ER3DV6	SN: 2328	05-Oct-20 (No. ER3-2328_Oct20)	Oct-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
			Issued: January 26, 2021
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Accreditation No.: **SCS 0108**

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Glossary:

NORM _{x,y,z}	sensitivity in free space
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
En	incident E-field orientation normal to probe axis
Ep	incident E-field orientation parallel to probe axis
Polarization φ	φ 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:

- IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005
- CTIA Test Plan for Hearing Aid Compatibility, Rev 3.1.1, May 2017

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ for XY sensors and $\vartheta = 90$ for Z sensor ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart).
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). 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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,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.
- Spherical isotropy (3D deviation from isotropy)**: in a locally homogeneous field realized using an open waveguide setup.
- 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 NORM_x (no uncertainty required).

DASY/EASY - Parameters of Probe: EF3DV3 - SN:4049

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$)	0.76	1.01	1.08	$\pm 10.1 \%$
DCP (mV) ^B	97.2	95.3	98.9	

Calibration results for Frequency Response (30 MHz – 6 GHz)

Frequency MHz	Target E-Field V/m	Measured E-field (En) V/m	Deviation E-normal in %	Measured E-field (Ep) V/m	Deviation E-normal in %	Unc (k=2) %
30	77.1	77.0	-0.1%	77.0	-0.2%	$\pm 5.1 \%$
100	77.2	78.1	1.2%	77.8	0.9%	$\pm 5.1 \%$
450	77.2	78.3	1.4%	78.2	1.3%	$\pm 5.1 \%$
600	77.1	77.8	1.0%	77.7	0.9%	$\pm 5.1 \%$
750	77.1	77.7	0.8%	77.6	0.7%	$\pm 5.1 \%$
1800	143.4	139.8	-2.5%	140.0	-2.3%	$\pm 5.1 \%$
2000	135.1	131.8	-2.4%	131.3	-2.8%	$\pm 5.1 \%$
2200	127.7	123.9	-2.9%	125.3	-1.9%	$\pm 5.1 \%$
2500	125.3	122.7	-2.1%	124.0	-1.1%	$\pm 5.1 \%$
3000	79.4	76.0	-4.4%	77.0	-3.0%	$\pm 5.1 \%$
3500	256.0	242.1	-4.9%	239.4	-5.0%	$\pm 5.1 \%$
3700	249.4	236.7	-4.9%	235.3	-4.7%	$\pm 5.1 \%$
5200	50.7	51.5	1.6%	51.6	1.8%	$\pm 5.1 \%$
5500	47.3	47.2	-0.2%	48.2	1.8%	$\pm 5.1 \%$
5800	48.9	48.8	-0.3%	47.5	-3.0%	$\pm 5.1 \%$

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%.

^B Numerical linearization parameter: uncertainty not required.

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

DASY/EASY - Parameters of Probe: EF3DV3 - SN:4049

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB/μV	C	D dB	VR mV	Max dev.	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	171.9	± 3.3 %	± 4.7 %
		Y	0.00	0.00	1.00		150.1		
		Z	0.00	0.00	1.00		163.4		
10352- AAA	Pulse Waveform (200Hz, 10%)	X	2.95	66.37	10.69	10.00	60.0	± 2.3 %	± 9.6 %
		Y	20.00	94.84	25.51		60.0		
		Z	6.59	76.10	15.92		60.0		
10353- AAA	Pulse Waveform (200Hz, 20%)	X	2.10	66.19	9.53	6.99	80.0	± 1.0 %	± 9.6 %
		Y	20.00	95.15	24.14		80.0		
		Z	15.74	87.39	18.35		80.0		
10354- AAA	Pulse Waveform (200Hz, 40%)	X	1.16	65.22	8.18	3.98	95.0	± 1.2 %	± 9.6 %
		Y	20.00	96.87	23.20		95.0		
		Z	20.00	91.91	18.51		95.0		
10355- AAA	Pulse Waveform (200Hz, 60%)	X	2.12	72.04	10.06	2.22	120.0	± 1.6 %	± 9.6 %
		Y	20.00	101.26	23.80		120.0		
		Z	20.00	98.35	20.36		120.0		
10387- AAA	QPSK Waveform, 1 MHz	X	1.98	69.17	16.87	1.00	150.0	± 1.7 %	± 9.6 %
		Y	2.26	68.77	17.52		150.0		
		Z	2.13	69.66	17.62		150.0		
10388- AAA	QPSK Waveform, 10 MHz	X	2.57	70.54	17.30	0.00	150.0	± 1.0 %	± 9.6 %
		Y	3.15	72.68	18.24		150.0		
		Z	3.02	73.00	18.54		150.0		
10396- AAA	64-QAM Waveform, 100 kHz	X	3.11	73.33	20.39	3.01	150.0	± 0.8 %	± 9.6 %
		Y	4.52	76.38	22.07		150.0		
		Z	3.78	75.61	21.18		150.0		
10399- AAA	64-QAM Waveform, 40 MHz	X	3.59	67.56	16.27	0.00	150.0	± 0.9 %	± 9.6 %
		Y	3.90	68.40	16.79		150.0		
		Z	3.86	68.75	16.95		150.0		
10414- AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.87	65.64	15.74	0.00	150.0	± 1.8 %	± 9.6 %
		Y	5.26	65.92	15.99		150.0		
		Z	4.99	65.79	15.88		150.0		

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%.

^B Numerical linearization parameter: uncertainty not required.

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

DASY/EASY - Parameters of Probe: EF3DV3 - SN:4049

Sensor Frequency Model Parameters

	Sensor X	Sensor Y	Sensor Z
Frequency Corr. (LF)	0.05	-0.04	5.63
Frequency Corr. (HF)	2.82	2.82	2.82

Sensor Model Parameters

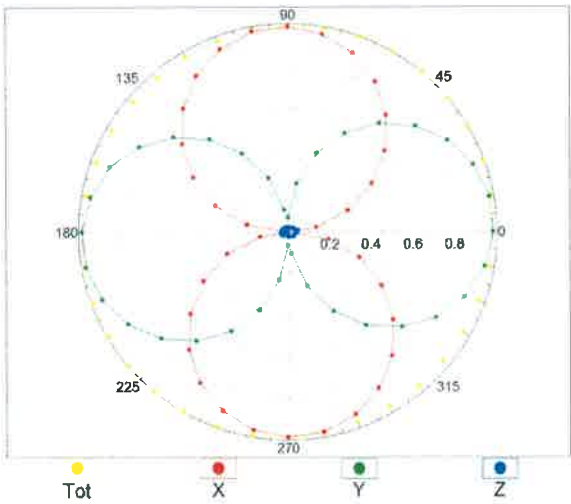
	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	51.7	339.70	36.49	6.87	0.43	4.94	1.27	0.10	1.00
Y	92.0	621.28	38.44	25.95	1.96	5.10	0.00	0.70	1.01
Z	63.1	411.50	36.24	10.37	0.73	4.98	1.56	0.19	1.00

Other Probe Parameters

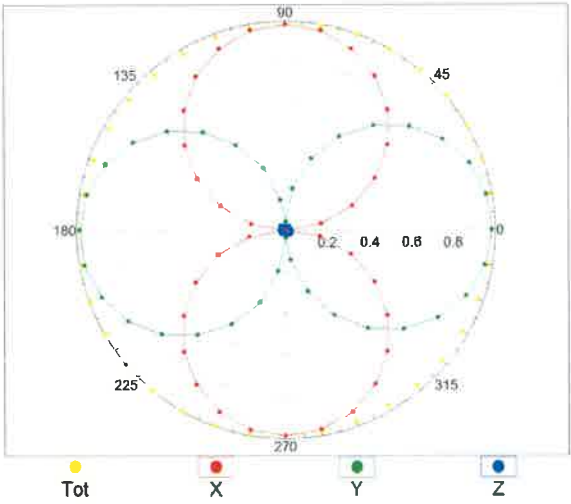
Sensor Arrangement	Rectangular
Connector Angle (°)	-69.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	12 mm
Tip Length	25 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	1.5 mm
Probe Tip to Sensor Y Calibration Point	1.5 mm
Probe Tip to Sensor Z Calibration Point	1.5 mm

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

f=600 MHz,TEM,0°

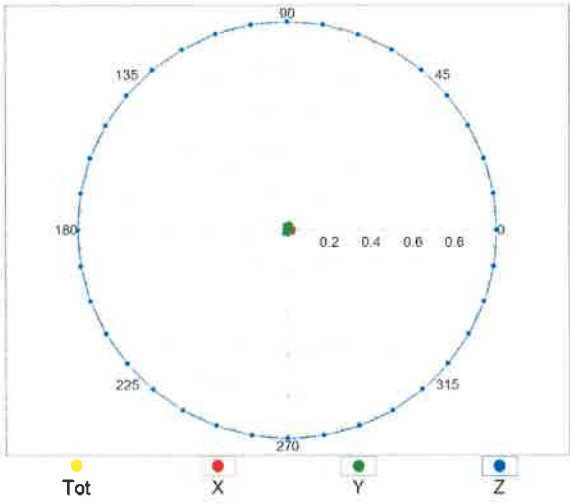


f=1800 MHz,R22,0°

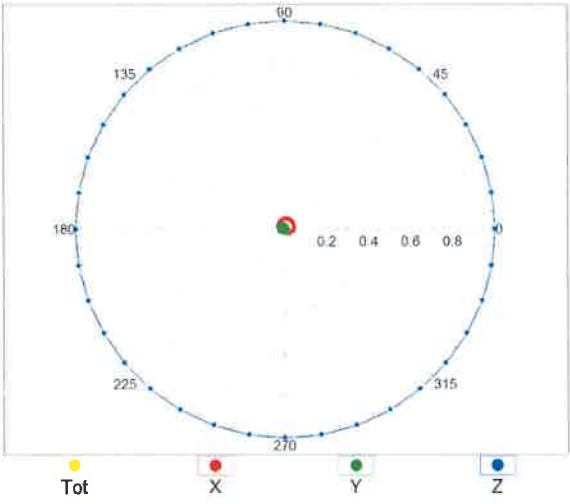


Receiving Pattern (ϕ), $\vartheta = 90^\circ$

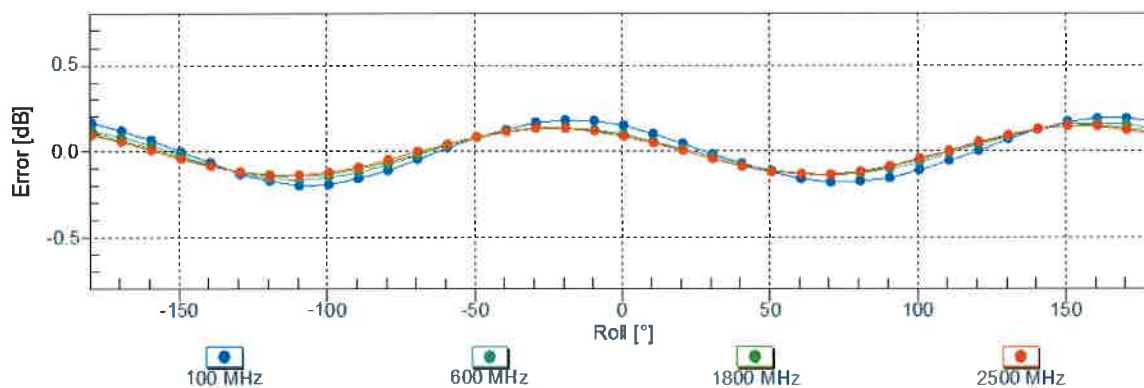
f=600 MHz,TEM,90°



f=1800 MHz,R22,90°

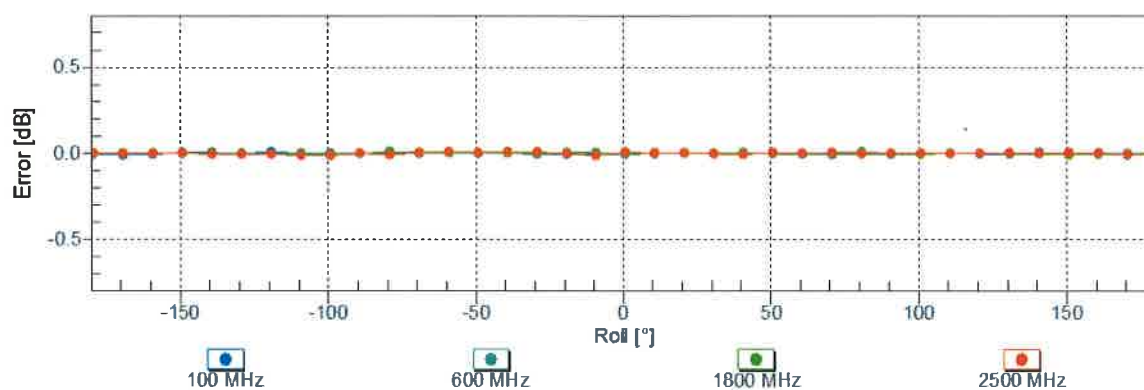


Receiving Pattern (ϕ), $\vartheta = 0^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

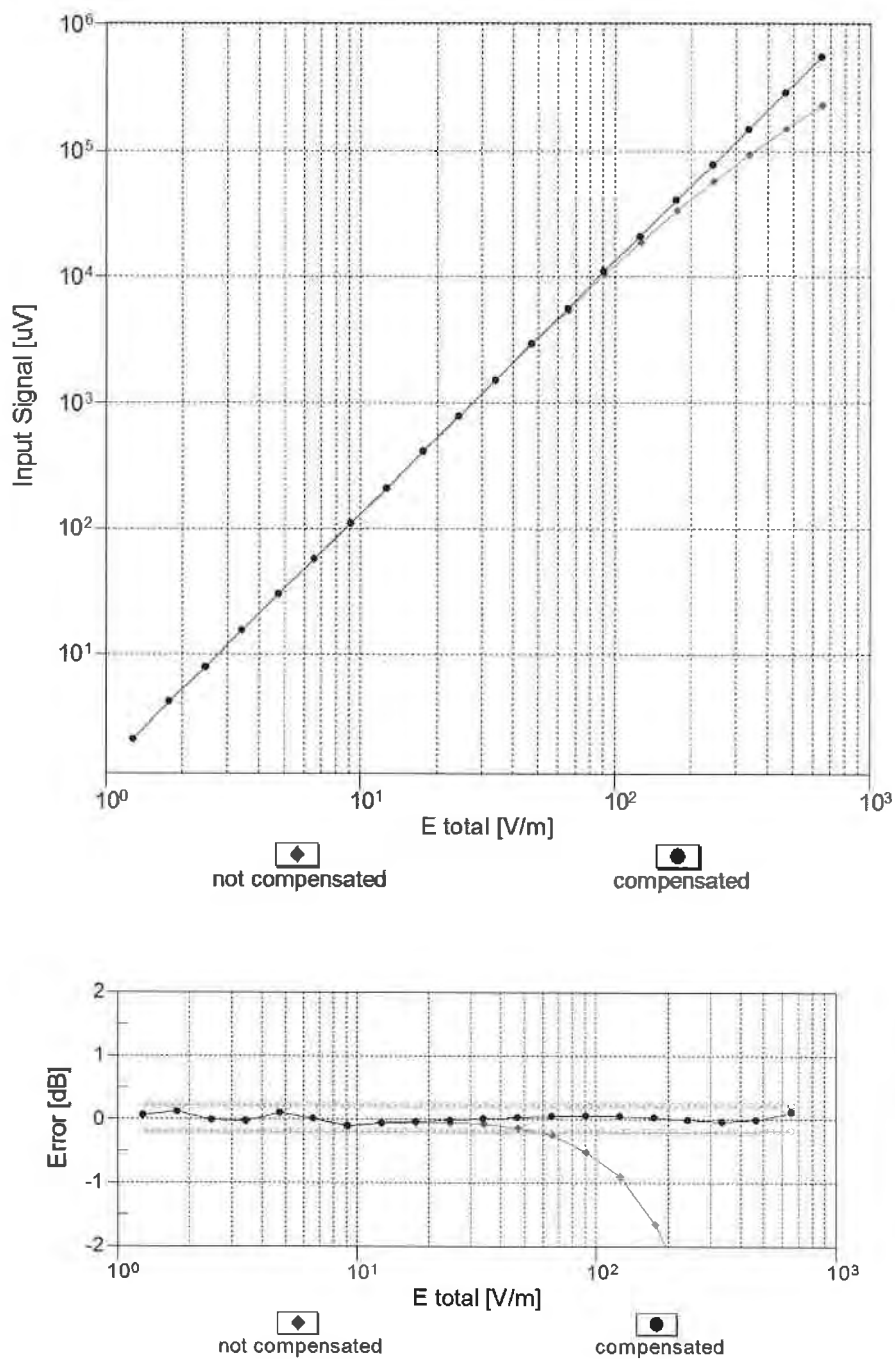
Receiving Pattern (ϕ), $\vartheta = 90^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range f(E-field)

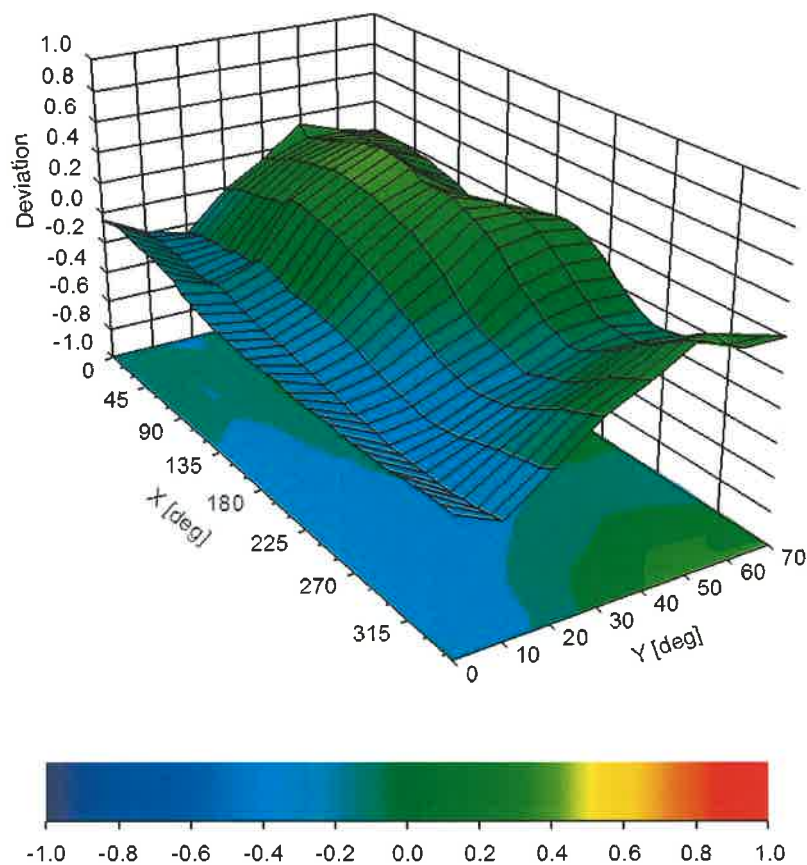
(TEM cell, $f = 900$ MHz)



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

Deviation from Isotropy in Air

Error (ϕ, ϑ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	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	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	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 %
10060	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	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %

10099	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	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	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAG	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	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	AAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %

10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	CAG	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	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	DAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %

10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	CAG	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	CAG	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	CAG	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	CAG	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	CAG	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	CAC	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	CAB	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	CAB	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	CAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	CAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3)	WiMAX	14.57	± 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAD	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAD	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAD	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAD	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	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	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	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	AAD	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %

10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAE	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAC	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAC	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %

10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %
10489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %
10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	± 9.6 %
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8.43	± 9.6 %
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAE	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAF	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAF	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %

10546	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc)	WLAN	8.35	± 9.6 %
10547	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
10548	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
10550	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc dc)	WLAN	8.38	± 9.6 %
10551	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dc)	WLAN	8.50	± 9.6 %
10552	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
10553	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc dc)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc dc)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10566	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10567	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10573	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10579	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10581	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10588	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10589	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10590	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10591	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	± 9.6 %
10592	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10593	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10595	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc)	WLAN	8.74	± 9.6 %
10596	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc)	WLAN	8.71	± 9.6 %
10597	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.72	± 9.6 %
10598	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc)	WLAN	8.50	± 9.6 %
10599	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10601	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9.6 %
10602	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9.6 %
10603	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc)	WLAN	9.03	± 9.6 %

10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
10605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10612	AAC	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %
10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc)	WLAN	8.71	± 9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8.80	± 9.6 %
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc)	WLAN	9.11	± 9.6 %
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAC	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAC	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAC	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %

10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %
10673	AAD	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
10674	AAD	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10675	AAD	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	± 9.6 %
10676	AAD	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10677	AAD	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
10678	AAD	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	± 9.6 %
10679	AAD	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	± 9.6 %
10680	AAD	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	± 9.6 %
10681	AAG	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	± 9.6 %
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	± 9.6 %
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8.45	± 9.6 %
10688	AAE	IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN	8.29	± 9.6 %
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAB	IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	± 9.6 %
10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	± 9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	± 9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	± 9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90pc dc)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %

10728	AAC	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10732	AAC	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 %
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 %
10737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 %
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	± 9.6 %
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 %
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	± 9.6 %
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	± 9.6 %
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	± 9.6 %
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6 %
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	± 9.6 %
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	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	AAC	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	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %

10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAE	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	AAD	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	AAC	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	AAC	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 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	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	AAE	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	AAE	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	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10918	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %

10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAD	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10925	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	± 9.6 %
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	± 9.6 %
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10947	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %
10958	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 9.6 %
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	± 9.6 %
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	± 9.6 %
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAB	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 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.

Appendix D. Photographs of EUT and Setup

The photographs of EUT and setup for HAC measurement are shown as follows.

Appendix E. Measured Conducted Power Results

The measuring conducted average power (Unit: dBm) are shown as below.



Conducted Output Power Measurement

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880	1909.8
GSM (GMSK, 1 Tx Slot)	32.92	32.99	32.97	29.92	29.95	29.99

Band	CDMA BC0			CDMA BC1			CDMA BC10		
Channel	1013	384	777	25	600	1175	476	580	684
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75	817.9	820.5	823.1
RC1+SO3, 1/8th Rate	23.91	23.87	23.84	23.82	23.81	23.88	23.82	23.81	23.88



Conducted Output Power Measurement

Band	LTE Band 38					
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		37850	38000	38150
		Frequency (MHz)		2580	2595	2610
20M	QPSK	1	0	23.69	23.82	23.79
		1	50	23.48	23.69	23.66
		1	99	23.41	23.62	23.59
		50	0	22.62	22.83	22.80
		50	25	22.57	22.78	22.75
		50	50	22.51	22.72	22.69
		100	0	22.60	22.81	22.78



Conducted Output Power Measurement

Band	LTE Band 40					
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		38750	39150	39550
		Frequency (MHz)		2310	2350	2390
20M	QPSK	1	0	23.53	23.56	23.63
		1	50	23.38	23.41	23.48
		1	99	23.31	23.34	23.41
		50	0	22.57	22.67	22.74
		50	25	22.51	22.54	22.61
		50	50	22.47	22.50	22.57
		100	0	22.53	22.56	22.63



Conducted Output Power Measurement

Band	LTE Band 41							
BW	Modulation	RB Size	RB Offset	Low	Low-Mid	Mid	High-Mid	High
		Channel		39750	40185	40620	41055	41490
		Frequency (MHz)		2506	2549.5	2593	2636.5	2680
20M	QPSK	1	0	24.99	25.04	25.22	25.26	25.02
		1	50	24.68	24.78	24.96	25.00	24.76
		1	99	24.53	24.60	24.78	2.48	24.58
		50	0	24.00	24.11	24.29	24.33	24.09
		50	25	23.95	24.03	24.21	24.25	24.01
		50	50	23.94	23.96	24.14	24.18	23.94
		100	0	23.83	23.93	24.11	24.15	23.91



Conducted Output Power Measurement

Band	LTE Band 42							
BW	Modulation	RB Size	RB Offset	Low		Mid		High
		Channel		43190		43340		43490
		Frequency (MHz)		3560		3575		3590
20M	QPSK	1	0	24.46		24.51		24.55
		1	50	24.44		24.49		24.53
		1	99	24.40		24.45		24.49
		50	0	23.63		23.68		23.72
		50	25	23.61		23.66		23.70
		50	50	23.53		23.58		23.62
		100	0	23.60		23.65		23.69



Conducted Output Power Measurement

Band	LTE Band 43					
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		44190	44215	44240
		Frequency (MHz)		3660	3662.5	3665
20M	QPSK	1	0	24.62	24.58	24.64
		1	50	24.60	24.56	24.62
		1	99	24.57	24.53	24.60
		50	0	23.91	23.87	23.93
		50	25	23.87	23.83	23.89
		50	50	23.85	23.81	23.87
		100	0	23.82	23.78	23.84



Conducted Output Power Measurement

Band	LTE Band 48						
BW	Modulation	RB Size	RB Offset	Low	Low-Mid	Mid	High-Mid
		Channel		55340	55780	56210	56640
		Frequency (MHz)		3560	3603	3647	3690
20M	QPSK	1	0	24.52	24.45	24.78	24.71
		1	50	24.48	24.41	24.74	24.67
		1	99	24.45	24.38	24.71	24.64
		50	0	23.48	23.41	23.74	23.67
		50	25	23.45	23.38	23.71	23.64
		50	50	23.43	23.36	23.69	23.62
		100	0	23.46	23.39	23.72	23.65



Conducted Output Power Measurement

Band	WLAN 2.4G					
Mode	Data Rate	Channel	Frequency (MHz)	Power ANT6	Power ANT3 or 4	Power ANT6+ 3or 4
802.11g	6Mbps	1	2412	19.87	18.62	22.3
		6	2437	19.82	18.6	22.26
		11	2462	19.95	19.89	20.44

Band	WLAN 2.4G					
Mode	Data Rate	Channel	Frequency (MHz)			Power ANT6+ 3or 4
802.11ac VHT20	MCS0	1	2412			22.4
		6	2437			22.41
		11	2462			17.6

Band	WLAN 2.4G					
Mode	Data Rate	Channel	Frequency (MHz)			Power ANT6+ 3or 4
802.11ac VHT40	MCS0	3	2422			20.7
		6	2437			22.58
		9	2452			17.11



Conducted Output Power Measurement

Band	WLAN 5.2G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11a	6Mbps	36	5180		22.13
		40	5200		22.13
		44	5220		22.15
		48	5240		22.18

Band	WLAN 5.2G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT20	MCS0	36	5180		22.19
		40	5200		22.2
		44	5220		22.17
		48	5240		22.22

Band	WLAN 5.2G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT40	MCS0	38	5190		19.98
		46	5230		22.25



Conducted Output Power Measurement

Band	WLAN 5.3G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11a	6Mbps	52	5260		22.63
		56	5280		22.65
		60	5300		22.65
		64	5320		22.71

Band	WLAN 5.3G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT20	MCS0	52	5260		22.67
		56	5280		22.66
		60	5300		22.71
		64	5320		22.7

Band	WLAN 5.3G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT40	MCS0	54	5270		22.69
		62	5310		19.46



Conducted Output Power Measurement

Band	WLAN 5.6G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11a	6Mbps	100	5500		22.38
		116	5580		22.39
		124	5620		22.25
		132	5660		22.31
		144	5720		22.36



Conducted Output Power Measurement

Band	WLAN 5.8G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11a	6Mbps	149	5745		21.55
		157	5785		21.58
		165	5825		21.57

Band	WLAN 5.8G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT20	MCS0	149	5745		21.59
		157	5785		21.63
		165	5825		21.6

Band	WLAN 5.8G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT40	MCS0	151	5755		21.54
		159	5795		21.56

Band	WLAN 5.8G				
Mode	Data Rate	Channel	Frequency (MHz)		Power ANT6+ 3
802.11ac VHT80	MCS0	155	5825		21.53