TESTING
NVLAP LAB CODE 600118-0

HAC RF TEST REPORT

No. I22Z60589-SEM01

For

Sonim Technologies, Inc.

Smart phone

Model Name:

XP9900（P14001）,XP9900（P14002）,XP9900（P14003）,

XP9900（P14004）,XP9900（P14005）,XP9900（P14006）,

XP9900（P14010）

With

Hardware Version: V1.0

Software Version: 10.0.0-01-12.0.0-10.60.10

FCC ID: WYPP14010

Results Summary: M Category = M4

Issued Date: 2022-10-25

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I22Z60589-SEM01	Rev.0	2022-07-29	Initial creation of test report
I22Z60589-SEM01	Rev.1	2022-10-23	Update LTEB42/43 band test information
I22Z60589-SEM01	Rev.2	2022-10-25	Update version of KDB 285076 D01 information

TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

CompanyName:	CTTL(Shouxiang)
Address:	No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191

1.2 Testing Environment

Temperature:	18°C~25°C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

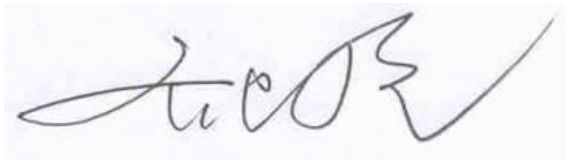
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	July 8, 2022
Testing End Date:	October 22, 2022

1.4 Signature

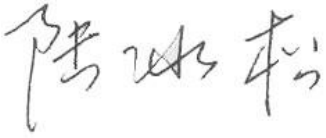
Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2 Client Information

2.1 Applicant Information

Company Name:	Sonim Technologies, Inc.
Address/Post:	6500 River Place Blvd., Building 7, Suite 250, Austin, TX 78730, USA
Contact Person:	Avena xu
Contact Email:	Avena.xu@sonimtech.com
Telephone:	1-650-378-8100
Fax	\

2.2 Manufacturer Information

Company Name:	Sonim Technologies, Inc.
Address/Post:	6500 River Place Blvd., Building 7, Suite 250, Austin, TX 78730, USA
Contact Person:	Avena xu
Contact Email:	Avena.xu@sonimtech.com
Telephone:	1-650-378-8100
Fax	\

3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

Description:	Smart Phone
Model name:	XP9900（P14001）,XP9900（P14002）,XP9900（P14003）, XP9900（P14004）,XP9900（P14005）,XP9900（P14006）, XP9900（P14010）,
Operating mode(s):	WCDMAB1/B2/B4/B5/B8, 5G NR n2/n5/n14/n25/n30/n41/n48/n66/n71/n77/n78,BT, Wi-Fi, LTE Band 1/2/3/4/5/7/8/12/13/14/17/20/25/26/29/30/38/39/40/41/42/43/46/48/66/71

3.2 Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT	016188000035548	V1.0	10.0.0-01-12.0.0-10.60.10
EUT	016188000036009	V1.0	10.0.0-01-12.0.0-10.60.10

*EUT ID: is used to identify the test sample in the lab internally.

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	BAT-05000-01S	\	Veken

*AE ID: is used to identify the test sample in the lab internally.

3.4 Air Interfaces / Bands Indicating Operating Modes

Air-interface	Band(MHz)	Type	C63.19/tested	Simultaneous Transmissions	Name of Voice Service
WCDMA (UMTS)	850	VO	NO(1)	BT, WLAN	CMRS Voice
	1700				
	1900				
	HSPA	DT	NO(1)		Google duo
LTE TDD	Band41/42/43/48	V/D	Yes	BT, WLAN	VoLTE, Google duo
LTE FDD	Band7/12/13/14/25/26/30/66/71	V/D	NO(1)	BT, WLAN	VoLTE, Google duo
NR	n2/n5/n14/n25/n30/n41/n48/n66/n71/n77/n78	V/D	NO(1)	BT, WLAN	VoNR, Google duo
BT	2450	DT	NA	GSM,WCDMA ,LTE,NR	NA
WLAN	2450	V/D	Yes	GSM,WCDMA ,LTE,NR	VoWiFi, Google duo
WLAN	5G	V/D	NO(1)	GSM,WCDMA ,LTE,NR	VoWiFi, Google duo

NA: Not Applicable VO: Voice Only V/D: CMRS and IP Voice Service over Digital Transport
DT: Digital Transport
* HAC Rating was not based on concurrent voice and data modes, Non current mode was found to represent worst case rating for both M and T rating
Note1 = The air interface is exempted from testing by low power exemption that its average antenna input power plus its MIF is ≤17 dBm, and is rated as M4.
Note2= The device have similar frequency in some LTE bands：2/25,4/66,5/26 since the supported frequency spans for the smaller LTE bands are completely cover by the larger LTE bands, therefore, only larger LTE bands were required to be tested for hearing-aid compliance.

4 Maximum Output Power.

WCDMA 850MHz	Conducted Power (dBm)		
	Channel 4233(846.6MHz)	Channel 4182(836.4MHz)	Channel 4132(826.4MHz)
RMC	24	24	24
HSPA	23.5	23.5	23.5
WCDMA 1700MHz	Conducted Power (dBm)		
	Channel1513(1752.6MHz)	Channel1412(1732.4MHz)	Channel1312(1712.4MHz)
RMC	24	24	24
HSPA	23.5	23.5	23.5
WCDMA 1900MHz	Conducted Power (dBm)		
	Channel 9538(1907.6MHz)	Channel 9400(1880MHz)	Channel 9262(1852.4MHz)
RMC	24	24	24
HSPA	23.5	23.5	23.5
LTE Band7 QPSK	Conducted Power (dBm)		
	Channel 21350(2560MHz)	Channel 21100(2535MHz)	Channel20850(2510MHz)
	23	23	23
LTE Band12 QPSK	Conducted Power (dBm)		
	Channel 23130(711MHz)	Channel 23095(707.5MHz)	Channel23060(704MHz)
	23	23	23
LTE Band13 QPSK	Conducted Power (dBm)		
	Channel 23230(782MHz)		
	23		
LTE Band14 QPSK	Conducted Power (dBm)		
	Channel 23330(793MHz)		
	23		
LTE Band25 QPSK	Conducted Power (dBm)		
	Channel 26590(1905MHz)	Channel 26365(1882.5MHz)	Channel 26140(1860MHz)
	23	23	23
LTE Band26 QPSK	Conducted Power (dBm)		
	Channel 26965(841.5MHz)	Channel 26865(831.5MHz)	Channel 26775(822.5MHz)
	23	23	23
LTE Band30 QPSK	Conducted Power (dBm)		
	Channel 27710(2310MHz)		
	23		
LTE Band41 QPSK PC2	Conducted Power (dBm)		
	Channel 41490(2680MHz)	Channel 40620(2593MHz)	Channel 39750(2506MHz)
	26	26	26
LTE Band41 QPSK PC3	Conducted Power (dBm)		
	Channel 41490(2680MHz)	Channel 40620(2593MHz)	Channel 39750(2506MHz)
LTE Band48 QPSK	Conducted Power (dBm)		
	Channel 56640(3690MHz)	Channel 55990(3625MHz)	Channel 55340(3560MHz)
	23	23	23

	23	23	23
LTE Band42 QPSK	Conducted Power (dBm)		
	Channel 43490(3590MHz)	Channel 42840(3525MHz)	Channel 42190(3460MHz)
	23	23	23
LTE Band43 QPSK	Conducted Power (dBm)		
	Channel 43990(3640MHz)	Channel 43840(3625MHz)	Channel 43690(3610MHz)
	23	23	23
LTE Band66 QPSK	Conducted Power (dBm)		
	Channel 132572(1770MHz)	Channel 132322(1745MHz)	Channel 132072(1720MHz)
	23	23	23
LTE Band71 QPSK	Conducted Power (dBm)		
	Channel 133372(688MHz)	Channel 133322(683MHz)	Channel 133222(673MHz)
	23	23	23
2.4GHz 802.11b	Conducted Power (dBm)		
	Channel 11 (2462MHz)	Channel 6 (2437MHz)	Channel 1 (2412MHz)
	19.5	19.5	19.5
5GHz 802.11a	Tune up (dBm)		
	Channel 60 (5300MHz)	Channel 124 (5620MHz)	Channel 157 (5785MHz)
	16	16	16
5G NR N2	Conducted Power (dBm)		
	Channel381500 (1907.5MHz)	Channel376000 (1880MHz)	Channel370500 (1852.5MHz)
	23	23	23
5G NR N5	Conducted Power (dBm)		
	Channel169300 (846.5MHz)	Channel167300(836.5MHz)	Channel165300(826.5MHz)
	23	23	23
5G NR N14	Conducted Power (dBm)		
	Channel158600(793MHz)		
	23		
5G NR N30	Conducted Power (dBm)		
	Channel462000(2310MHz)		
	23		
5G NR N41 PC2	Conducted Power (dBm)		
	Channel 528000(2640MHz)	Channel518598(2593MHz)	Channel 509202(2546MHz)
	26	26	26
5G NR N41 PC3	Conducted Power (dBm)		
	Channel 528000(2640MHz)	Channel518598(2593MHz)	Channel 509202(2546MHz)
	23	23	23
5G NR N48	Conducted Power (dBm)		
	Channel 643332(3649.98MHz)	Channel 641666(3624.99MHz)	Channel 640000(3600MHz)
	23	23	23

5G NR N66	Conducted Power (dBm)		
	Channel354000 (1770MHz)	Channel 349000 (1745MHz)	Channel354000 (1770MHz)
	23	23	23
5G NR N71	Conducted Power (dBm)		
	Channel139100 (695.5MHz)	Channel 136100 (680.5MHz)	Channel133100 (665.5MHz)
	23	23	23
5G NR N78	Conducted Power (dBm)		
	Channel653000 (3795MHz)	Channel 636666 (3549.99MHz)	Channel620334 (3305.01MHz)
	23	23	23
5G NR N77 PC2	Conducted Power (dBm)		
	Channel676666 (4149.99MHz)	Channel 650000 (3750MHz)	Channel623334 (3350.01MHz)
	26	26	26
5G NR N77 PC3	Conducted Power (dBm)		
	Channel676666 (4149.99MHz)	Channel 650000 (3750MHz)	Channel623334 (3350.01MHz)
	23	23	23

5 Reference Documents

5.1 Reference Documents for testing

The following document listed in this section is referred for testing.

Reference	Title	Version
ANSI C63.19-2011	American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids	2011 Edition
FCC 47 CFR §20.19	Hearing Aid Compatible Mobile Headsets	2015 Edition
KDB 285076 D01	Equipment Authorization Guidance for Hearing Aid Compatibility	v06

6 OPERATIONAL CONDITIONS DURING TEST

6.1 HAC MEASUREMENT SET-UP

These measurements are performed using the DASY5 NEO automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Stäubli), robot controller, Intel Core2 computer, near-field probe, probe alignment sensor. The robot is a six-axis industrial robot performing precise movements. A cell controller system contains the power supply, robot controller, teach pendant (Joystick),and remote control, is used to drive the robot motors. The PC consists of the HP Intel Core21.86 GHz computer with Windows XP system and HAC Measurement Software DASY5 NEO, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE)circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

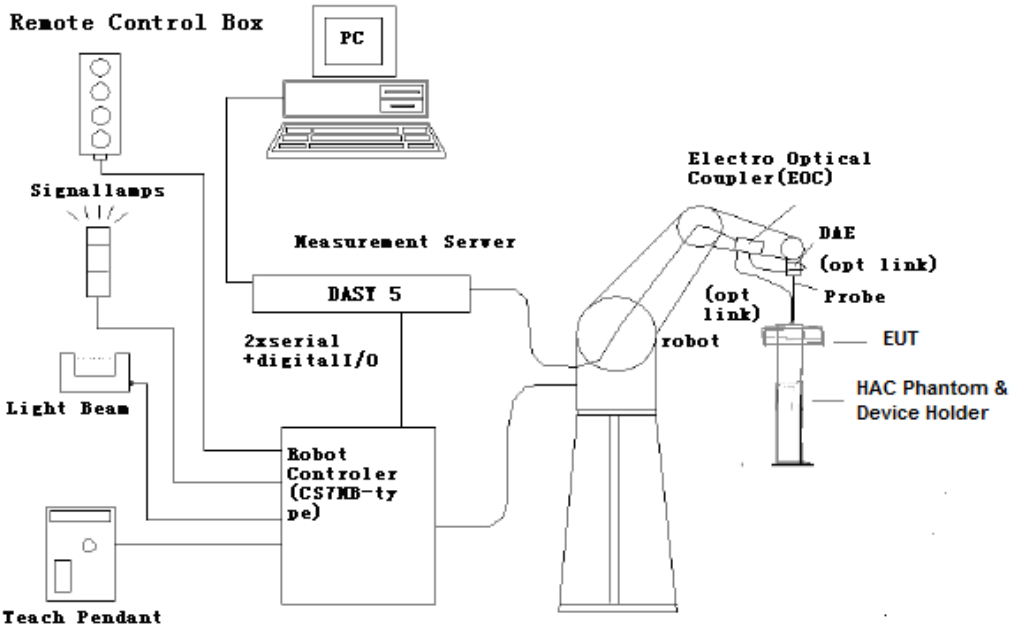


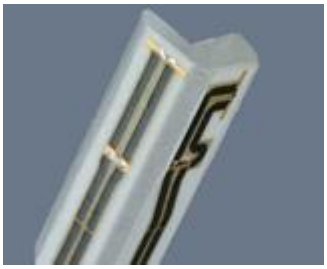
Fig. 1 HAC Test Measurement Set-up

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

6.2 Probe Specification

E-Field Probe Description

Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material
Calibration	In air from 100 MHz to 3.0 GHz (absolute accuracy ±6.0%, k=2)
Frequency	40 MHz to > 6 GHz (can be extended to < 20 MHz) Linearity: ± 0.2 dB (100 MHz to 3 GHz)
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: 330 mm (Tip: 16 mm) Tip diameter: 8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.5 mm
Application	General near-field measurements up to 6 GHz Field component measurements Fast automatic scanning in phantoms



[ER3DV6]

6.3 Test Arch Phantom &Phone Positioner

The Test Arch phantom should be positioned horizontally on a stable surface. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. It enables easy and well defined positioning of the phone and validation dipoles as well as simple teaching of the robot (Dimensions: 370 x 370 x 370 mm).

The Phone Positioner supports accurate and reliable positioning of any phone with effect on near field <±0.5 dB.

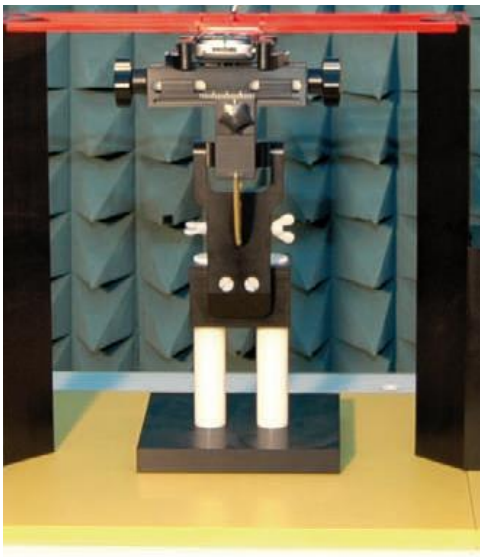


Fig. 2 HAC Phantom & Device Holder

6.4 Robotic System Specifications

Specifications

Positioner: Stäubli Unimation Corp. Robot Model: RX160L
Repeatability: ±0.02 mm
No. of Axis: 6

Data Acquisition Electronic (DAE) System

Cell Controller
Processor: Intel Core2
Clock Speed: 1.86GHz
Operating System: Windows XP
Data Converter
Features: Signal Amplifier, multiplexer, A/D converter, and control logic
Software: DASY5 software
Connecting Lines: Optical downlink for data and status info.
Optical uplink for commands and clock

7 EUT ARRANGEMENT

7.1 WD RF Emission Measurements Reference and Plane

Figure 4 illustrates the references and reference plane that shall be used in the WD emissions measurement.

- The grid is 5 cm by 5 cm area that is divided into 9 evenly sized blocks or sub-grids.
- The grid is centered on the audio frequency output transducer of the WD (speaker or T-coil).
- The grid is located by reference to a reference plane. This reference plane is the planar area that contains the highest point in the area of the WD that normally rests against the user's ear
- The measurement plane is located parallel to the reference plane and 15 mm from it, out from the phone. The grid is located in the measurement plane.

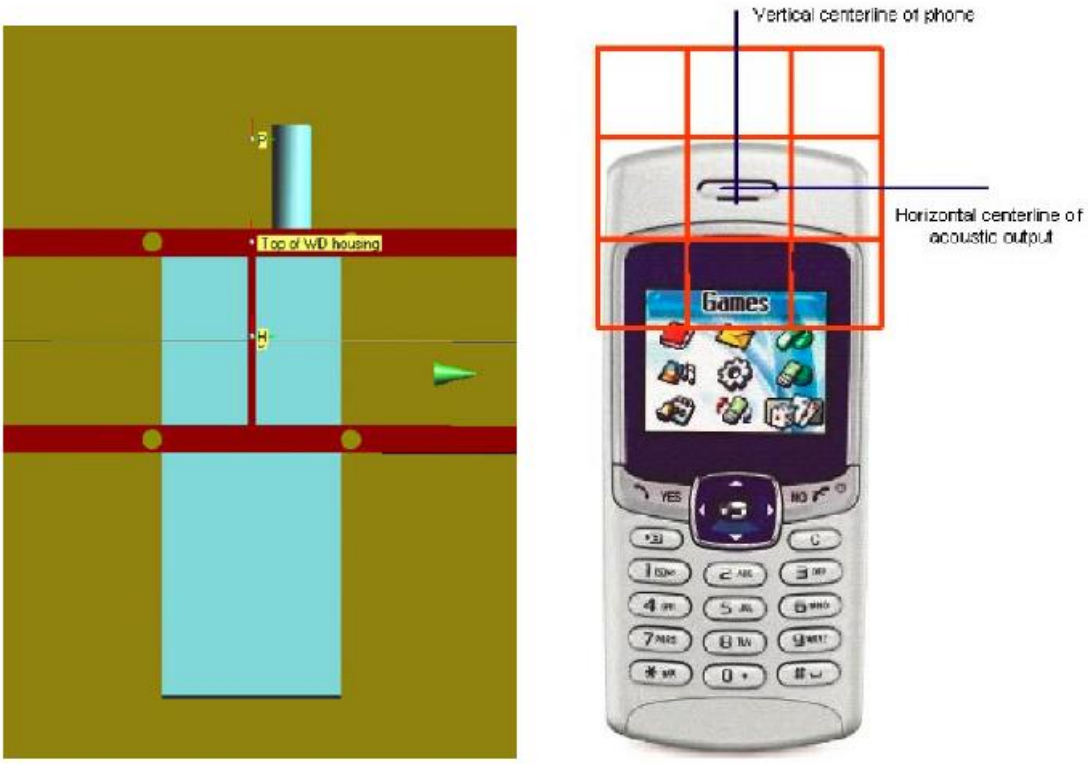


Fig. 3 WD reference and plane for RF emission measurements

8 SYSTEM VALIDATION

8.1 Validation Procedure

Place a dipole antenna meeting the requirements given in ANSI C63.19 in the position normally occupied by the WD. The dipole antenna serves as a known source for an electrical output. Position the E-field probes so that:

•The probes and their cables are parallel to the coaxial feed of the dipole antenna

•The probe cables and the coaxial feed of the dipole antenna approach the measurement area from opposite directions

• The center point of the probe element(s) are 15 mm from the closest surface of the dipole elements.

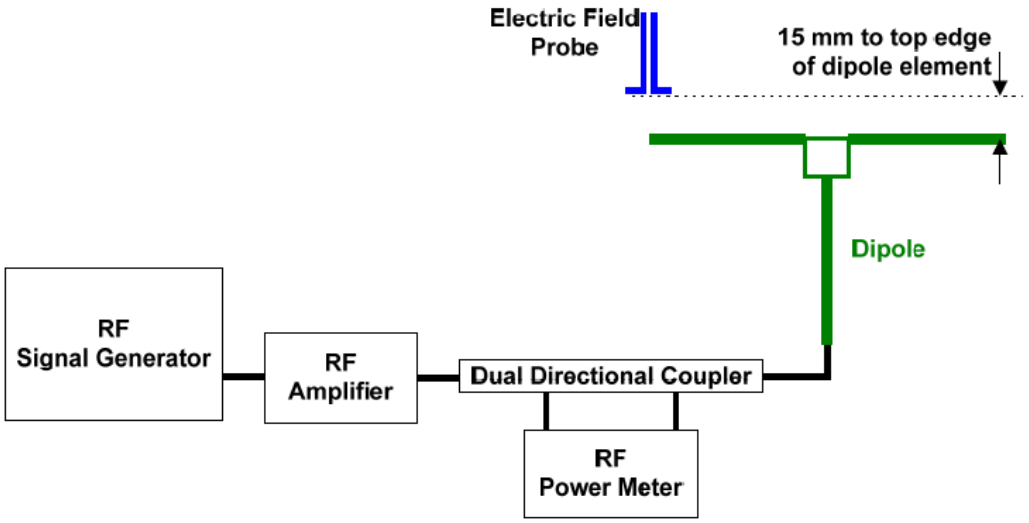


Fig. 4 Dipole Validation Setup

8.2 Validation Result

E-Field Scan						
Mode	**Frequency (MHz)**	**Input Power (mW)**	**Measured[1] Value(dBV/m)**	**Target[2] Value(dBV/m)**	**Deviation[3] (%)**	**Limit[4] (%)**
CW	2450	100	38.41	38.68	-3.06	±25
CW	2600	100	38.31	38.64	-3.73	±25
CW	3500	100	38.19	38.53	-3.84	±25
CW	3500	100	38.12	38.53	-4.61	±25

Notes:

1. Please refer to the attachment for detailed measurement data and plot.

2. Target value is provided by SPEAD in the calibration certificate of specific dipoles.

3. Deviation (%) = 100 * (Measured value minus Target value) divided by Target value.

4. ANSI C63.19 requires values within ± 25% are acceptable, of which 12% is deviation and 13% is measurement uncertainty. Values independently validated for the dipole actually used in the measurements should be used, when available.

9 Evaluation of MIF

9.1 Introduction

The MIF (Modulation Interference Factor) is used to classify E-field emission to determine Hearing Aid Compatibility (HAC). It scales the power-averaged signal to the RF audio interference level and is characteristic to a modulation scheme. The HAC standard preferred "indirect" measurement method is based on average field measurement with separate scaling by the MIF. With an Audio Interference Analyzer (AIA) designed by SPEAG specifically for the MIF measurement, these values have been verified by practical measurements on an RF signal modulated with each of the waveforms. The resulting deviations from the simulated values are within the requirements
of the HAC standard.

The AIA (Audio Interference Analyzer) is an USB powered electronic sensor to evaluate signals in the frequency range 698MHz - 6 GHz. It contains RMS detector and audio frequency circuits for sampling of the RF envelope.

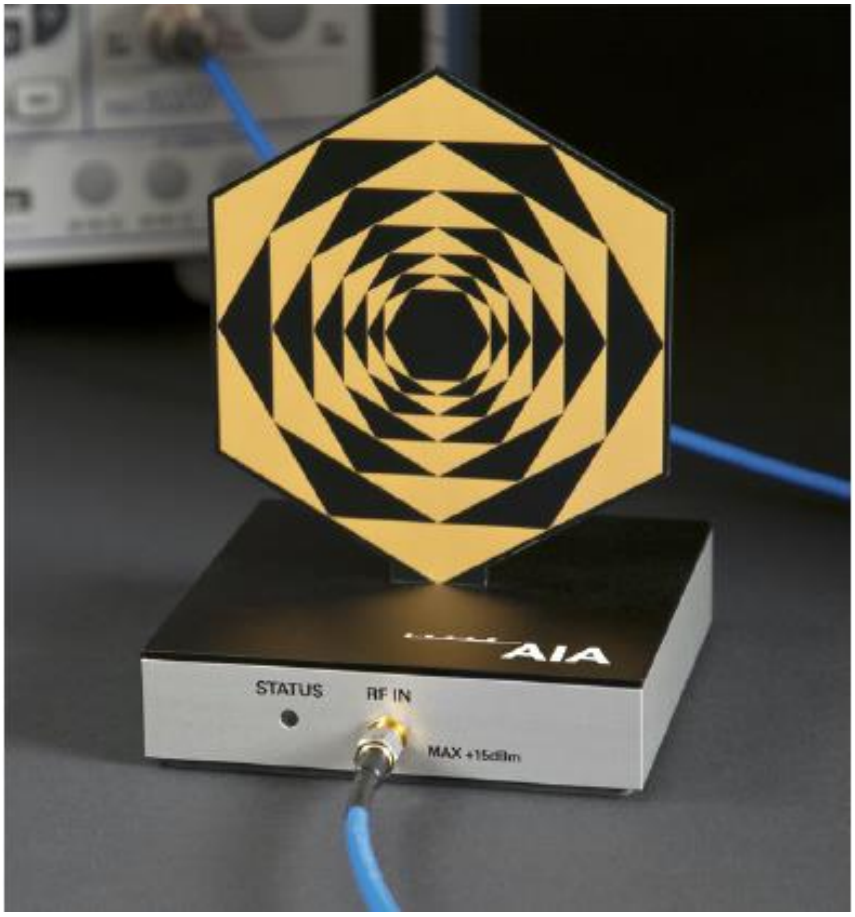


Fig. 5 AIA Front View

9.2 MIF measurement with the AIA

The MIF is measured with the AIA as follows:

1. Connect the AIA via USB to the DASY5 PC and verify the configuration settings.
2. Couple the RF signal to be evaluated to an AIA via cable or antenna.
3. Generate a MIF measurement job for the unknown signal and select the measurement port and timing settings.
4. Document the results via the post processor in a report.

9.3 Test equipment for the MIF measurement

No.	Name	Type	Serial Number	Manufacturer
01	Signal Generator	E4438C	MY49071430	Agilent
02	AIA	SE UMS 170 CB	1029	SPEAG
03	BTS	CMW500	166370	R&S

9.4 DUT MIF results

Based on the KDB285076D01v06, the handset can also use the MIF values predetermined by the test equipment manufacturer. MIF values applied in this test report were provided by the HAC equipment provider of SPEAG, and the worst values for all air interface are listed below to be determine the Low-power Exemption.

Typical MIF levels in ANSI C63.19-2011	
Transmission protocol	Modulation interference factor
EDGE-FDD (TDMA, 8PSK, TN 0-1)	+1.23dB
EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	-0.52dB
EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	-1.82dB
UMTS-FDD(WCDMA, AMR)	-25.43dB
UMTS-FDD (HSPA)	-20.75dB
LTE-FDD (SC-FDMA, 1RB, 20MHz, QPSK)	-15.63 dB
LTE-FDD (SC-FDMA, 1RB, 20MHz, 16QAM)	-9.76 dB
LTE-FDD (SC-FDMA, 1RB, 20MHz, 64QAM)	-9.93 dB
LTE-TDD (SC-FDMA, 1RB, 20MHz, QPSK)	-1.62 dB
LTE-TDD (SC-FDMA, 1RB, 20MHz, 16QAM)	-1.44 dB
LTE-TDD (SC-FDMA, 1RB, 20MHz, 64QAM)	-1.54 dB
LTE-TDD(SC-FDMA,1RB,20MHz,QPSK,UL Subframe=2,3,4,7,8,9)	-3.41 dB
LTE-TDD(SC-FDMA,1RB,20MHz,16QAM,UL Subframe=2,3,4,7,8,9)	-3.17 dB
LTE-TDD(SC-FDMA,1RB,20MHz,64QAM,UL Subframe=2,3,4,7,8,9)	-3.31 dB
IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	-5.90 dB
IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	-5.17 dB
IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	-3.37 dB

IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	-2.02 dB
IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	-0.36dB
IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	-15.80 dB
IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	-5.82 dB
IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	-12.23dB
5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	−15.06dB
5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	−12.18dB
5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	−12.26dB
5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	−12.08dB
5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	−12.20dB
5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	−14.39dB
5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	−14.47dB
5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	−14.33dB
5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	−14.46dB
5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	−14.35dB
5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	−14.32dB
5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	−14.32dB
5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	−14.55dB
5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	−14.45dB
5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	−14.47dB
5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	−14.43dB
5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	−14.38dB
5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	−15.06dB
5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	−15.06dB
5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	−15.06dB
5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	−15.06dB

10 Evaluation for low-power exemption

10.1 Product testing threshold

There are two methods for exempting an RF air interface technology from testing. The first method requires evaluation of the MIF for the worst-case operating mode. An RF air interface technology of a device is exempt from testing when its average antenna input power plus its MIF is≤17 dBm for any of its operating modes. The second method does not require determination of the MIF. The RF emissions testing exemption shall be applied to an RF air interface technology in a device whose peak antenna input power, averaged over intervals ≤50 μs20, is ≤23 dBm. An RF air interface technology that is exempted from testing by either method shall be rated as M4.

The first method is used to be exempt from testing for the RF air interface technology in this report.

10.2 Conducted power

Band	Average power (dBm)	MIF (dB)	Sum (dBm)	C63.19 Tested
WCDMA 850 - RMC	24	-25.43	-1.43	No
WCDMA 850 - HSPA	23.5	-20.75	2.75	No
WCDMA 1700 - RMC	24	-25.43	-1.43	No
WCDMA 1700 - HSPA	23.5	-20.75	2.75	No
WCDMA 1900 - RMC	24	-25.43	-1.43	No
WCDMA 1900 - HSPA	23.5	-20.75	2.75	No
LTE Band 7 QPSK	23	-15.63	7.37	No
LTE Band 12 QPSK	23	-15.63	7.37	No
LTE Band 13 QPSK	23	-15.63	7.37	No
LTE Band 14 QPSK	23	-15.63	7.37	No
LTE Band 25 QPSK	23	-15.63	7.37	No
LTE Band 26 QPSK	23	-15.63	7.37	No
LTE Band 30 QPSK	23	-15.63	7.37	No
LTE Band 66 QPSK	23	-15.63	7.37	No
LTE Band 71 QPSK	23	-15.63	7.37	No
LTE Band 41 QPSK PC2	26	-3.41	22.59	Yes
LTE Band 41 QPSK PC3	23	-3.41	19.59	Yes
LTE Band 48 QPSK	23	-3.41	19.59	Yes
LTE Band 42 QPSK	23	-3.41	19.59	Yes
LTE Band 43 QPSK	23	-3.41	19.59	Yes
NR n2	23	-12.08	10.92	No
NR n5	23	-12.08	10.92	No

NR n14	23	-12.08	10.92	No
NR n30	23	-12.08	10.92	No
NR n66	23	-12.08	10.92	No
NR n71	23	-12.08	10.92	No
NR n41 PC2	26	-12.08	13.92	No
NR n41 PC3	23	-12.08	10.92	No
NR n48	23	-12.08	10.92	No
NR n77 PC2	26	-12.08	13.92	No
NR n77 PC3	23	-12.08	10.92	No
NR n78	23	-12.08	10.92	No
WiFi-2.4G	19.5	-2.02	17.48	Yes
WiFi-5G	16	-5.82	10.18	No

10.3 Conclusion

According to the above table, the sums of average power and MIF for WCDMA, LTE FDD WIFI 5G and NR are less than 17dBm. So it is measured for LTE TDD bands and WIFI2.4G. The WCDMA, LTE FDD WiFi 5G and NR are exempt from testing and rated as M4.

11 RF TEST PROCEDUERES

The evaluation was performed with the following procedure:

1) Confirm 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. The gauge block can simplify this positioning.

3) Configure the WD normal operation for maximum rated RF output power, at the desired channel and other operating parameters (e.g., test mode), as intended for the test.

4) The center sub-grid shall centered on the center of the T-Coil mode axial measurement point or the acoustic output, as appropriate. Locate the field probe at the initial test position in the50 mm by 50 mm grid, which is contained in the measurement plane. If the field alignment method is used, align the probe for maximum field reception.

5) Record the reading.

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 field reading within the non-excluded sub-grids identified in Step 7)

9) Evaluate the MIF and add to the maximum steady-state rms field-strength reading to obtain the RF audio interference level..

10) Compare this RF audio interference level with the categories and record the resulting WD category rating.

12 Measurement Results (E-Field)

Frequency		Measured Value(dBV/m)	Power Drift (dB)	Category
MHz	Channel			
LTE Band 41 PC2 QPSK				
2680	41490	23.59	0.08	**M4**
2636.5	41055	23.75	0.02	**M4**
2593	40620	23.46	0.03	**M4**
2549.5	40185	24.24	0.07	**M4**(see Fig B.1)
2506	39750	23.97	0.02	**M4**
LTE Band 41 PC2 16QAM				
2680	41490	23.44	-0.10	**M4**
2636.5	41055	23.06	-0.01	**M4**
2593	40620	23.46	0.16	**M4**
2549.5	40185	23.59	-0.02	**M4**
2506	39750	22.95	0.05	**M4**
LTE Band 41 PC2 64QAM				
2680	41490	22.78	0.06	**M4**
2636.5	41055	23.03	0.03	**M4**
2593	40620	23.06	0.17	**M4**
2549.5	40185	22.24	0.15	**M4**
2506	39750	22.86	0.09	**M4**
LTE Band 41 PC3 QPSK				
2680	41490	20.26	0.20	**M4**
2636.5	41055	20.48	0.07	**M4**
2593	40620	21.39	0.06	**M4** (see Fig B.2)
2549.5	40185	21.16	0.05	**M4**
2506	39750	21.00	-0.08	**M4**
LTE Band 41 PC3 16QAM				
2680	41490	20.17	0.12	**M4**
2636.5	41055	20.06	0.06	**M4**
2593	40620	19.82	0.04	**M4**
2549.5	40185	20.14	0.06	**M4**
2506	39750	19.49	0.08	**M4**
LTE Band 41 PC3 64QAM				
2680	41490	19.07	0.24	**M4**
2636.5	41055	19.05	0.15	**M4**
2593	40620	18.94	0.04	**M4**
2549.5	40185	19.13	0.08	**M4**
2506	39750	18.54	0.07	**M4**
LTE Band48 QPSK				
3690	56640	23.31	0.05	**M4**(see Fig B.3)
3625	55990	22.53	-0.00	**M4**

3560	55340	21.02	0.10	**M4**
LTE Band48 16QAM				
3690	56640	22.61	0.06	**M4**
3625	55990	22.46	0.05	**M4**
3560	55340	22.39	0.01	**M4**
LTE Band48 64QAM				
3690	56640	21.60	0.01	**M4**
3625	55990	21.78	0.03	**M4**
3560	55340	21.84	0.07	**M4**
WiFi2.4G 11b				
2462	11	21.47	0.00	**M4**(see Fig B.4)
2437	6	21.45	0.02	**M4**
2412	1	21.25	0.03	**M4**
LTE Band42 QPSK				
3590	43490	18.82	0.11	**M4**
3525	42840	18.97	0.07	**M4**(see Fig B.5)
3460	42190	18.74	0.06	**M4**
LTE Band42 16QAM				
3590	43490	17.83	-0.06	**M4**
3525	42840	18.02	0.01	**M4**
3460	42190	17.52	0.11	**M4**
LTE Band42 64QAM				
3590	43490	16.74	0.03	**M4**
3525	42840	16.81	0.15	**M4**
3460	42190	16.59	-0.08	**M4**
LTE Band43 QPSK				
3640	43990	20.42	-0.17	**M4**
3625	43840	20.52	0.04	**M4**
3610	43690	20.61	0.05	**M4**(see Fig B.6)
LTE Band43 16QAM				
3640	43990	19.32	0.08	**M4**
3625	43840	19.71	0.15	**M4**
3610	43690	19.99	0.04	**M4**
LTE Band43 64QAM				
3640	43990	17.29	-0.07	**M4**
3625	43840	17.94	0.09	**M4**
3610	43690	18.20	0.03	**M4**

Note: For LTE Band 41, UL-DL Configuration 1 was used to evaluate Power Class 2 and UL-DL Configuration 1 was used to evaluate Power Class 3.

13 ANSIC 63.19-2011 LIMITS

WD RF audio interference level categories in logarithmic units

Emission categories	**< 960 MHz E-field emissions**	
Category M1	50 to 55	dB (V/m)
Category M2	45 to 50	dB (V/m)
Category M3	40 to 45	dB (V/m)
Category M4	< 40	dB (V/m)
Emission categories	**> 960 MHz E-field emissions**	
Category M1	40 to 45	dB (V/m)
Category M2	35 to 40	dB (V/m)
Category M3	30 to 35	dB (V/m)
Category M4	< 30	dB (V/m)

14 MEASUREMENT UNCERTAINTY

No.	Error source	Type	Uncertainty Value(%)	Prob. Dist.	k	c_iE	Standard Uncertainty (%) u_i (%)E	Degree of freedom V_{eff}or v_i
Measurement System								
1	Probe Calibration	B	5.	N	1	1	5.1	∞
2	Axial Isotropy	B	4.7	R	$\sqrt{3}$	1	2.7	∞
3	Sensor Displacement	B	16.5	R	$\sqrt{3}$	1	9.5	∞
4	Boundary Effects	B	2.4	R	$\sqrt{3}$	1	1.4	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
6	Scaling to Peak Envelope Power	B	2.0	R	$\sqrt{3}$	1	1.2	∞
7	System Detection Limit	B	1.0	R	$\sqrt{3}$	1	0.6	∞
8	Readout Electronics	B	0.3	N	1	1	0.3	∞
9	Response Time	B	0.8	R	$\sqrt{3}$	1	0.5	∞
10	Integration Time	B	2.6	R	$\sqrt{3}$	1	1.5	∞
11	RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.7	∞
12	RF Reflections	B	12.0	R	$\sqrt{3}$	1	6.9	∞
13	Probe Positioner	B	1.2	R	$\sqrt{3}$	1	0.7	∞
14	Probe Positioning	A	4.7	R	$\sqrt{3}$	1	2.7	∞
15	Extra. And Interpolation	B	1.0	R	$\sqrt{3}$	1	0.6	∞
Test Sample Related								
16	Device Positioning Vertical	B	4.7	R	$\sqrt{3}$	1	2.7	∞
17	Device Positioning Lateral	B	1.0	R	$\sqrt{3}$	1	0.6	∞
18	Device Holder and Phantom	B	2.4	R	$\sqrt{3}$	1	1.4	∞
19	Power Drift	B	5.0	R	$\sqrt{3}$	1	2.9	∞

20	AIA measurement	B	12	R	$\sqrt{3}$	1	6.9	∞
Phantom and Setup related								
21	Phantom Thickness	B	2.4	R	$\sqrt{3}$	1	1.4	∞
Combined standard uncertainty(%)							16.2	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N	k=2		32.4	

15 MAIN TEST INSTRUMENTS

Table 1: List of Main Instruments

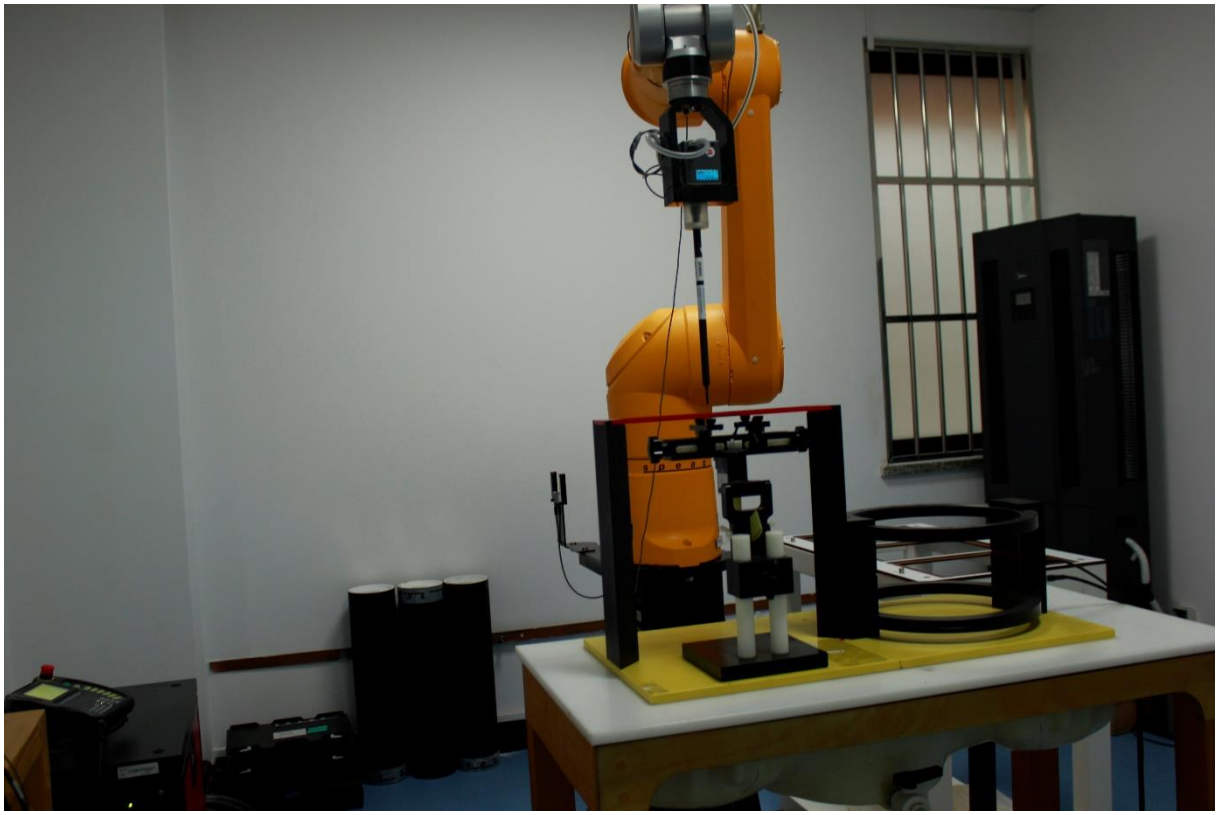
No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Signal Generator	E4483C	MY49071430	January 13, 2022	One Year
02	Power meter	NRP2	106277	September 24, 2021	One year
03	Power sensor	NRP8S	104291		
04	Power meter	NRP2	106276	May 10, 2022	One year
05	Power sensor	NRP6A	101369		
04	Amplifier	60S1G4	0331848	No Calibration Requested	
05	E-Field Probe	EF3DV3	4060	May 13, 2022	One year
06	DAE	SPEAG DAE4	1524	October 08, 2021	One year
06	DAE	SPEAG DAE4	1524	October 17, 2022	One year
09	HAC Dipole	CD2450V3	1021	August 24, 2021	One year
10	HAC Dipole	CD2600V3	1017	August 24, 2021	One year
11	HAC Dipole	CD3500V3	1008	August 24, 2021	One year
11	HAC Dipole	CD3500V3	1008	August 25, 2022	One year
12	BTS	CMW500	166370	June 28,2022	One year
13	AIA	SE UMS 170 CB	1029	No Calibration Requested	

16 CONCLUSION

The HAC measurement indicates that the EUT complies with the HAC limits of the ANSIC63.19-2011. The total M-rating is **M4.**

END OF REPORT BODY

ANNEX A TEST LAYOUT



Picture A1:HAC RF System Layout

ANNEX B TEST PLOTS

HAC RF E-Field LTEB41 PC2 QPSK

Date/Time: 2022-07-07
Electronics: DAE4 Sn1524
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Ambient Temperature:23.3°C Liquid Temperature: 22.5°C
Communication System: UID 0, 1LTEB41 Frequency: 2549.5MHz Duty Cycle: 1:1.58
Probe: EF3DV3 - SN4060

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3

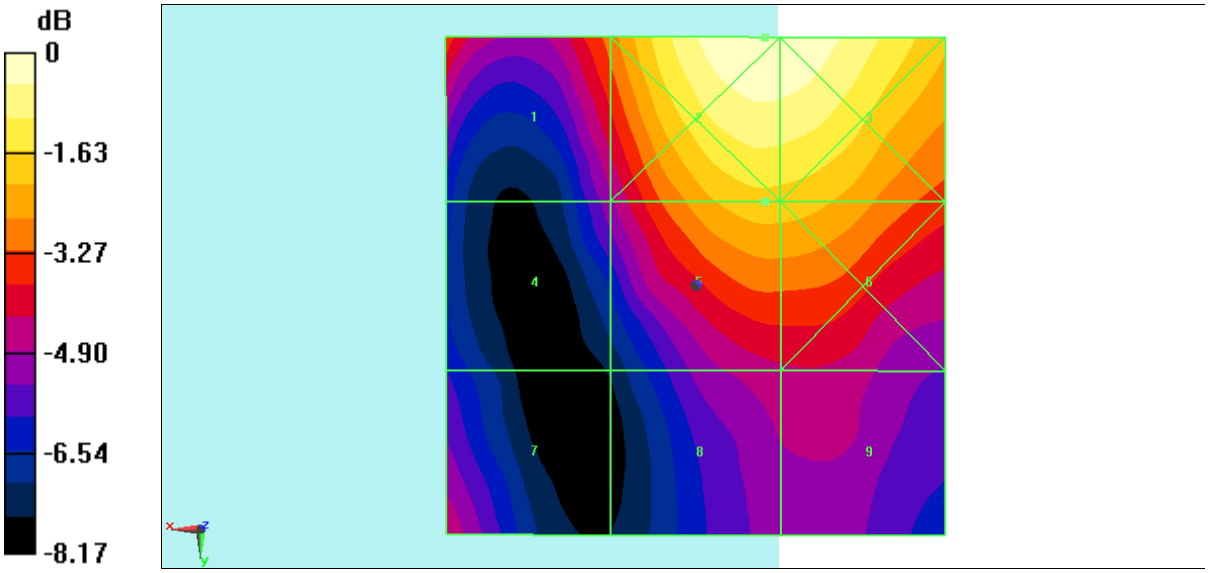
3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 19.43 V/m; Power Drift = 0.07 dB
Applied MIF = -1.69 dB
RF audio interference level = 24.24 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 23.09 dBV/m	Grid 2 M4 26.07 dBV/m	Grid 3 M4 26.04 dBV/m
Grid 4 M4 21.06 dBV/m	Grid 5 M4 24.24 dBV/m	Grid 6 M4 24.21 dBV/m
Grid 7 M4 21.76 dBV/m	Grid 8 M4 21.63 dBV/m	Grid 9 M4 21.69 dBV/m



0 dB = 20.12 V/m = 26.07 dBV/m

Fig B.1 HAC RF E-Field LTEB41 PC2 QPSK

HAC RF E-Field LTEB41 PC3 QPSK

Date: 2022-07-07

Electronics: DAE4 Sn1524

Medium: Air

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3

Ambient Temperature: 22.0°C

Communication System:LTEB41 ; Frequency: 2593 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 17.23 V/m; Power Drift = 0.06 dB

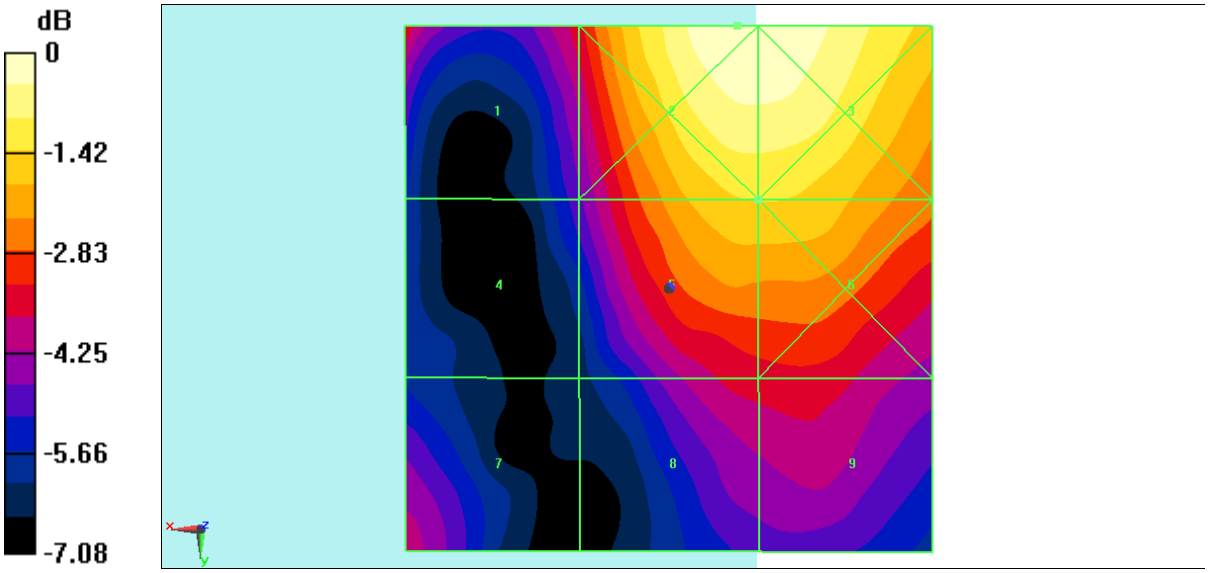
Applied MIF = -3.32 dB

RF audio interference level = 21.39 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 19.53 dBV/m	Grid 2 M4 22.77 dBV/m	Grid 3 M4 22.71 dBV/m
Grid 4 M4 17.97 dBV/m	Grid 5 M4 21.39 dBV/m	Grid 6 M4 21.39 dBV/m
Grid 7 M4 18.88 dBV/m	Grid 8 M4 19.27 dBV/m	Grid 9 M4 19.35 dBV/m



0 dB = 13.76 V/m = 22.77 dBV/m

Fig B.2 HAC RF E-Field LTEB41 PC3 QPSK

HAC RF E-Field LTE Band48 QPSK

Date: 2022-07-08

Electronics: DAE4 Sn1524

Medium: Air

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3

Ambient Temperature: 22.0°C

Communication System: LTE Band48; Frequency: 3690MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Interpolated

grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 26.29 V/m; Power Drift = 0.05 dB

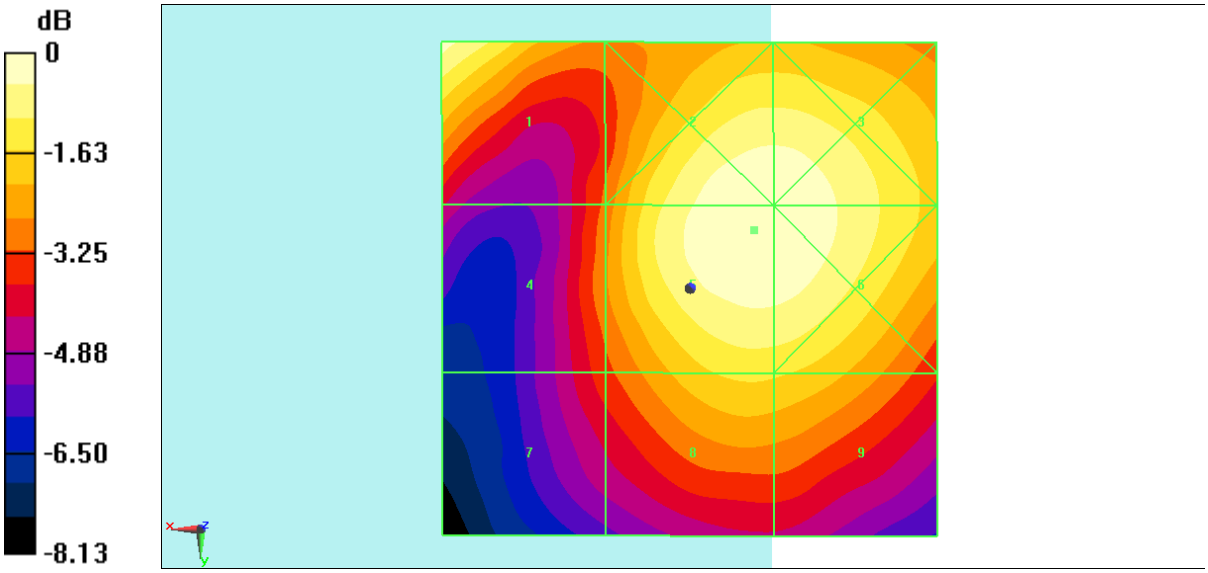
Applied MIF = -3.54 dB

RF audio interference level = 23.31 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 23.02 dBV/m	Grid 2 M4 23.28 dBV/m	Grid 3 M4 23.24 dBV/m
Grid 4 M4 20.54 dBV/m	Grid 5 M4 23.31 dBV/m	Grid 6 M4 23.27 dBV/m
Grid 7 M4 19.88 dBV/m	Grid 8 M4 21.84 dBV/m	Grid 9 M4 21.78 dBV/m



0 dB = 14.64 V/m = 23.31 dBV/m

Fig B.3 HAC RF E-Field LTE Band48 QPSK

HAC RF E-Field WIFI2.4G

Date: 2022-07-09

Electronics: DAE4 Sn1524

Medium: Air

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3

Ambient Temperature: 22.0°C

Communication System: WIFI2.4G; Frequency: 2462MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 35.16 V/m; Power Drift = 0.00 dB

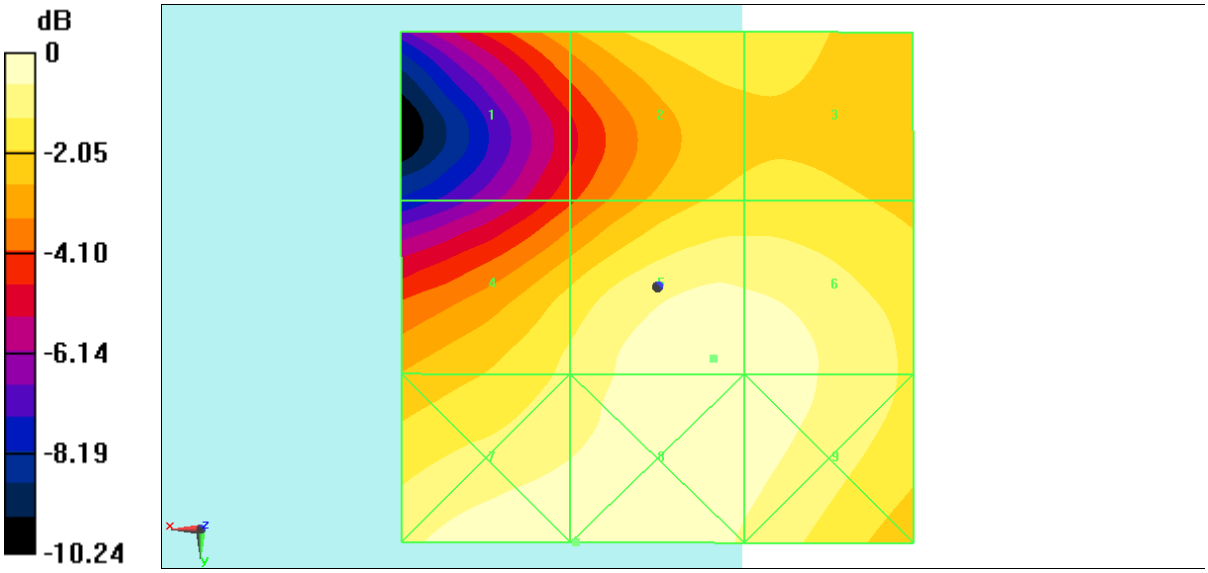
Applied MIF = -7.62 dB

RF audio interference level = 21.47 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 18.84 dBV/m	Grid 2 M4 20.15 dBV/m	Grid 3 M4 20.12 dBV/m
Grid 4 M4 20.49 dBV/m	Grid 5 M4 21.46 dBV/m	Grid 6 M4 21.41 dBV/m
Grid 7 M4 21.65 dBV/m	Grid 8 M4 21.65 dBV/m	Grid 9 M4 21.4 dBV/m



0 dB = 12.10 V/m = 21.66 dBV/m

Fig B.4 HAC RF E-Field WIFI2.4G

HAC RF E-Field LTE Band42 QPSK

Date: 2022-10-21

Electronics: DAE4 Sn1524

Medium: Air

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3

Ambient Temperature: 22.0°C

Communication System: LTE Band42; Frequency: 3525MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 11.73 V/m; Power Drift = 0.07 dB

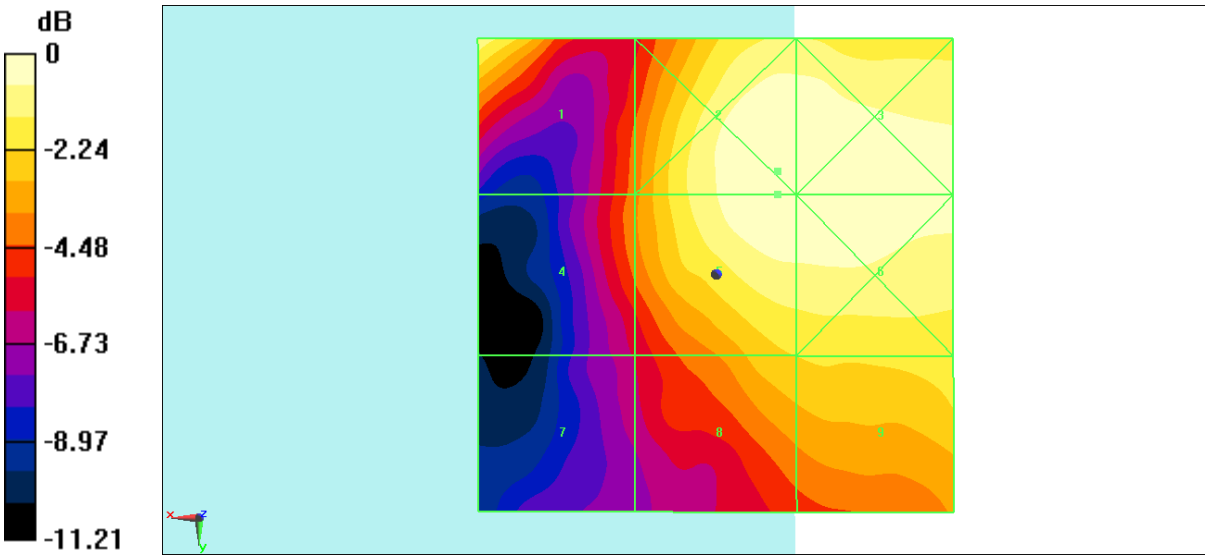
Applied MIF = -1.83 dB

RF audio interference level = 18.97 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 18.21 dBV/m	Grid 2 M4 19.03 dBV/m	Grid 3 M4 18.98 dBV/m
Grid 4 M4 15.19 dBV/m	Grid 5 M4 18.97 dBV/m	Grid 6 M4 18.92 dBV/m
Grid 7 M4 13.19 dBV/m	Grid 8 M4 16.8 dBV/m	Grid 9 M4 17.21 dBV/m



0 dB = 8.940 V/m = 19.03 dBV/m

Fig B.5 HAC RF E-Field LTE Band42 QPSK

HAC RF E-Field LTE Band43 QPSK

Date: 2022-10-21

Electronics: DAE4 Sn1524

Medium: Air

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3

Ambient Temperature: 22.0°C

Communication System: LTE Band43; Frequency: 3610MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 15.81 V/m; Power Drift = 0.05 dB

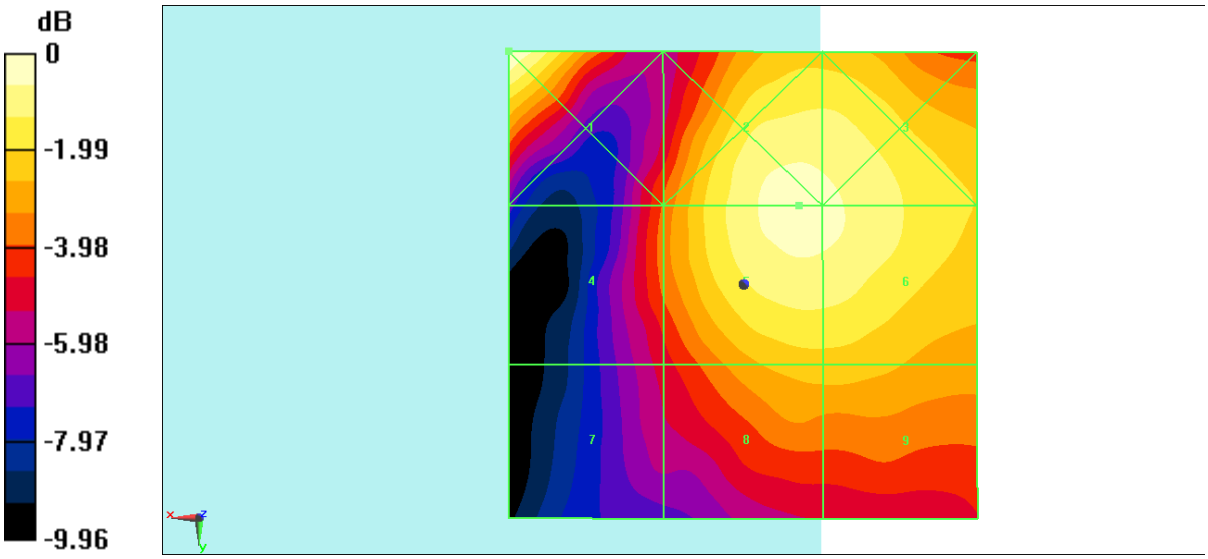
Applied MIF = -1.83 dB

RF audio interference level = 20.61 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 21 dBV/m	Grid 2 M4 20.62 dBV/m	Grid 3 M4 20.49 dBV/m
Grid 4 M4 17.38 dBV/m	Grid 5 M4 20.61 dBV/m	Grid 6 M4 20.5 dBV/m
Grid 7 M4 16.05 dBV/m	Grid 8 M4 18.73 dBV/m	Grid 9 M4 18.73 dBV/m



0 dB = 11.22 V/m = 21.00 dBV/m

Fig B.6 HAC RF E-Field LTE Band43 QPSK

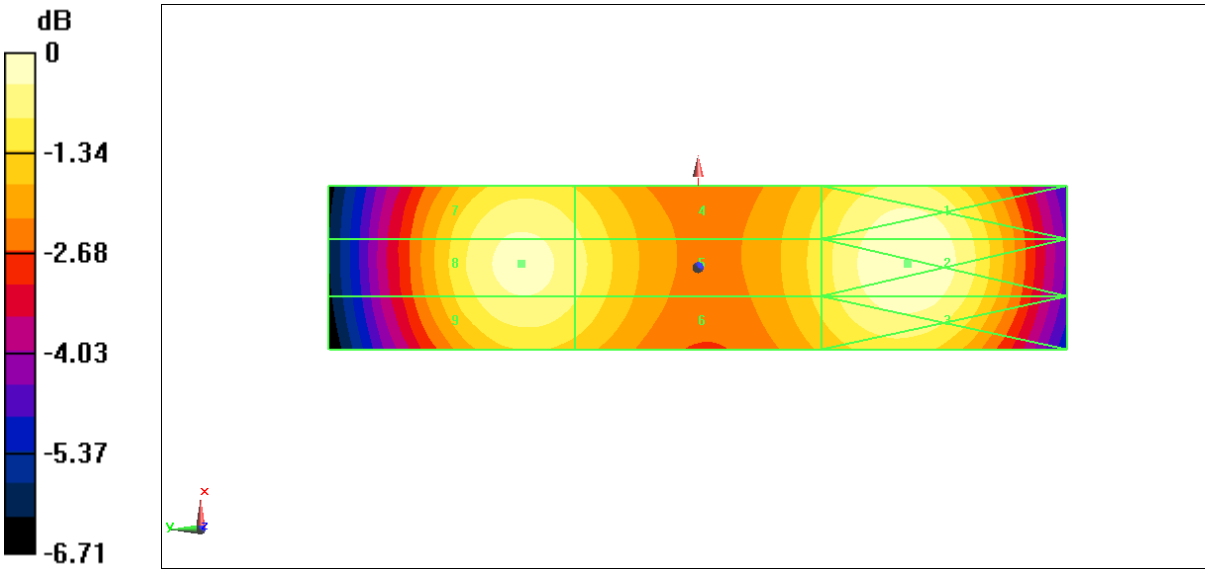
ANNEX C SYSTEM VALIDATION RESULT

E SCAN of Dipole 2450 MHz
Date: 2022-07-09
Electronics: DAE4 Sn1524
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Probe: EF3DV3 - SN4060

E Scan - measurement distance from the probe sensor center to CD2450 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x181x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 67.64 V/m; Power Drift = 0.04 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.41 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 **M2** **38.6 dBV/m**	Grid 2 **M2** **38.69 dBV/m**	Grid 3 **M2** **38.48 dBV/m**
Grid 4 **M2** **37.9 dBV/m**	Grid 5 **M2** **37.99 dBV/m**	Grid 6 **M2** **37.85 dBV/m**
Grid 7 **M2** **38.31 dBV/m**	Grid 8 **M2** **38.41 dBV/m**	Grid 9 **M2** **38.24 dBV/m**



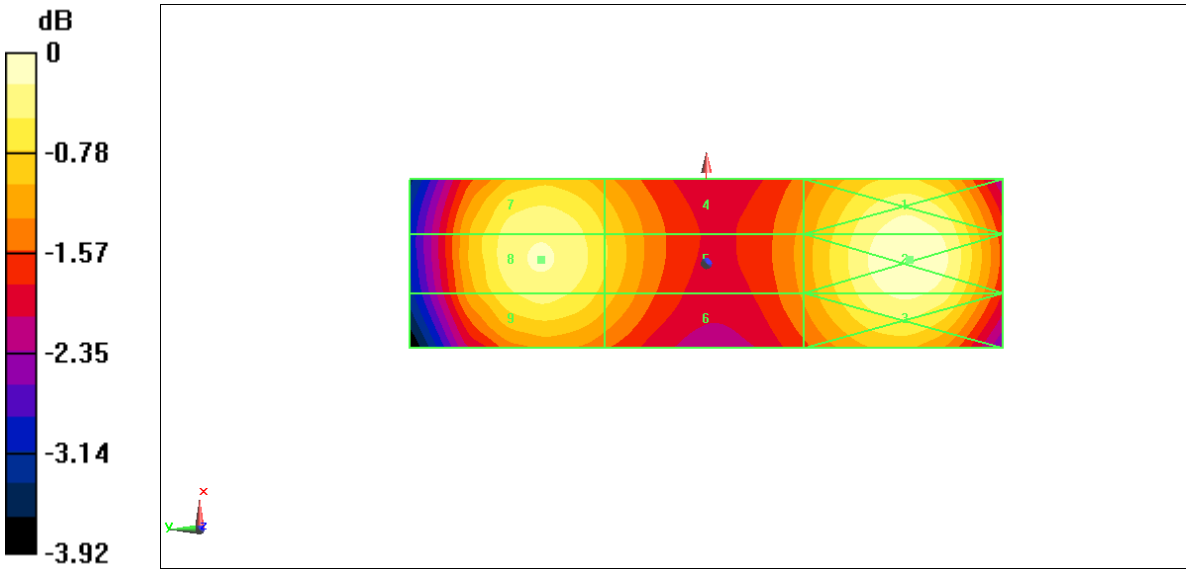
0 dB = 86.02 V/m = 38.69 dBV/m

E SCAN of Dipole 2600 MHz
Date: 2022-07-07
Electronics: DAE4 Sn1524
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Probe: EF3DV3 - SN4060

E Scan - measurement distance from the probe sensor center to CD2600 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x141x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 60.40 V/m; Power Drift = -0.06 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.31 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 **M2** **38.43 dBV/m**	Grid 2 **M2** **38.52 dBV/m**	Grid 3 **M2** **38.33 dBV/m**
Grid 4 **M2** **37.74 dBV/m**	Grid 5 **M2** **37.78 dBV/m**	Grid 6 **M2** **37.63 dBV/m**
Grid 7 **M2** **38.25 dBV/m**	Grid 8 **M2** **38.31 dBV/m**	Grid 9 **M2** **38.11 dBV/m**

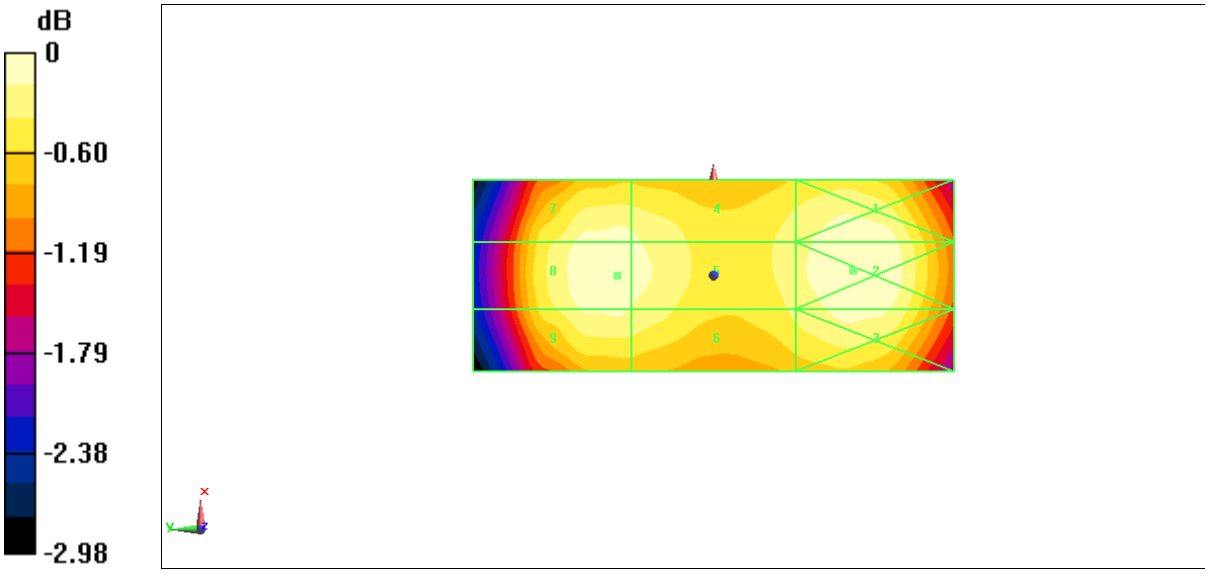


0 dB = 84.37 V/m = 38.52 dBV/m

E SCAN of Dipole 3500 MHz
Date: 2022-07-08
Electronics: DAE4 Sn1524
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Communication System: CW; Frequency: 3500 MHz; Duty Cycle: 1:1
Probe: EF3DV3 - SN4060
E Scan - measurement distance from the probe sensor center to CD3500 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 34.54 V/m; Power Drift = 0.05 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.19 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 **M2** **38.17 dBV/m**	Grid 2 **M2** **38.22 dBV/m**	Grid 3 **M2** **38.11 dBV/m**
Grid 4 **M2** **38.06 dBV/m**	Grid 5 **M2** **38.14 dBV/m**	Grid 6 **M2** **38.01 dBV/m**
Grid 7 **M2** **38.1 dBV/m**	Grid 8 **M2** **38.19 dBV/m**	Grid 9 **M2** **38.05 dBV/m**

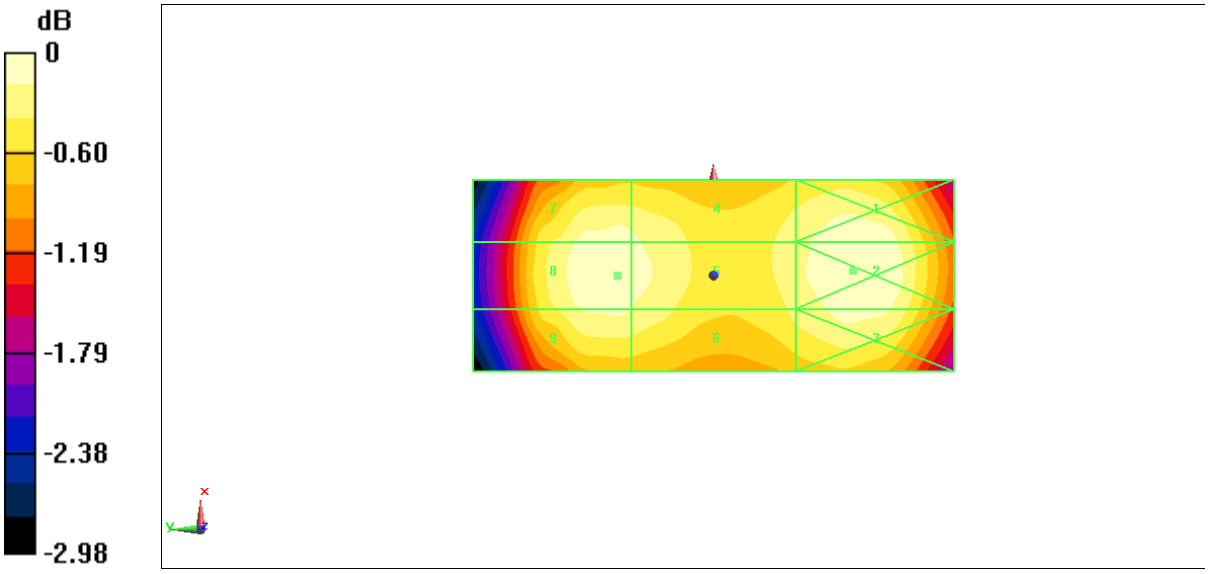


0 dB = 81.48 V/m = 38.22 dBV/m

E SCAN of Dipole 3500 MHz
Date: 2022-10-21
Electronics: DAE4 Sn1524
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Communication System: CW; Frequency: 3500 MHz; Duty Cycle: 1:1
Probe: EF3DV3 - SN4060
E Scan - measurement distance from the probe sensor center to CD3500 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 34.37 V/m; Power Drift = 0.05 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.12 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 **M2** **38.13 dBV/m**	Grid 2 **M2** **38.18 dBV/m**	Grid 3 **M2** **38.07 dBV/m**
Grid 4 **M2** **38 dBV/m**	Grid 5 **M2** **38.07 dBV/m**	Grid 6 **M2** **37.96 dBV/m**
Grid 7 **M2** **38.03 dBV/m**	Grid 8 **M2** **38.12 dBV/m**	Grid 9 **M2** **38 dBV/m**



0 dB = 81.06 V/m = 38.18 dBV/m

ANNEX D PROBE CALIBRATION CERTIFICATE

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client CTTL (Auden) **Certificate No: EF3-4060_May22**

CALIBRATION CERTIFICATE

Object: EF3DV3- SN:4060

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: May 13, 2022

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	04-Apr-22 (No. 217-03527)	Apr-23
DAE4	SN: 789	24-Dec-21 (No. DAE4-789_Dec21)	Dec-22
Reference Probe ER3DV6	SN: 2328	08-Oct-21 (No. ER3-2328_Oct21)	Oct-22
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-22

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Sven Kühn	Technical Manager	

Issued: May 13, 2022

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

Certificate No: EF3-4060_May22 Page 1 of 23

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

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Accreditation No.: SCS 0108

Glossary:

NORMx,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., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 for XY sensors and ϑ = 90 for Z sensor (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart).
- *DCPx,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
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *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 *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EF3DV3 - SN:4060

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)	0.80	0.74	1.29	± 10.1 %
DCP (mV)[B]	94.7	96.7	93.6	

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	77.3	0.2%	76.9	-0.3%	± 5.1 %
100	77.0	78.0	1.2%	77.9	1.1%	± 5.1 %
450	77.1	78.0	1.1%	78.0	1.2%	± 5.1 %
600	77.2	77.6	0.5%	77.6	0.6%	± 5.1 %
750	77.2	77.3	0.1%	77.2	0.1%	± 5.1 %
1800	143.1	139.7	-2.4%	139.7	-2.4%	± 5.1 %
2000	134.9	129.1	-4.3%	129.3	-4.1%	± 5.1 %
2200	127.7	124.4	-2.5%	125.4	-1.8%	± 5.1 %
2500	125.4	119.9	-4.4%	121.0	-3.5%	± 5.1 %
3000	79.0	75.6	-4.3%	76.7	-2.9%	± 5.1 %
3500	256.1	256.6	0.2%	253.2	-1.1%	± 5.1 %
3700	249.6	246.9	-1.1%	245.0	-1.8%	± 5.1 %
5200	50.8	50.7	-0.1%	51.0	0.4%	± 5.1 %
5500	49.6	48.7	-1.7%	47.4	-4.4%	± 5.1 %
5800	48.9	47.9	-2.0%	49.0	0.3%	± 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.

EF3DV3 – SN:4060 May 13, 2022

DASY/EASY - Parameters of Probe: EF3DV3 - SN:4060

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	128.5	± 2.5 %	± 4.7 %
		Y	0.00	0.00	1.00		161.6		
		Z	0.00	0.00	1.00		126.0		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	2.86	66.73	10.11	10.00	60.0	± 2.7 %	± 9.6 %
		Y	3.19	67.88	10.96		60.0		
		Z	2.92	66.86	10.24		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	1.64	64.88	8.36	6.99	80.0	± 1.1 %	± 9.6 %
		Y	1.94	66.74	9.54		80.0		
		Z	1.54	64.64	8.24		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.95	64.46	7.35	3.98	95.0	± 0.9 %	± 9.6 %
		Y	1.89	70.07	9.92		95.0		
		Z	0.67	62.65	6.36		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	20.00	83.48	12.24	2.22	120.0	± 0.9 %	± 9.6 %
		Y	20.00	88.16	14.35		120.0		
		Z	0.51	63.43	5.89		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	2.22	73.26	18.56	1.00	150.0	± 2.2 %	± 9.6 %
		Y	1.80	69.14	16.22		150.0		
		Z	1.87	70.42	16.69		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	2.71	72.48	18.53	0.00	150.0	± 1.0 %	± 9.6 %
		Y	2.34	69.47	16.72		150.0		
		Z	2.39	70.19	17.11		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.23	68.63	18.88	3.01	150.0	± 2.2 %	± 9.6 %
		Y	1.81	65.44	17.77		150.0		
		Z	2.18	68.07	18.09		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	3.72	68.50	16.96	0.00	150.0	± 1.1 %	± 9.6 %
		Y	3.49	67.25	16.05		150.0		
		Z	3.54	67.62	16.30		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.78	65.89	16.06	0.00	150.0	± 2.5 %	± 9.6 %
		Y	4.77	65.81	15.78		150.0		
		Z	4.63	65.46	15.68		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:4060

Sensor Frequency Model Parameters

	Sensor X	Sensor Y	Sensor Z
Frequency Corr. (LF)	0.11	0.19	4.60
Frequency Corr. (HF)	2.82	2.82	2.82

Sensor Model Parameters

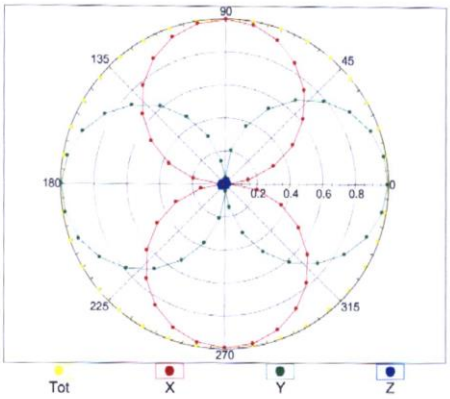
	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	38.6	259.37	38.06	6.78	0.04	4.96	0.19	0.13	1.00
Y	38.1	250.89	36.65	4.87	0.03	4.98	0.00	0.00	1.01
Z	35.7	239.69	37.83	4.44	0.04	4.97	0.47	0.08	1.00

Other Probe Parameters

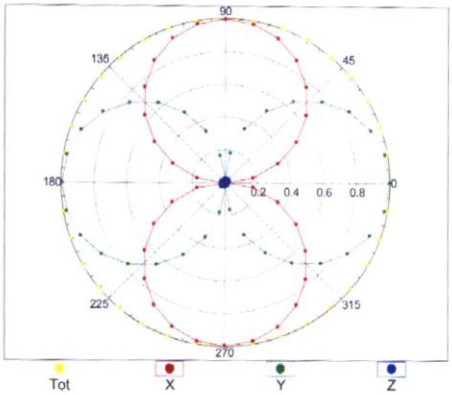
Sensor Arrangement	Rectangular
Connector Angle (°)	145.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	12 mm
Tip Length	25 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	1.5 mm
Probe Tip to Sensor Y Calibration Point	1.5 mm
Probe Tip to Sensor Z Calibration Point	1.5 mm

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM,0°

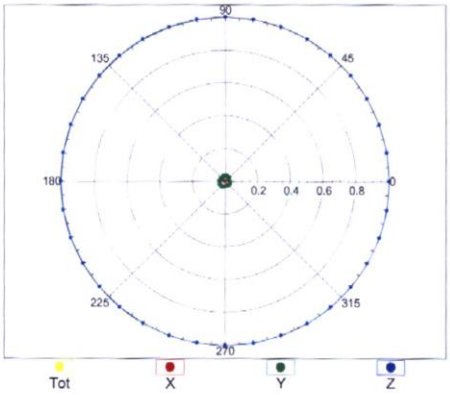


f=1800 MHz,R22,0°

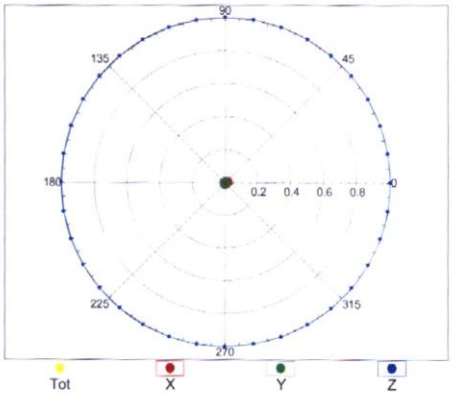


Receiving Pattern (ϕ), ϑ = 90°

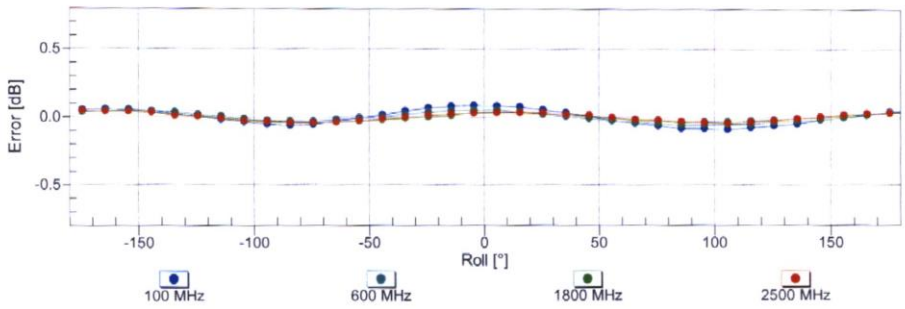
f=600 MHz,TEM,90°



f=1800 MHz,R22,90°

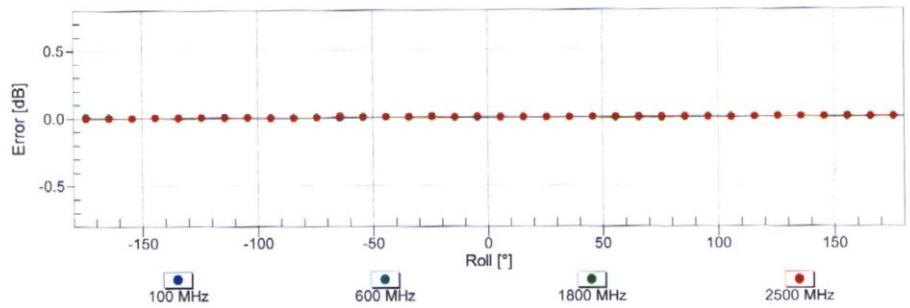


Receiving Pattern (ϕ), ϑ = 0°



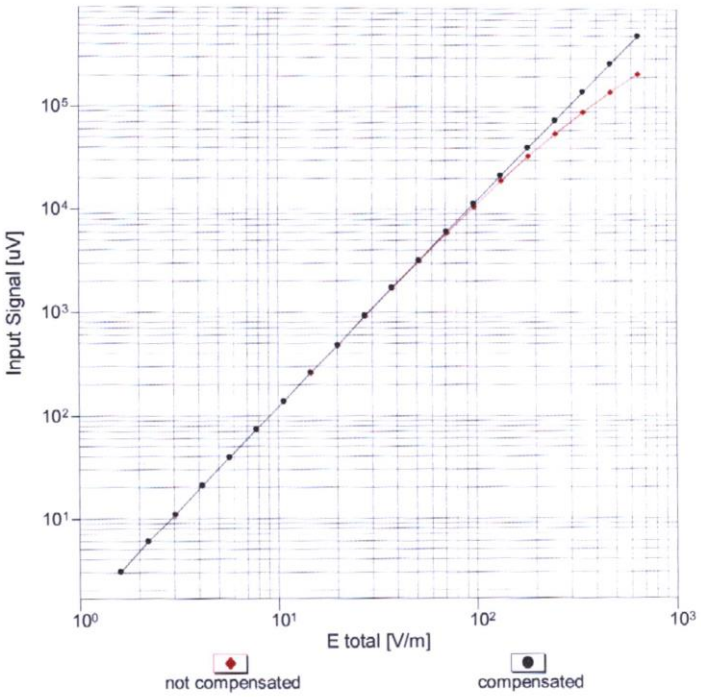
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

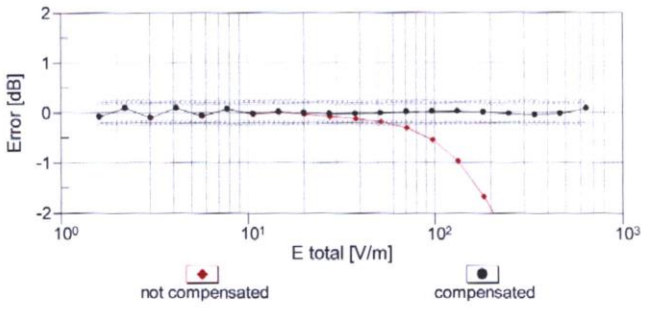
Receiving Pattern (ϕ), ϑ = 90°



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

Dynamic Range f(E-field)
(TEM cell, f = 900 MHz)

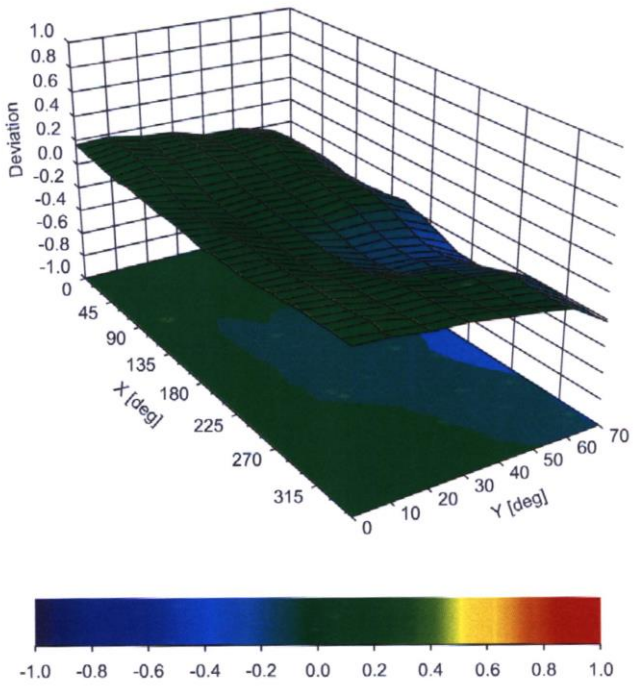




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Deviation from Isotropy in Air

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 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	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %

10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	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	CAD	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAD	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAD	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAD	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	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	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	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	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	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	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %

10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAD	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAD	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAD	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAD	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAD	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAD	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	CAD	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAD	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAD	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	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	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	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAB	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	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAD	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	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAG	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	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	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	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAB	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	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %

10261	CAD	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	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAG	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	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	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	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM,AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3	WiMAX	14.57	± 9.6 %
10311	AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAA	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAA	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAD	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	AAE	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAE	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAE	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	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %
10410	AAG	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	AAC	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	AAC	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAC	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAC	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAC	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAC	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %
10427	AAC	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAC	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	AAA	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAC	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	AAD	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	AAA	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAA	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAC	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	AAF	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	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %
10488	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %

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