

FCC SAR Test Report

Report No. : PSU-NQN2209220115SA02

Applicant : HMD Global Oy

Address : Bertel Jungin aukio 9,02600 Espoo,Finland

Manufacturer : HMD Global Oy

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Product : Tablet PC

FCC ID : 2AJOTTA-1462

Brand : NOKIA

Model No. : TA-1462

Standards : FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1992 / IEEE 1528:2013
KDB 865664 D01 v01r04 / KDB 865664 D02 v01r02 / KDB 248227 D01 v02r02
KDB 447498 D04 v01 / KDB 616217 D04 v01r02 / KDB 941225 D01 v03r01
KDB 941225 D05 v02r05 / KDB 941225 D06 v02r01

Sample Received Date : Sep. 07, 2022

Date of Testing : Sep. 21, 2022 ~ Sep. 24, 2022

FCC Designation No. : CN1325 **FCC Site Registration No.** : 434559

Issued By : Huarui 7layers High Technology (Suzhou) Co., Ltd.

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Anhui Province China

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Appendix B. SAR Plots of SAR Measurement

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Release Control Record

Report No.	Reason for Change	Date Issued
W7L-P22050002SA01	Initial release	Jun. 15, 2022
PSU-NQN2209220115SA02	Based on the original report W7L-P22050002SA01 change WIFI antenna. The WWAN antenna worse cases of original report was verified, the WIFI antenna was full test.	Sep. 28, 2022

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported Body SAR _{1g} (W/kg)
PCB	GSM850	1.15
	GSM1900	1.17
	WCDMA II	1.13
	WCDMA IV	1.14
	WCDMA V	1.16
	LTE 2	1.18
	LTE 5	1.12
	LTE 7	1.14
	LTE 66 / 4	1.19
DTS	2.4G WLAN	0.67
NII	5.2G WLAN	N/A
	5.3G WLAN	0.48
	5.6G WLAN	0.30
	5.8G WLAN	0.37
DSS	Bluetooth	0.26
Highest Simultaneous Transmission SAR		1.16

Note:

- The SAR limit (**Head & Body: SAR_{1g} 1.6 W/kg, Extremity: SAR_{10g} 4.0 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.

2. Description of Equipment Under Test

EUT Type	Tablet PC
FCC ID	2AJOTTA-1462
Brand Name	NOKIA
Model Name	TA-1462
HW Version	V0.2
SW Version	00WW_0_190
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 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 66 : 1710.7 ~ 1799.3 WLAN : 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5720, 5745 ~ 5825 Bluetooth : 2402 ~ 2480
Uplink Modulations	GSM & GPRS & EDGE : GMSK, 8PSK WCDMA : BPSK, QPSK LTE : QPSK, 16QAM 802.11b : DSSS 802.11a/g/n/ac : OFDM Bluetooth : GFSK, $\pi/4$ -DQPSK, 8-DPSK
Maximum Tune-up Conducted Power (Unit: dBm)	Please refer to section 4.5.1 of this report.
Antenna Type	WWAN: PIFA Antenna WLAN/BT: Monopole Antenna
EUT Stage	Identical Prototype

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.
- This device supports both LTE B4 and B66. Since the supported frequency span for LTE B4 falls completely within the LTE B66, they have the same target power, and share the same transmission path, therefore SAR was only assessed for LTE B66.
- For WWAN and WLAN, when the p-sensor is detect close to the body state, power reduction will be activated to limit the maximum power. Proximity sensor triggering distances please refer to section 4.1 in this report.
- According to the product equivalence statement provided by the manufacturer, sample 1/2 the only difference is the LCD. Therefore, sample 1 was full test, sample 2 verify the worst case.

List of Accessory:

LCD 1	Manufacturer	China display Optoelectronics Technology (Huizhou) Company Limited
	Brand Name	Huaxian
	Model Name	8019-3
	Spec.	LCD, 8", 800 * 1280, Add-on, α -Si, Non-airgap, A3
LCD 2	Manufacturer	CHONG QIAN COE DISPLAY TECHNOLOGY CO., LTD.
	Brand Name	COE
	Model Name	T080ET011-HD1-QT
	Spec.	LCD, 8", 800 * 1280

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2 SPEAG DASY System

DASY 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 DASY5 software defined. The DASY 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 from the optical into digital electric signal of the DAE and transfers data to the PC.

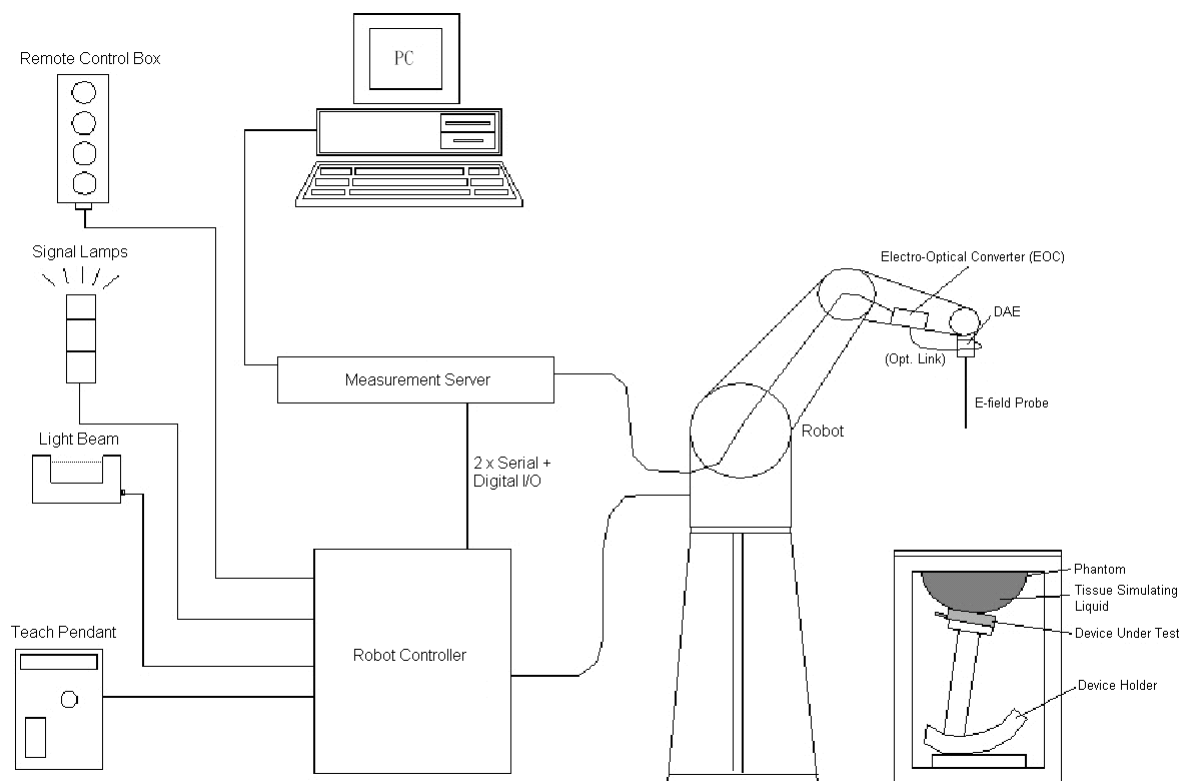


Fig-3.1 DASY System Setup

3.2.1 Robot

The DASY system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: 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

3.2.2 Probes

The SAR measurement is conducted with the dosimetric probe. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

Model	EX3DV4	
Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 μ W/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

Model	ES3DV3	
Construction	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
Frequency	10 MHz to 4 GHz Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	5 μ W/g to 100 mW/g 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: 2.0 mm	

3.2.3 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	$< 5\mu$ V (with auto zero)	
Input Bias Current	< 50 fA	
Dimensions	60 x 60 x 68 mm	

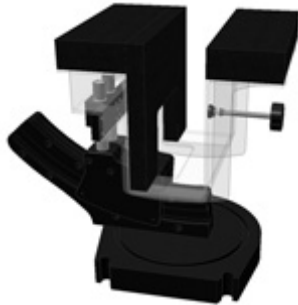
3.2.4 Phantoms

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	

Model	ELI	
Construction	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	

3.2.5 Device Holder

Model	Mounting Device	
Construction	In combination with the Twin SAM Phantom or ELI4, 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 IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	POM	

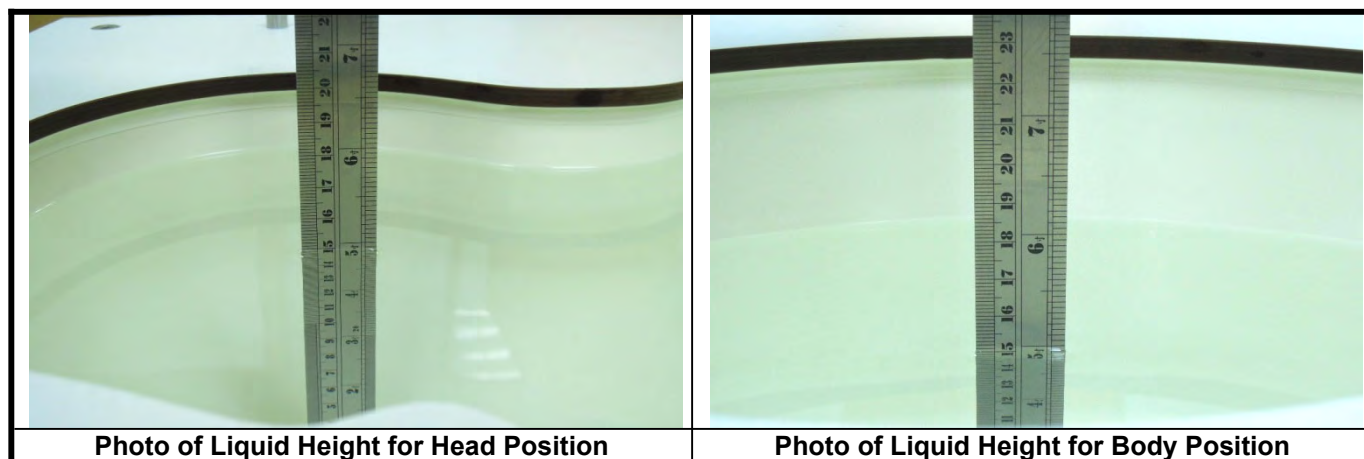
Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.	
Material	POM, Acrylic glass, Foam	

3.2.6 System Validation Dipoles

Model	D-Serial	
Construction	Symmetrical dipole with 1/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.	
Frequency	750 MHz to 5800 MHz	
Return Loss	> 20 dB	
Power Capability	> 100 W (f < 1GHz), > 40 W (f > 1GHz)	

3.2.7 Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in Table-3.1.



The dielectric properties of the head tissue simulating liquids are defined in IEEE 1528, and KDB 865664 D01 Appendix A. For the body tissue simulating liquids, the dielectric properties are defined in KDB 865664 D01 Appendix A. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

Table-3.1 Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of $\pm 5\%$	Target Conductivity	Range of $\pm 5\%$
For Head				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
3500	37.9	36.0 ~ 39.8	2.91	2.76 ~ 3.06
5200	36.0	34.2 ~ 37.8	4.66	4.43 ~ 4.89
5300	35.9	34.1 ~ 37.7	4.76	4.52 ~ 5.00
5500	35.6	33.8 ~ 37.4	4.96	4.71 ~ 5.21
5600	35.5	33.7 ~ 37.3	5.07	4.82 ~ 5.32
5800	35.3	33.5 ~ 37.1	5.27	5.01 ~ 5.53

The following table gives the recipes for tissue simulating liquids.

Table-3.2 Recipes of Tissue Simulating Liquid

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5G	-	-	-	-	-	17.2	65.5	17.3

3.3 SAR System Verification

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

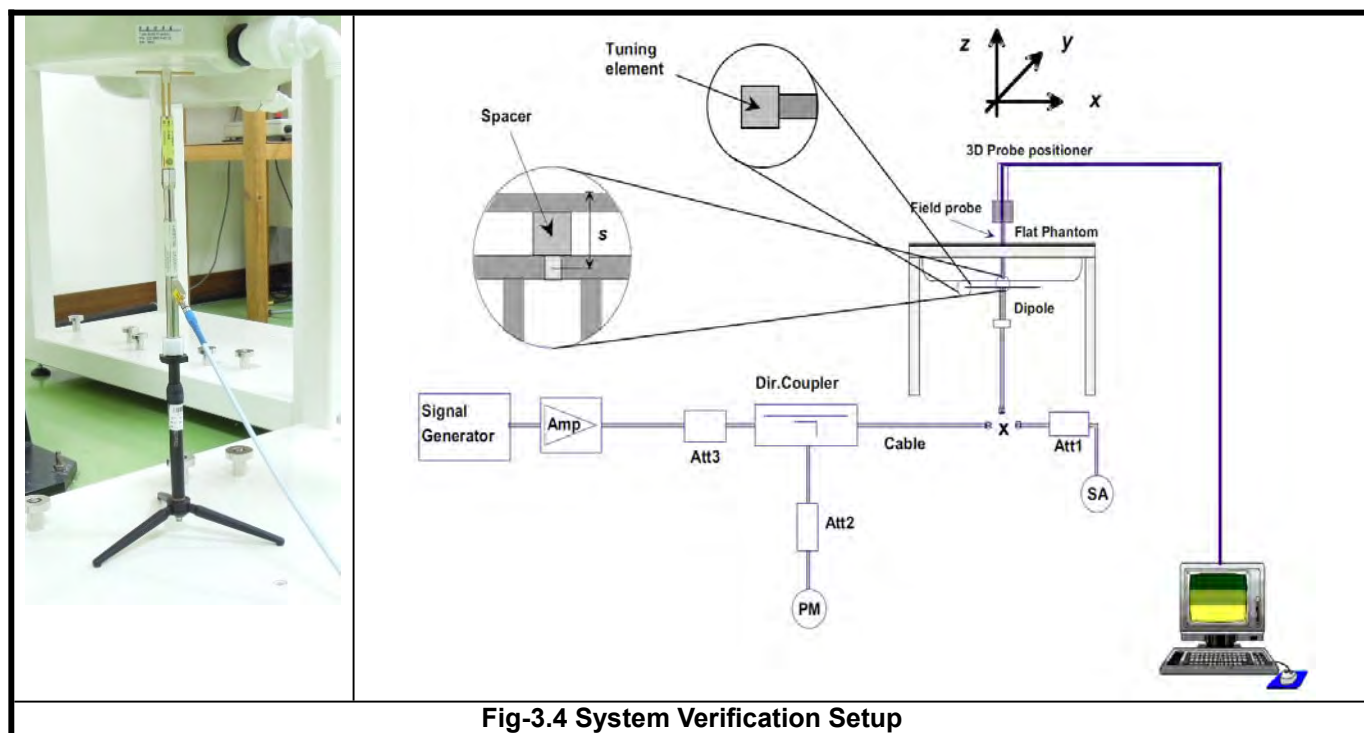


Fig-3.4 System Verification Setup

The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The spectrum analyzer measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter.

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

3.4 SAR Measurement Procedure

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Area scan
- Zoom scan
- Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

- Make EUT to transmit maximum output power
- Measure conducted output power through RF cable
- Place the EUT in the specific position of phantom
- Perform SAR testing steps on the DASY system
- Record the SAR value

3.4.1 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. According to KDB 865664 D01, the resolution for Area and Zoom scan is specified in the table below.

Items	<= 2 GHz	2-3 GHz	3-4 GHz	4-5 GHz	5-6 GHz
Area Scan ($\Delta x, \Delta y$)	<= 15 mm	<= 12 mm	<= 12 mm	<= 10 mm	<= 10 mm
Zoom Scan ($\Delta x, \Delta y$)	<= 8 mm	<= 5 mm	<= 5 mm	<= 4 mm	<= 4 mm
Zoom Scan (Δz)	<= 5 mm	<= 5 mm	<= 4 mm	<= 3 mm	<= 2 mm
Zoom Scan Volume	>= 30 mm	>= 30 mm	>= 28 mm	>= 25 mm	>= 22 mm

Note:

When zoom scan is required and report SAR is <= 1.4 W/kg, the zoom scan resolution of $\Delta x / \Delta y$ (2-3GHz: <= 8 mm, 3-4GHz: <= 7 mm, 4-6GHz: <= 5 mm) may be applied.

3.4.2 Volume Scan Procedure

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

3.4.3 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

3.4.4 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

3.4.5 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

4. SAR Measurement Evaluation

4.1 EUT Configuration and Setting

<Connections between EUT and System Simulator>

For WWAN SAR testing, the EUT was linked and controlled by base station emulator (CMW500 is used for GSM/WCDMA/and LTE). 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 SAR testing.

< Proximity Sensor Triggering Distances >

The proximity sensor triggering distance was determined per KDB 616217 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering than that for 5700MHz, and the tissue-equivalent medium for 5700MHz was used for formal proximity sensor triggering testing.

Summary for power verification per distance was tabulated in the below table.

WWAN Antenna

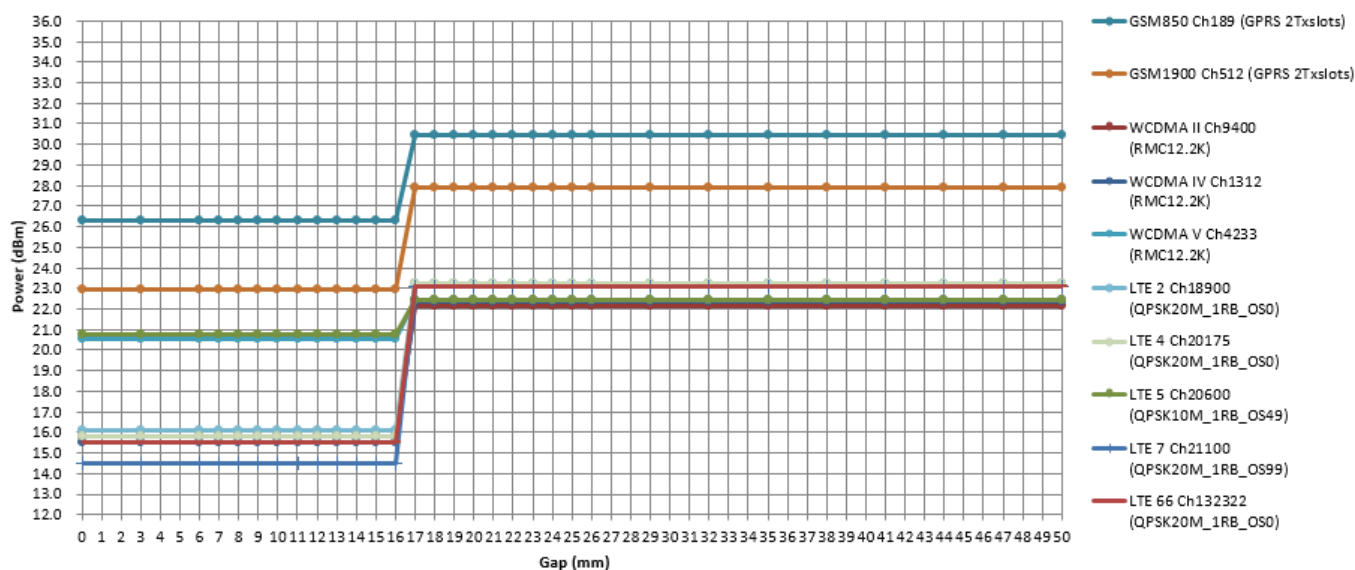
Output Power Verification in dBm for EUT Rear Face (moving toward phantom)											
Distance (mm)	10	11	12	13	14	15	16	17	18	19	20
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07



Output Power Verification in dBm for EUT Rear Face (moving away phantom)

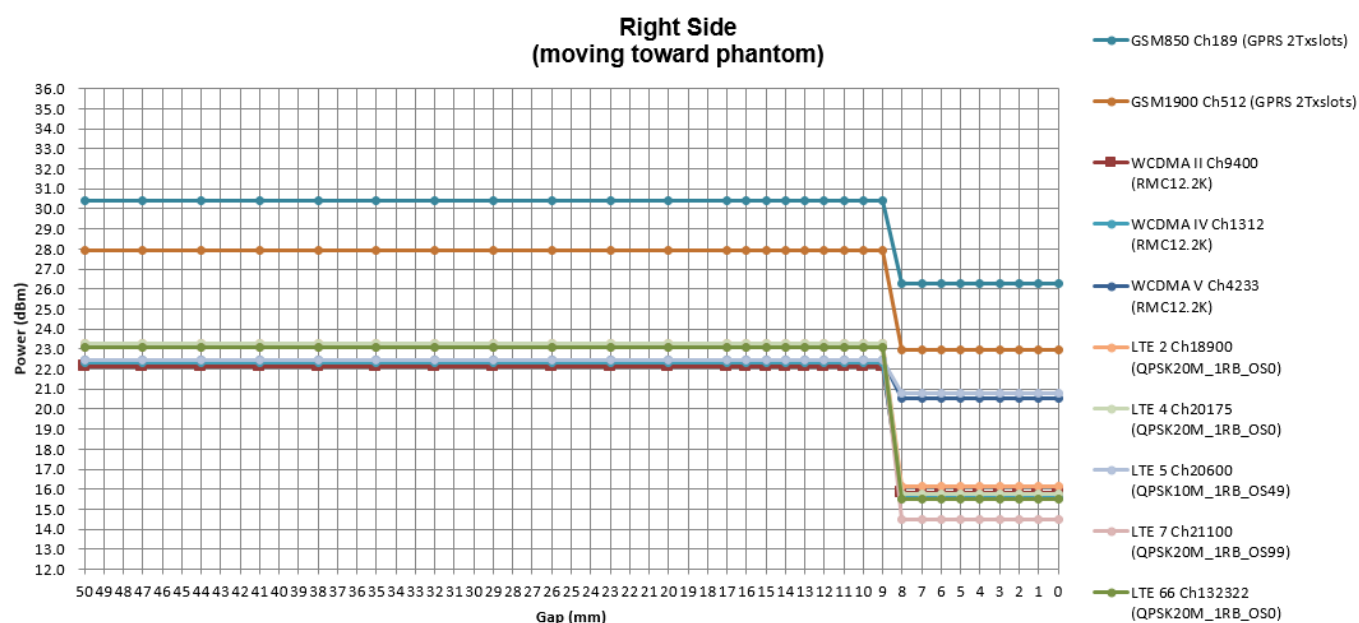
Distance (mm)	11	12	13	14	16	17	18	19	20	21	22
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07

Rear Face (moving away phantom)



FCC SAR Test Report

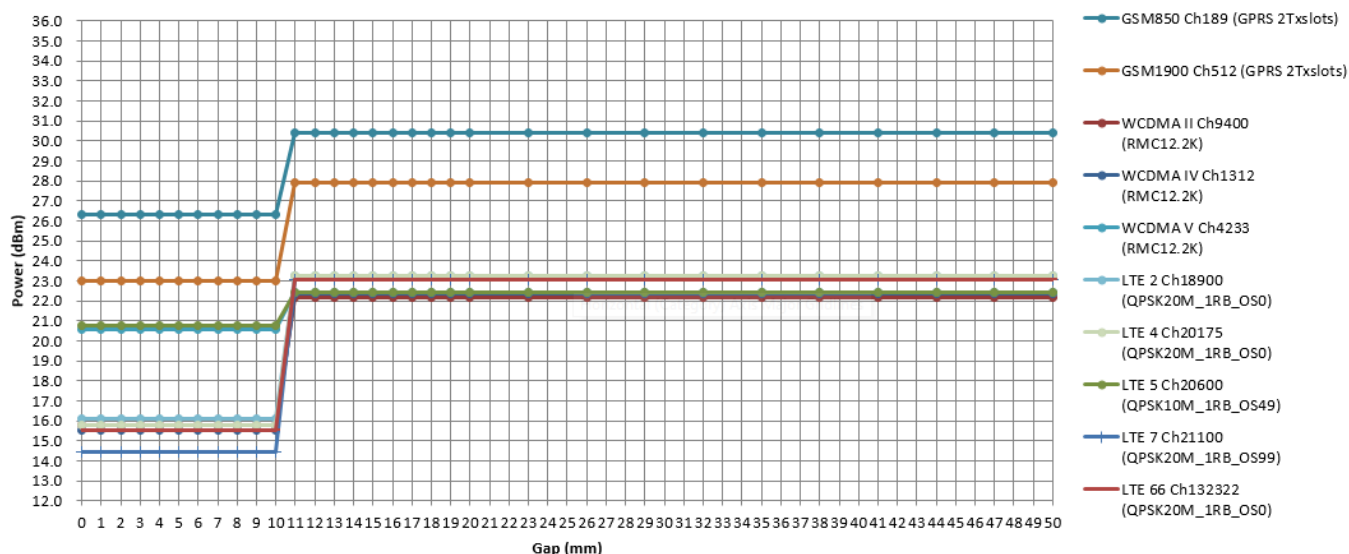
Output Power Verification in dBm for EUT Right Side (moving toward phantom)											
Distance (mm)	4	5	6	7	8	9	10	11	12	13	14
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07



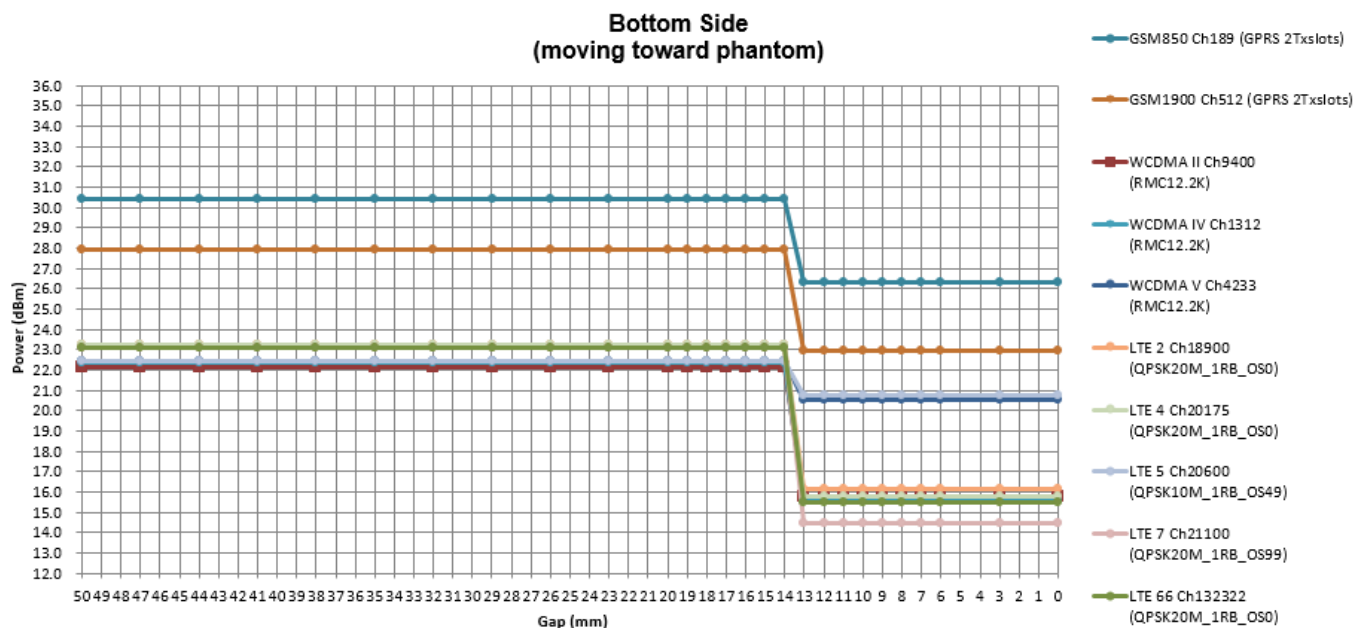
Output Power Verification in dBm for EUT Right Side (moving away phantom)

Distance (mm)	6	7	8	9	10	11	12	13	14	15	16
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07

Right Side (moving away phantom)

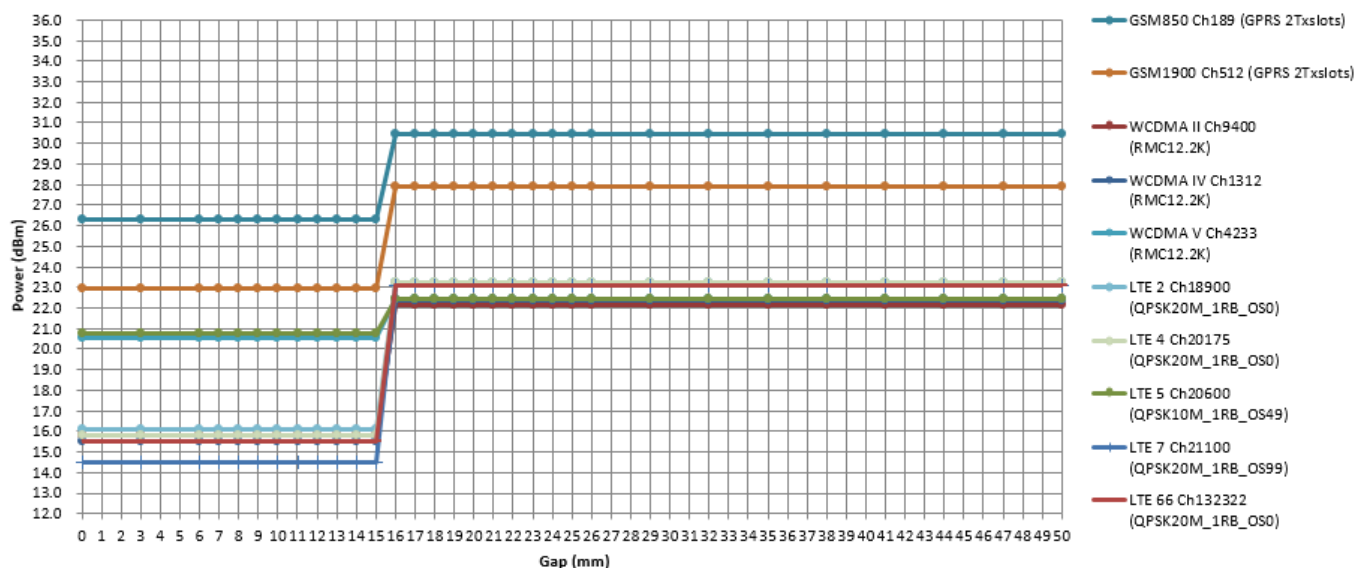


Output Power Verification in dBm for EUT Bottom Side (moving toward phantom)											
Distance (mm)	9	10	11	12	13	14	15	16	17	18	19
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07



Output Power Verification in dBm for EUT Bottom Side (moving away phantom)											
Distance (mm)	11	12	13	14	15	16	17	18	19	20	21
GSM850 Ch189 (GPRS 2Txslots)	26.30	26.30	26.30	26.30	26.30	30.43	30.43	30.43	30.43	30.43	30.43
GSM1900 Ch512 (GPRS 2Txslots)	22.98	22.98	22.98	22.98	22.98	27.94	27.94	27.94	27.94	27.94	27.94
WCDMA II Ch9400 (RMC12.2K)	15.81	15.81	15.81	15.81	15.81	22.14	22.14	22.14	22.14	22.14	22.14
WCDMA IV Ch1312 (RMC12.2K)	15.55	15.55	15.55	15.55	15.55	22.34	22.34	22.34	22.34	22.34	22.34
WCDMA V Ch4233 (RMC12.2K)	20.55	20.55	20.55	20.55	20.55	22.45	22.45	22.45	22.45	22.45	22.45
LTE 2 Ch18900 (QPSK20M_1RB_OS0)	16.13	16.13	16.13	16.13	16.13	23.27	23.27	23.27	23.27	23.27	23.27
LTE 4 Ch20175 (QPSK20M_1RB_OS0)	15.78	15.78	15.78	15.78	15.78	23.27	23.27	23.27	23.27	23.27	23.27
LTE 5 Ch20600 (QPSK10M_1RB_OS49)	20.77	20.77	20.77	20.77	20.77	22.43	22.43	22.43	22.43	22.43	22.43
LTE 7 Ch21100 (QPSK20M_1RB_OS99)	14.47	14.47	14.47	14.47	14.47	23.09	23.09	23.09	23.09	23.09	23.09
LTE 66 Ch132322 (QPSK20M_1RB_OS0)	15.53	15.53	15.53	15.53	15.53	23.07	23.07	23.07	23.07	23.07	23.07

Bottom Side (moving away phantom)

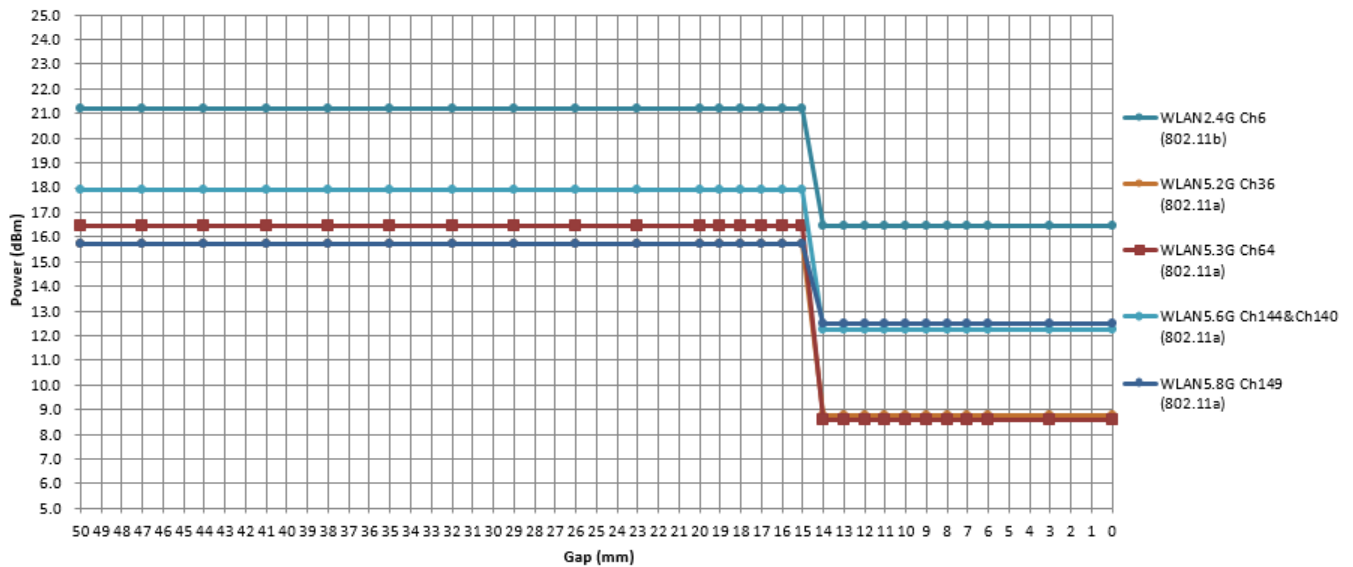


WLAN Antenna

Output Power Verification in dBm for EUT Rear Face (moving toward phantom)											
Distance (mm)	10	11	12	13	14	15	16	17	18	19	20
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72



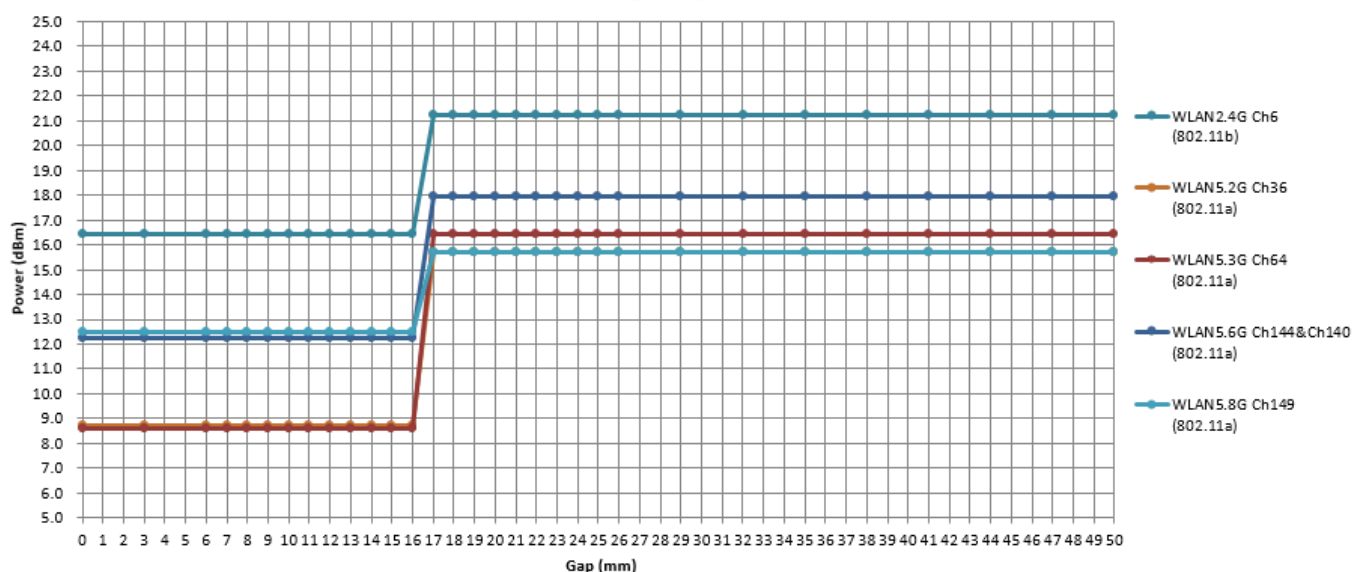
Rear Face (moving toward phantom)



FCC SAR Test Report

Output Power Verification in dBm for EUT Rear Face (moving away phantom)											
Distance (mm)	11	12	13	14	16	17	18	19	20	21	22
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72

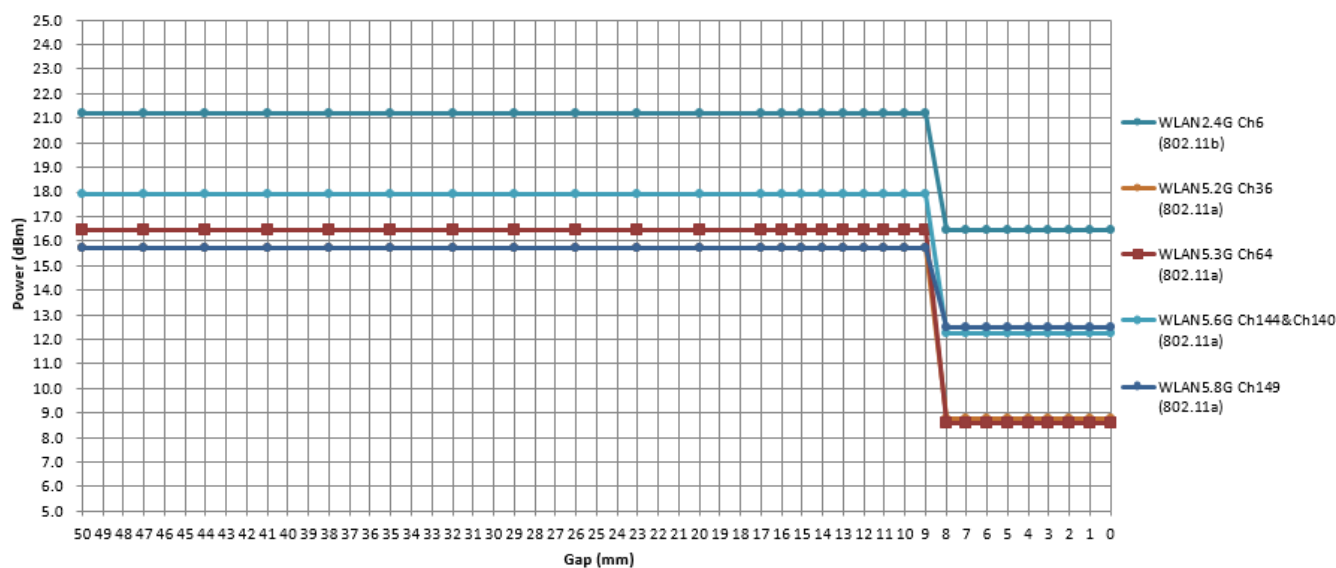
Rear Face
(moving away phantom)



FCC SAR Test Report

Output Power Verification in dBm for EUT Left Side (moving toward phantom)											
Distance (mm)	4	5	6	7	8	9	10	11	12	13	14
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72

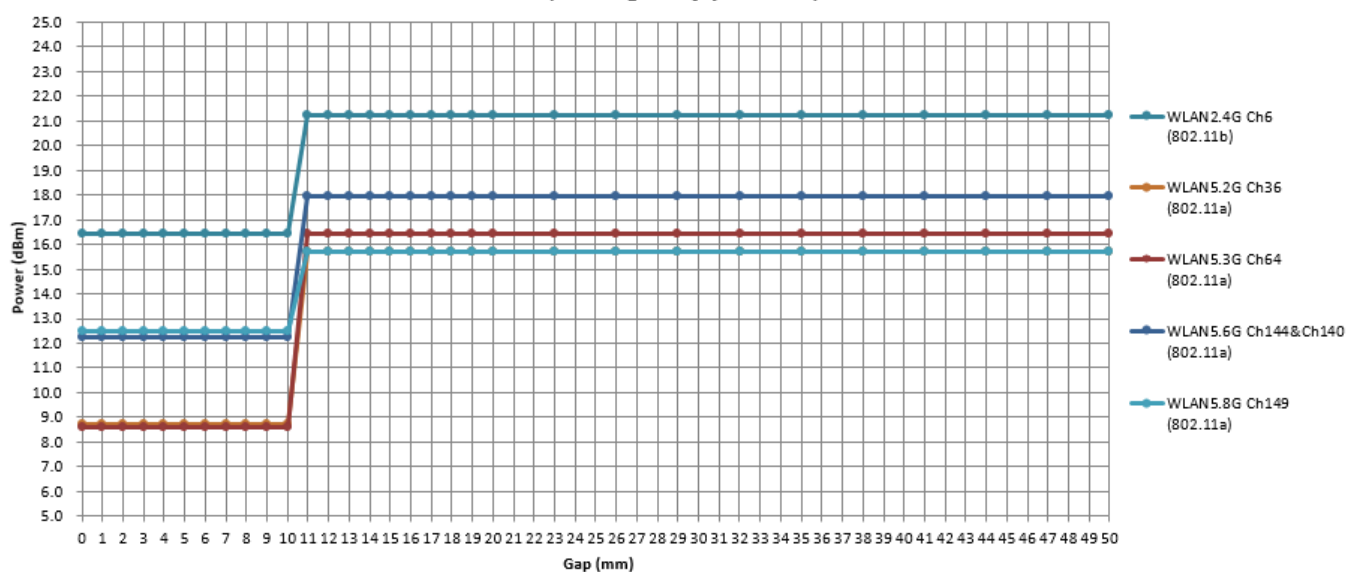
Left Side
(moving toward phantom)



FCC SAR Test Report

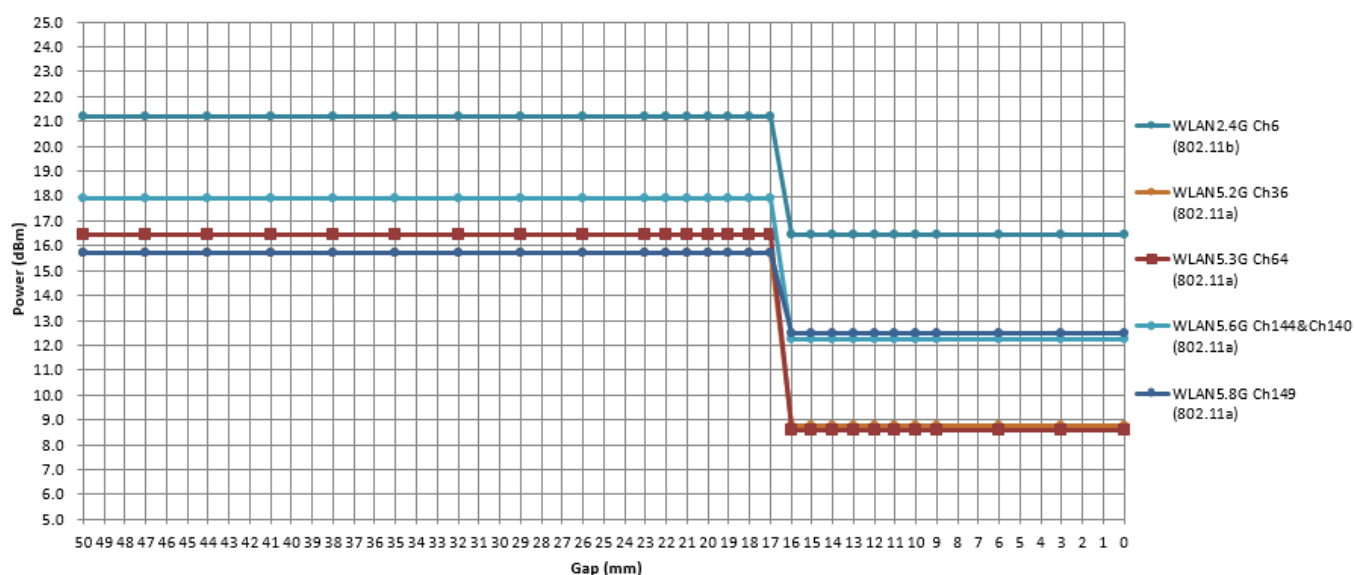
Output Power Verification in dBm for EUT Left Side (moving away phantom)											
Distance (mm)	6	7	8	9	10	11	12	13	14	15	16
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72

Left Side
(moving away phantom)



Output Power Verification in dBm for EUT Top Side (moving toward phantom)											
Distance (mm)	12	13	14	15	16	17	18	19	20	21	22
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72

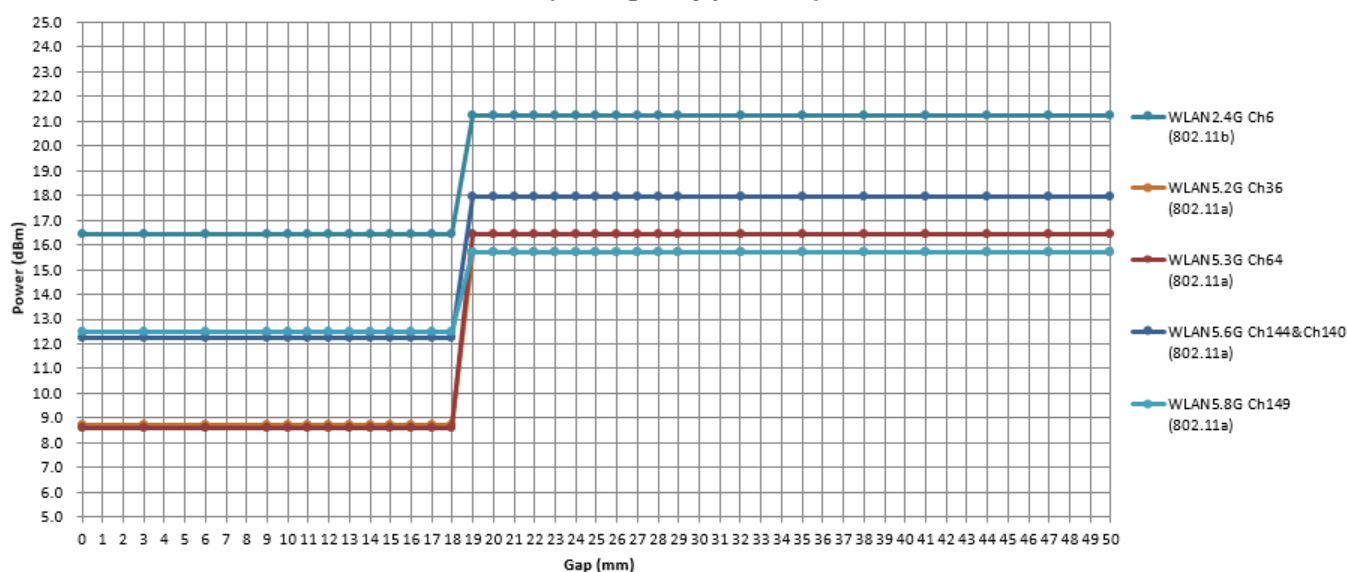
Top Side
(moving toward phantom)



**Output Power Verification in dBm for EUT Top Side
(moving away phantom)**

Distance (mm)	14	15	16	17	18	19	20	21	22	23	24
WLAN2.4G Ch6 (802.11b)	16.44	16.44	16.44	16.44	16.44	21.22	21.22	21.22	21.22	21.22	21.22
WLAN5.2G Ch36 (802.11a)	8.75	8.75	8.75	8.75	8.75	15.72	15.72	15.72	15.72	15.72	15.72
WLAN5.3G Ch64 (802.11a)	8.59	8.59	8.59	8.59	8.59	16.42	16.42	16.42	16.42	16.42	16.42
WLAN5.6G Ch144&Ch140 (802.11a)	12.25	12.25	12.25	12.25	12.25	17.92	17.92	17.92	17.92	17.92	17.92
WLAN5.8G Ch149 (802.11a)	12.46	12.46	12.46	12.46	12.46	15.72	15.72	15.72	15.72	15.72	15.72

**Top Side
(moving away phantom)**



Proximity Sensor Coverage (KDB 616217 D04 §6.3)

Since the proximity sensor is collocated with antenna in one component, the procedure for proximity sensor coverage is not required.

Proximity Sensor Tilt Angle Influences(KDB 616217 D04 §6.4)

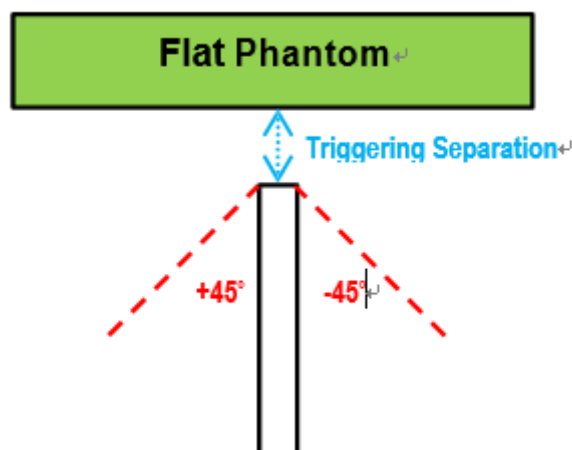
The proximity sensor tilt angle influence was determined per KDB 616217 for applicable edge. Summary for proximity sensor tilt angle influence is shown in below.

WWAN Antenna

Orientation	Separation Distance (mm)	Tilt Angle										
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
Right Side	8	On	On	On	On	On	On	On	On	On	On	On
Bottom Side	13	On	On	On	On	On	On	On	On	On	On	On

WLAN Antenna

Orientation	Separation Distance (mm)	Tilt Angle										
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
Left Side	8	On	On	On	On	On	On	On	On	On	On	On
Top Side	16	On	On	On	On	On	On	On	On	On	On	On



Summary for Proximity Sensor Triggering Test

According to the procedures noticed in KDB 616217 D04,

The WWAN for proximity sensor triggering distance is 14 mm for EUT Rear Face, 8mm for Right Side and 13 mm for Bottom Side. The separation distance of 8mm / 13 mm determined by the smallest triggering distance on Right Side / Bottom Side is used to access the tilt angle influence and the sensor does not release during ± 45 degree. Therefore, the smallest separation distance for tilt angle influence is 8mm for the Right Side and 13 mm for the Bottom Side. The conservation triggering distances based on the separation distance for the sensor trigger / not triggered as EUT with power reduction at 0 mm, and EUT without power reduction at 13 mm for EUT Rear Face, 7mm for Right Side and 12 mm for Bottom Side were used to test SAR.

The WLAN for proximity sensor triggering distance is 14 mm for EUT Rear Face, 8mm for Left Side and 16 mm for Top Side. The separation distance of 8 mm / 16mm determined by the smallest triggering distance on Left Side / Top Side is used to access the tilt angle influence and the sensor does not release during ± 45 degree. Therefore, the smallest separation distance for tilt angle influence is 8 mm for the Left Side and 16mm for the Top Side. The conservation triggering distances based on the separation distance for the sensor trigger / not triggered as EUT with power reduction at 0 mm, and EUT without power reduction at 13 mm for EUT Rear Face, 7mm for Left Side and 15 mm for Top Side were used to test SAR.

The power reduction is depends on the proximity sensor input. For a steady SAR test, the power reduction was enabled or disabled manually by engineering software during SAR testing.

WWAN Proximity Sensor Trigger Distance (mm)			
Position	Rear Face	Right Side	Bottom Side
Minimum	14	8	13

WLAN Proximity Sensor Trigger Distance (mm)			
Position	Rear Face	Left Side	Top Side
Minimum	14	8	16

<Considerations Related to GSM / GPRS / EDGE for Setup and Testing>

The maximum multi-slot capability supported by this device is as below.

1. This EUT is class B device
2. This EUT supports GPRS multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)
3. This EUT supports EDGE multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)

For GSM850 frequency band, the power control level is set to 5 for GSM mode and GPRS (GMSK: CS1), and set to 8 for EDGE (GMSK: MCS1, 8PSK: MCS9). For GSM1900 frequency band, the power control level is set to 0 for GSM mode and GPRS (GMSK: CS1), and set to 2 for EDGE (GMSK: MCS1, 8PSK: MCS9).

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = $10 \times \log (\text{Burst-averaged power mW} \times \text{Slot used} / 8)$

<Considerations Related to WCDMA for Setup and Testing>

WCDMA Handsets Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode.

WCDMA Handsets Body-worn SAR

SAR for body-worn configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCH_n configurations supported by the handset with 12.2 kbps RMC as the primary mode.

Handsets with Release 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures in the "Release 5 HSDPA Data Devices", for the highest reported SAR body-worn exposure configuration in 12.2 kbps RMC. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

Handsets with Release 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the "Release 6 HSPA Data Devices", for the highest reported body-worn exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn measurements is tested for next to the ear head exposure.

Release 5 HSDPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH / HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors (β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) are set according to values indicated in below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	$\beta_{hs}^{(1)}$	CM (dB) ⁽²⁾	MPR
1	2 / 15	15 / 15	64	2 / 15	4 / 15	0.0	0
2	12 / 15 ⁽³⁾	15 / 15 ⁽³⁾	64	12 / 15 ⁽³⁾	24 / 15	1.0	0
3	15 / 15	8 / 15	64	15 / 8	30 / 15	1.5	0.5
4	15 / 15	4 / 15	64	15 / 4	30 / 15	1.5	0.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs} / \beta_c = 30 / 15 \Leftrightarrow \beta_{hs} = 30 / 15 * \beta_c$.

Note 2: CM = 1 for $\beta_c / \beta_d = 12 / 15$, $\beta_{hs} / \beta_c = 24 / 15$.

Note 3: For subtest 2 the β_c / β_d ratio of 12 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11 / 15$ and $\beta_d = 15 / 15$.

Release 6 HSUPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode. Otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing. Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the β values indicated in below.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11 / 15 ⁽³⁾	15 / 15 ⁽³⁾	64	11 / 15 ⁽³⁾	22 / 15	209 / 225	1039 / 225	4	1	1.0	0.0	20	75
2	6 / 15	15 / 15	64	6 / 15	12 / 15	12 / 15	94 / 75	4	1	3.0	2.0	12	67
3	15 / 15	9 / 15	64	15 / 9	30 / 15	30 / 15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4	2	2.0	1.0	15	92
4	2 / 15	15 / 15	64	2 / 15	4 / 15	2 / 15	56 / 75	4	1	3.0	2.0	17	71
5	15 / 15 ⁽⁴⁾	15 / 15 ⁽⁴⁾	64	15 / 15 ⁽⁴⁾	30 / 15	24 / 15	134 / 15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs} / \beta_c = 30 / 15 \Leftrightarrow \beta_{hs} = 30 / 15 * \beta_c$.

Note 2: CM = 1 for $\beta_c / \beta_d = 12 / 15$, $\beta_{hs} / \beta_c = 24 / 15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c / β_d ratio of 11 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10 / 15$ and $\beta_d = 15 / 15$.

Note 4: For subtest 5 the β_c / β_d ratio of 15 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14 / 15$ and $\beta_d = 15 / 15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

HSPA+ SAR Guidance

The 3G SAR test reduction procedure is applied to HSPA+ (uplink) with 12.2 kbps RMC as the primary mode. Otherwise, when SAR is required for Rel. 6 HSPA, SAR is required for Rel. 7 HSPA+. Power is measured for HSPA+ that supports uplink 16QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

DC-HSDPA SAR Guidance

The 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Otherwise, when SAR is required for Rel. 5 HSDPA, SAR is required for Rel. 8 DC-HSDPA. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

<Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, supports QPSK and 16QAM modulations, and supported LTE band and channel bandwidth is listed in below. The output power was tested per 3GPP TS 36.521-1 maximum transmit procedures for both QPSK 16QAM and 64QAM modulation. The results please refer to section 4.6 of this report.

EUT Supported LTE Band and Channel Bandwidth						
LTE Band	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz
2	V	V	V	V	V	V
4	V	V	V	V	V	V
5	V	V	V	V		
7			V	V	V	V
66	V	V	V	V	V	V

The LTE maximum power reduction (MPR) in accordance with 3GPP TS 36.101 is active all times during LTE operation. The allowed MPR for the maximum output power is specified in below.

Modulation	Channel Bandwidth / RB Configurations						LTE MPR Setting (dB)
	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	<= 5	<= 4	<= 8	<= 12	<= 16	<= 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2

Note: MPR is according to the standard and implemented in the circuit (mandatory).

In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

During LTE SAR testing, the related parameters of operating band, channel bandwidth, uplink channel number, modulation type, and RB was set in base station simulator. When the EUT has registered and communicated to base station simulator, the simulator set to make EUT transmitting the maximum radiated power.

<Considerations Related to WLAN for Setup and Testing>

In general, various vendor specific external test software and chipset based internal test modes are typically used for SAR measurement. These chipset based test mode utilities are generally hardware and manufacturer dependent, and often include substantial flexibility to reconfigure or reprogram a device. A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement. The test frequencies established using test mode must correspond to the actual channel frequencies. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR correctly. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

According to KDB 248227 D01, this device has installed WLAN engineering testing software which can provide continuous transmitting RF signal. During WLAN SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

Initial Test Configuration

An initial test configuration is determined for OFDM transmission modes in 2.4 GHz and 5 GHz bands according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

Subsequent Test Configuration

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. When the highest reported SAR for the initial test configuration according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

SAR Test Configuration and Channel Selection

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is using largest channel bandwidth, lowest order modulation, lowest data rate, and lowest order 802.11 mode (i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n). After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following.

- 1) The channel closest to mid-band frequency is selected for SAR measurement.
- 2) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

Test Reduction for U-NII-1 (5.2 GHz) and U-NII-2A (5.3 GHz) Bands

For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following.

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition).
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

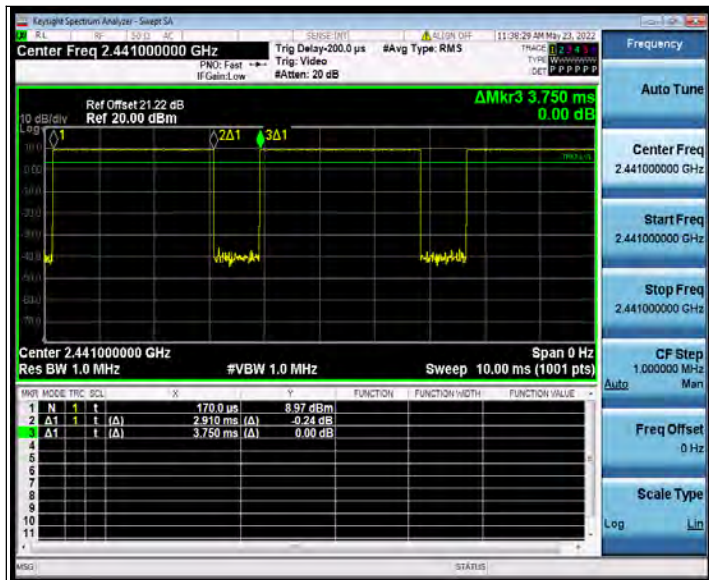
<Considerations Related to Bluetooth for Setup and Testing>

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.



<BT Duty Cycle of Test Signal>

BT_GFSK: Duty cycle = 2.910 / 3.750 = 0.776



4.2 EUT Testing Position

4.2.1 Body Exposure Conditions

For full-size tablet, according to KDB 616217 D04, SAR evaluation is required for back surface and edges of the devices. The back surface and edges of the tablet are tested with the tablet touching the phantom. Exposures from antennas through the front surface of the display section of a tablet are generally limited to the user's hands. Exposures to hands for typical consumer transmitters used in tablets are not expected to exceed the extremity SAR limit; therefore, SAR evaluation for the front surface of tablet display screens are generally not necessary. When voice mode is supported on a tablet and it is limited to speaker mode or headset operations only, additional SAR testing for this type of voice use is not required.

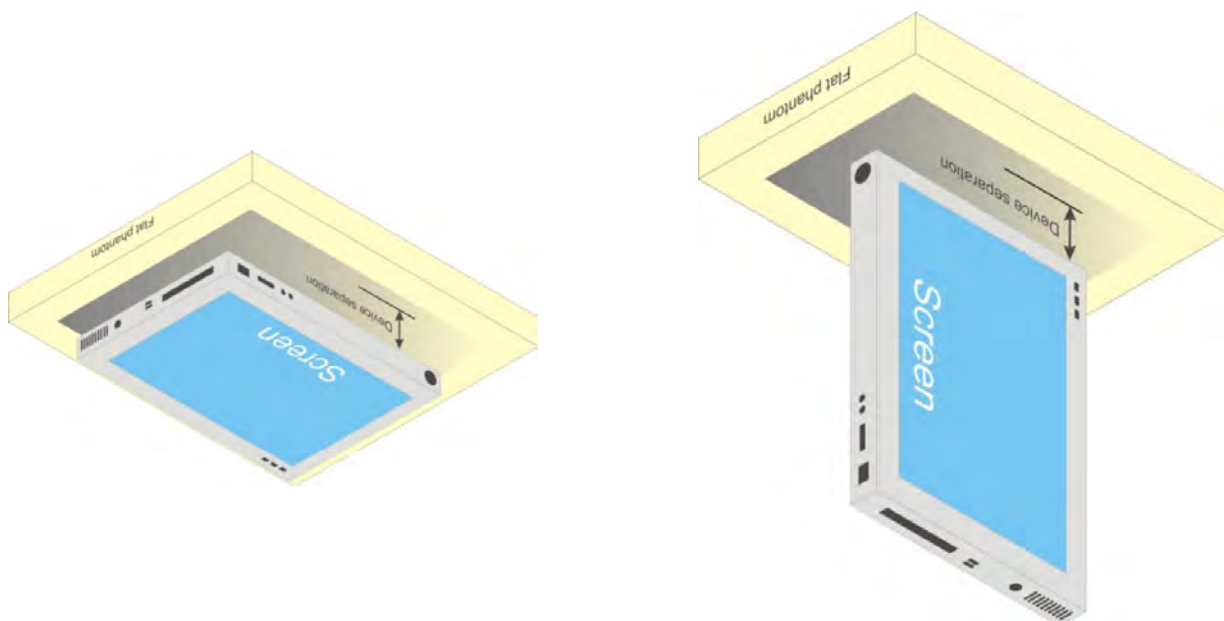


Fig-4.1 Illustration for Tablet Setup

4.2.2 SAR Test Exclusion Evaluations

According to KDB 447498 D04 Appendix B, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

Exposure Position	Wireless Interface	GPRS 850 2Tx slot	GPRS 1900 2Tx slot	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 66
	Calculated Frequency	848MHz	1909MHz	1907MHz	1750MHz	846MHz	1909MHz	1754MHz	848MHz	2567MHz	1779MHz
	Maximum power (dBm)	32	29	24	24	24.00	24	24	24	23.5	24
	Maximum rated power(mW)	1585.0	794.0	251.0	251.0	251.0	251.0	251.0	251.0	224.0	251.0
Rear Face	Separation distance(mm)	0.0									
	exclusion threshold	9.0	3.0	3.0	4.0	9.0	3.0	4.0	9.0	3.0	4.0
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Top Side	Separation distance(mm)	194.0									
	exclusion threshold	1656.0	2893.0	2893.0	2894.0	1653.0	2893.0	2894.0	1656.0	2887.0	2894.0
	Testing required?	No	No	No	No	No	No	No	No	No	No
Right Side	Separation distance(mm)	12.0									
	exclusion threshold	31.0	17.0	17.0	18.0	32.0	17.0	18.0	31.0	14.0	18.0
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bottom Side	Separation distance(mm)	0.0									
	exclusion threshold	9.0	3.0	3.0	4.0	9.0	3.0	4.0	9.0	3.0	4.0
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Left Side	Separation distance(mm)	66.0									
	exclusion threshold	357.0	394.0	395.0	403.0	357.0	394.0	403.0	357.0	367.0	401.0
	Testing required?	Yes	Yes	No	No	No	No	No	No	No	No

Exposure Position	Wireless Interface	BT	BLE	WLAN2.4G	WLAN5G
	Calculated Frequency	2480MHz	2480MHz	2462MHz	5825MHz
	Maximum power (dBm)	10.5	4	22	18
	Maximum rated power(mW)	11.0	3.0	158.0	63.0
Rear Face	Separation distance(mm)	0.0	0.0	0.0	0.0
	exclusion threshold	3.0	3.0	3.0	1.0
	Testing required?	Yes	No	Yes	Yes
Top Side	Separation distance(mm)	0.0	0.0	0.0	0.0
	exclusion threshold	3.0	3.0	3.0	1.0
	Testing required?	Yes	No	Yes	Yes
Right Side	Separation distance(mm)	60.0	60.0	60.0	60.0
	exclusion threshold	309.0	309.0	309.0	247.0
	Testing required?	No	No	No	No
Bottom Side	Separation distance(mm)	191.0	191.0	191.0	191.0
	exclusion threshold	2803.0	2803.0	2803.0	2779.0
	Testing required?	No	No	No	No
Left Side	Separation distance(mm)	16.0	16.0	16.0	16.0
	exclusion threshold	25.0	25.0	25.0	16.0
	Testing required?	No	No	Yes	Yes

4.2.3 Simultaneous Transmission Possibilities

The simultaneous transmission possibilities for this device are listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
1	WWAN + WLAN2.4G	Yes
2	WWAN + WLAN5G	Yes
3	WWAN + BT	Yes
4	WLAN2.4G + BT	Yes
5	WLAN5G + BT	Yes
6	WWAN + WLAN2.4G + BT	Yes
7	WWAN + WLAN5G + BT	Yes

4.3 Tissue Verification

The measuring results for tissue simulating liquid are shown as below.

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Sep. 24, 2022	Head	835	22.5	0.937	43.308	0.90	41.50	4.11	4.36
Sep. 23, 2022	Head	1750	22.3	1.423	41.125	1.37	40.10	3.87	2.56
Sep. 23, 2022	Head	1900	22.3	1.411	40.438	1.40	40.00	0.79	1.10
Sep. 21, 2022	Head	2450	22.5	1.817	39.309	1.80	39.20	0.94	0.28
Sep. 23, 2022	Head	2600	22.3	1.935	39.092	1.96	39.00	-1.28	0.24
Sep. 22, 2022	Head	5250	22.8	4.631	36.193	4.71	35.90	-1.68	0.82
Sep. 22, 2022	Head	5600	22.8	5.014	35.631	5.07	35.50	-1.10	0.37
Sep. 22, 2022	Head	5750	22.8	5.153	35.335	5.27	35.40	-2.22	-0.18

Note:

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within $\pm 5\%$ of the target values. Liquid temperature during the SAR testing must be within $\pm 2^\circ\text{C}$.

4.4 System Verification

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Sep. 24, 2022	Head	835	9.60	2.54	10.16	5.83	4d265	7612	1633
Sep. 23, 2022	Head	1750	36.60	9.23	36.92	0.87	1176	7612	1633
Sep. 23, 2022	Head	1900	39.70	10.10	40.40	1.76	5d159	7612	1633
Sep. 21, 2022	Head	2450	52.80	12.60	50.40	-4.55	1048	7612	1633
Sep. 23, 2022	Head	2600	55.80	14.70	58.80	5.38	1110	7612	1633
Sep. 22, 2022	Head	5250	76.90	7.75	77.50	0.78	1315	7612	1633
Sep. 22, 2022	Head	5600	81.90	8.33	83.30	1.71	1315	7612	1633
Sep. 22, 2022	Head	5750	76.10	7.75	77.50	1.84	1315	7612	1633

Note:

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

4.5 Maximum Output Power

4.5.1 Maximum Conducted Power

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

WWAN

Mode	GSM850		GSM1900	
	Full Power	Reduced Power	Full Power	Reduced Power
GPRS (GMSK, 1Tx-slot)	34.0	29.0	31.0	26.0
GPRS (GMSK, 2Tx-slot)	32.0	26.5	29.0	23.5
GPRS (GMSK, 3Tx-slot)	29.0	24.5	27.0	21.5
GPRS (GMSK, 4Tx-slot)	27.0	23.0	25.0	20.0
EDGE (8PSK, 1Tx-slot)	27.0	27.0	27.0	26.0
EDGE (8PSK, 2Tx-slot)	25.0	25.0	25.0	23.0
EDGE (8PSK, 3Tx-slot)	23.0	23.0	23.0	21.5
EDGE (8PSK, 4Tx-slot)	20.5	20.5	22.0	20.0

Mode	WCDMA Band II		WCDMA Band IV		WCDMA Band V	
	Full Power	Reduced Power	Full Power	Reduced Power	Full Power	Reduced Power
RMC 12.2K	24.0	16.5	24.0	17.0	24.0	22.0
HSDPA	23.0	15.5	23.0	16.0	23.0	21.0
DC-HSDPA	23.0	15.5	23.0	16.0	23.0	21.0
HSUPA	23.0	15.5	23.0	16.0	23.0	21.0
HSPA+	20.5	13.0	20.5	13.5	20.5	18.5

Mode	LTE 2		LTE 4		LTE 5	
	Full Power	Reduced Power	Full Power	Reduced Power	Full Power	Reduced Power
QPSK	24.0	17.0	24.0	16.5	24.0	22.0
16QAM	23.0	16.0	23.0	15.5	23.0	21.0

Mode	LTE 7		LTE 66	
	Full Power	Reduced Power	Full Power	Reduced Power
QPSK	23.5	15.0	24.0	16.5
16QAM	22.5	14.0	23.0	15.5

WLAN/BT

Mode	WLAN2.4G		
	Channel	Full Power	Reduced Power
802.11b	1	20.00	15.00
	6	22.00	17.00
	11	21.00	16.00
802.11g	1	17.00	13.00
	6	20.00	16.00
	11	17.00	14.00
802.11n20	1	16.00	12.00
	6	19.00	15.00
	11	17.00	13.00
802.11n40	3	17.00	13.00
	6	19.00	15.00
	9	16.00	13.00

Mode	WLAN5.2G		
	Channel	Full Power	Reduced Power
802.11a	36	17.00	9.00
	40	16.00	9.00
	44	17.00	9.00
	48	16.00	9.00
802.11n20	36	16.00	8.50
	40	16.00	8.50
	44	16.00	8.50
	48	16.00	8.50
802.11n40	38	14.00	8.00
	46	15.00	8.00
802.11ac20	36	16.00	8.50
	40	16.00	8.50
	44	16.00	8.50
	48	16.00	8.50
802.11ac40	38	14.00	8.00
	46	15.00	8.00
802.11ac80	42	12.00	8.00

Mode	WLAN5.3G		
	Channel	Full Power	Reduced Power
802.11a	52	17.00	9.00
	56	16.00	9.00
	60	17.00	9.00
	64	17.00	9.00
802.11n20	52	16.00	8.50
	56	16.00	8.50
	60	16.00	8.50
	64	16.00	8.50
802.11n40	54	15.00	8.00
	62	15.00	8.00
802.11ac20	52	16.00	8.50
	56	16.00	8.50
	60	16.00	8.50
	64	16.00	8.50
802.11ac40	54	15.00	8.00
	62	15.00	8.00
802.11ac80	58	15.00	8.00

FCC SAR Test Report

Mode	WLAN5.6G		
	Channel	Full Power	Reduced Power
802.11a	100	18.00	12.00
	116	18.50	13.00
	124	18.50	13.00
	132	18.50	13.00
	140	18.50	13.00
	144	18.50	13.00
802.11n20	100	17.00	11.50
	116	17.50	12.50
	124	17.50	12.50
	132	17.50	12.50
	140	17.50	12.50
	144	17.50	12.50
802.11n40	102	16.50	11.00
	110	17.00	12.00
	126	17.00	12.00
	134	17.00	12.00
	142	17.00	12.00
802.11ac20	100	17.00	11.50
	116	18.00	12.50
	124	18.00	12.50
	132	18.00	12.50
	140	18.00	12.50
	144	18.00	12.50
802.11ac40	102	17.00	11.00
	110	17.50	12.00
	126	17.50	12.00
	134	17.50	12.00
	142	17.50	12.00
802.11ac80	106	16.50	10.50
	122	17.50	11.50
	138	17.50	11.50

Mode	WLAN5.8G		
	Channel	Full Power	Reduced Power
802.11a	149	16.50	13.00
	157	16.50	13.00
	165	16.50	13.00
802.11n20	149	16.00	12.50
	157	16.00	12.50
	165	16.00	12.50
802.11n40	151	16.00	12.50
	159	16.00	12.50
802.11ac20	149	16.00	12.50
	157	16.00	12.50
	165	16.00	12.50
802.11ac40	151	16.00	12.00
	159	16.00	12.00
802.11ac80	155	15.50	12.00

Mode	Bluetooth
BR/EDR	10.5
LE	4.0

4.5.2 Measured Conducted Power Result

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

<Full Power>

WWAN

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GPRS (GMSK, 1Tx-slot)	32.21	32.25	32.23	29.42	29.61	29.45
GPRS (GMSK, 2Tx-slot)	30.42	30.43	30.39	27.94	27.82	27.64
GPRS (GMSK, 3Tx-slot)	28.15	28.17	28.15	25.73	25.64	25.43
GPRS (GMSK, 4Tx-slot)	26.06	26.08	26.08	23.74	23.60	23.34
EDGE (8PSK, 1Tx-slot)	26.10	25.97	25.96	26.19	25.64	25.88
EDGE (8PSK, 2Tx-slot)	24.19	23.94	23.97	24.09	23.80	24.18
EDGE (8PSK, 3Tx-slot)	21.53	21.21	21.14	22.03	21.76	22.13
EDGE (8PSK, 4Tx-slot)	19.07	19.90	18.88	20.36	19.48	19.94
Maximum Frame-Averaged Output Power						
GPRS (GMSK, 1Tx-slot)	23.21	23.25	23.23	20.42	20.61	20.45
GPRS (GMSK, 2Tx-slot)	24.42	24.43	24.39	21.94	21.82	21.64
GPRS (GMSK, 3Tx-slot)	23.89	23.91	23.89	21.47	21.38	21.17
GPRS (GMSK, 4Tx-slot)	23.06	23.08	23.08	20.74	20.60	20.34
EDGE (8PSK, 1Tx-slot)	17.10	16.97	16.96	17.19	16.64	16.88
EDGE (8PSK, 2Tx-slot)	18.19	17.94	17.97	18.09	17.80	18.18
EDGE (8PSK, 3Tx-slot)	17.27	16.95	16.88	17.77	17.50	17.87
EDGE (8PSK, 4Tx-slot)	16.07	16.90	15.88	17.36	16.48	16.94

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	22.06	22.14	22.10	22.34	22.24	22.27	22.39	22.41	22.45	-
HSDPA Subtest-1	21.11	21.08	21.35	21.25	21.33	21.29	21.44	21.49	21.38	0
HSDPA Subtest-2	21.08	21.17	21.12	21.39	21.36	21.34	21.35	21.61	21.58	0
HSDPA Subtest-3	20.56	20.66	20.41	20.53	20.52	20.44	20.59	20.61	20.55	0.5
HSDPA Subtest-4	20.49	20.59	20.60	20.49	20.58	20.60	20.55	20.60	20.45	0.5
DC-HSDPA Subtest-1	21.15	21.16	21.07	21.42	21.57	21.53	21.37	21.35	21.41	0
DC-HSDPA Subtest-2	21.03	21.14	21.11	21.51	21.46	21.44	21.42	21.46	21.50	0
DC-HSDPA Subtest-3	20.50	20.61	20.57	20.53	20.55	20.46	20.66	20.45	20.62	0.5
DC-HSDPA Subtest-4	20.53	20.48	20.44	20.71	20.69	20.44	20.82	20.78	20.75	0.5
HSUPA Subtest-1	21.05	21.11	21.09	21.44	21.39	21.52	21.35	21.44	21.45	0
HSUPA Subtest-2	19.58	19.32	19.48	19.46	19.41	19.66	19.93	19.88	19.86	2
HSUPA Subtest-3	20.46	20.55	20.32	20.58	20.67	20.45	20.85	20.67	20.74	1
HSUPA Subtest-4	19.72	19.60	19.34	19.62	19.58	19.47	19.77	19.69	19.70	2
HSUPA Subtest-5	21.10	21.11	21.15	21.50	21.59	21.48	21.70	21.66	21.61	0
HSPA+ Subtest-1	19.07	19.01	19.11	19.35	19.45	19.21	19.46	19.44	19.32	2.5



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LTE Band 2															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18700	18900	19100				Channel		18675	18900	19125	
		Frequency(MHz)		1860	1880	1900				Frequency(MHz)		1857.5	1880	1902.5	
20M	QPSK	1	0	22.86	23.27	23.07	0	15M	QPSK	1	0	22.78	23.23	23.02	0
		1	50	22.88	23.09	23.05	0			1	37	22.86	23.01	23.04	0
		1	99	22.83	23.24	23.04	0			1	74	22.75	23.20	22.99	0
		50	0	22.37	22.64	22.54	1			36	0	22.34	22.58	22.52	1
		50	25	22.34	22.57	22.43	1			36	19	22.32	22.50	22.38	1
		50	50	22.25	22.54	22.48	1			36	39	22.19	22.46	22.46	1
		100	0	22.37	22.68	22.38	1			75	0	22.36	22.66	22.30	1
	16QAM	1	0	22.40	22.71	22.57	1		16QAM	1	0	22.33	22.63	22.51	1
		1	50	21.84	22.11	22.01	1			1	37	21.81	22.05	21.99	1
		1	99	21.94	22.17	22.03	1			1	74	21.92	22.10	21.98	1
		50	0	21.41	21.70	21.64	2			36	0	21.35	21.62	21.62	2
		50	25	21.47	21.68	21.64	2			36	19	21.45	21.60	21.63	2
		50	50	21.38	21.79	21.59	2			36	39	21.30	21.75	21.54	2
		100	0	21.55	21.76	21.72	2			75	0	21.53	21.68	21.71	2
BW	MCS Index	Channel		18650	18900	19150	3GPP MPR (dB)	BW	MCS Index	Channel		18625	18900	19175	3GPP MPR (dB)
		Frequency(MHz)		1855	1880	1905				Frequency(MHz)		1852.5	1880	1907.5	
10M	QPSK	1	0	22.85	23.23	22.99	0	5M	QPSK	1	0	22.80	23.25	23.01	0
		1	24	22.84	23.06	22.99	0			1	12	22.81	23.04	23.03	0
		1	49	22.81	23.23	23.00	0			1	24	22.77	23.17	22.99	0
		25	0	22.31	22.59	22.53	1			12	0	22.30	22.59	22.52	1
		25	12	22.33	22.55	22.38	1			12	6	22.26	22.55	22.37	1
		25	25	22.17	22.47	22.46	1			12	13	22.17	22.53	22.46	1
		50	0	22.36	22.64	22.35	1			25	0	22.33	22.63	22.30	1
	16QAM	1	0	22.37	22.70	22.51	1		16QAM	1	0	22.32	22.70	22.55	1
		1	24	21.80	22.06	21.99	1			1	12	21.79	22.06	21.97	1
		1	49	21.88	22.15	22.00	1			1	24	21.92	22.09	22.02	1
		25	0	21.39	21.62	21.63	2			12	0	21.33	21.66	21.59	2
		25	12	21.39	21.64	21.59	2			12	6	21.44	21.62	21.62	2
		25	25	21.35	21.73	21.57	2			12	13	21.36	21.72	21.54	2
		50	0	21.54	21.71	21.64	2			25	0	21.49	21.68	21.70	2
BW	MCS Index	Channel		18615	18900	19185	3GPP MPR (dB)	BW	MCS Index	Channel		18607	18900	19193	3GPP MPR (dB)
		Frequency(MHz)		1851.5	1880	1908.5				Frequency(MHz)		1850.7	1880	1909.3	
3M	QPSK	1	0	22.81	23.20	23.02	0	1.4M	QPSK	1	0	22.78	23.23	23.02	0
		1	7	22.86	23.01	23.03	0			1	2	22.85	23.03	23.03	0
		1	14	22.78	23.16	23.03	0			1	5	22.81	23.17	22.99	0
		8	0	22.33	22.59	22.49	1			3	0	22.81	23.06	23.02	1
		8	3	22.26	22.56	22.38	1			3	1	22.83	23.05	22.85	1
		8	7	22.21	22.49	22.47	1			3	3	22.70	22.96	22.92	1
		15	0	22.31	22.66	22.33	1			6	0	22.36	22.62	22.36	1
	16QAM	1	0	22.33	22.66	22.55	1		16QAM	1	0	22.35	22.64	22.52	1
		1	7	21.76	22.09	21.96	1			1	2	21.82	22.03	21.99	1
		1	14	21.92	22.09	22.01	1			1	5	21.89	22.09	22.02	1
		8	0	21.33	21.64	21.56	2			3	0	21.87	22.15	22.09	2
		8	3	21.41	21.66	21.58	2			3	1	21.89	22.17	22.09	2
		8	7	21.31	21.74	21.57	2			3	3	21.84	22.24	22.08	2
		15	0	21.49	21.69	21.67	2			6	0	21.49	21.74	21.67	2



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LTE Band 4															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency(MHz)		1720	1732.5	1745				Frequency(MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	23.21	23.27	23.03	0	15M	QPSK	1	0	23.17	23.24	22.97	0
		1	50	23.16	23.22	22.98	0			1	37	23.14	23.21	22.94	0
		1	99	23.13	23.19	23.09	0			1	74	23.07	23.14	23.08	0
		50	0	22.66	22.68	22.44	1			36	0	22.65	22.66	22.39	1
		50	25	22.55	22.61	22.53	1			36	19	22.47	22.54	22.51	1
		50	50	22.79	22.77	22.61	1			36	39	22.78	22.73	22.58	1
		100	0	22.58	22.66	22.38	1			75	0	22.55	22.65	22.32	1
	16QAM	1	0	22.80	22.82	22.70	1		16QAM	1	0	22.76	22.77	22.68	1
		1	50	22.72	22.84	22.64	1			1	37	22.66	22.82	22.61	1
		1	99	22.73	22.65	22.61	1			1	74	22.71	22.57	22.60	1
		50	0	21.77	21.89	21.69	2			36	0	21.69	21.85	21.64	2
		50	25	21.80	21.78	21.68	2			36	19	21.77	21.72	21.66	2
		50	50	21.89	21.85	21.61	2			36	39	21.88	21.80	21.53	2
		100	0	21.75	21.85	21.65	2			75	0	21.69	21.82	21.61	2
W	MCS Index	Channel		20000	20175	20350	3GPP MPR (dB)	BW	MCS Index	Channel		19975	20175	20375	3GPP MPR (dB)
		Frequency(MHz)		1715	1732.5	1750				Frequency(MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	23.13	23.23	22.98	0	5M	QPSK	1	0	23.16	23.19	23.02	0
		1	24	23.13	23.16	22.96	0			1	12	23.12	23.17	22.93	0
		1	49	23.11	23.12	23.04	0			1	24	23.05	23.18	23.04	0
		25	0	22.60	22.60	22.42	1			12	0	22.62	22.63	22.43	1
		25	12	22.54	22.59	22.45	1			12	6	22.49	22.59	22.48	1
		25	25	22.72	22.69	22.55	1			12	13	22.72	22.72	22.59	1
		50	0	22.55	22.60	22.36	1			25	0	22.50	22.64	22.33	1
	16QAM	1	0	22.78	22.75	22.65	1		16QAM	1	0	22.78	22.74	22.68	1
		1	24	22.66	22.76	22.62	1			1	12	22.64	22.78	22.56	1
		1	49	22.71	22.57	22.60	1			1	24	22.67	22.63	22.55	1
		25	0	21.69	21.85	21.64	2			12	0	21.70	21.84	21.67	2
		25	12	21.78	21.70	21.67	2			12	6	21.74	21.71	21.63	2
		25	25	21.81	21.81	21.56	2			12	13	21.82	21.80	21.59	2
		50	0	21.72	21.79	21.63	2			25	0	21.67	21.83	21.59	2
BW	MCS Index	Channel		19965	20175	20385	3GPP MPR (dB)	BW	MCS Index	Channel		19957	20175	20393	3GPP MPR (dB)
		Frequency(MHz)		1711.5	1732.5	1753.5				Frequency(MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	23.15	23.20	22.98	0	1.4M	QPSK	1	0	23.13	23.23	22.98	0
		1	7	23.09	23.17	22.96	0			1	2	23.13	23.16	22.96	0
		1	14	23.05	23.17	23.03	0			1	5	23.11	23.12	23.04	0
		8	0	22.58	22.67	22.42	1			3	0	23.10	23.10	22.92	1
		8	3	22.51	22.56	22.45	1			3	1	23.04	23.09	22.95	1
		8	7	22.71	22.76	22.59	1			3	3	23.24	23.19	23.05	1
		15	0	22.53	22.61	22.34	1			6	0	22.57	22.60	22.36	1
	16QAM	1	0	22.78	22.74	22.69	1		16QAM	1	0	22.75	22.75	22.65	1
		1	7	22.64	22.80	22.59	1			1	2	22.70	22.76	22.62	1
		1	14	22.70	22.59	22.59	1			1	5	22.68	22.57	22.60	1
		8	0	21.75	21.82	21.64	2			3	0	22.23	22.34	22.14	2
		8	3	21.74	21.70	21.66	2			3	1	22.22	22.27	22.13	2
		8	7	21.88	21.83	21.53	2			3	3	22.35	22.30	22.10	2
		15	0	21.70	21.77	21.59	2			6	0	21.69	21.83	21.60	2



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LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency(MHz)		829	836.5	844				Frequency(MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	22.24	22.30	22.36	0	5M	QPSK	1	0	22.20	22.25	22.31	0
		1	24	22.16	22.30	22.32	0			1	12	22.08	22.29	22.27	0
		1	49	22.27	22.33	22.43	0			1	24	22.23	22.28	22.42	0
		25	0	21.77	21.88	21.91	1			12	0	21.71	21.86	21.86	1
		25	12	21.64	21.73	21.82	1			12	6	21.57	21.68	21.80	1
		25	25	21.62	21.75	21.78	1			12	13	21.54	21.73	21.73	1
		50	0	21.81	21.82	21.94	1			25	0	21.79	21.74	21.92	1
	16QAM	1	0	22.04	22.13	22.17	1		16QAM	1	0	21.96	22.07	22.09	1
		1	24	22.09	22.20	22.22	1			1	12	22.03	22.18	22.16	1
		1	49	22.03	22.12	22.21	1			1	24	21.96	22.07	22.19	1
		25	0	21.00	21.06	21.14	2			12	0	20.94	20.99	21.09	2
		25	12	20.94	21.03	21.12	2			12	6	20.87	20.98	21.10	2
		25	25	20.90	21.03	21.05	2			12	13	20.82	21.01	20.99	2
		50	0	20.75	20.89	20.94	2			25	0	20.67	20.88	20.92	2
BW	MCS Index	Channel		20415	20525	20635	3GPP MPR (dB)	BW	MCS Index	Channel		20407	20525	20643	3GPP MPR (dB)
		Frequency(MHz)		825.5	836.5	847.5				Frequency(MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	22.18	22.23	22.31	0	1.4M	QPSK	1	0	22.23	22.24	22.34	0
		1	7	22.09	22.25	22.30	0			1	2	22.11	22.23	22.27	0
		1	14	22.19	22.31	22.37	0			1	5	22.25	22.25	22.41	0
		8	0	21.69	21.87	21.89	1			3	0	21.92	22.00	22.10	1
		8	3	21.60	21.68	21.74	1			3	1	21.80	21.88	21.97	1
		8	7	21.54	21.74	21.76	1			3	3	21.74	21.94	21.93	1
		15	0	21.76	21.77	21.90	1			6	0	21.77	21.77	21.93	1
	16QAM	1	0	22.02	22.05	22.16	1		16QAM	1	0	21.98	22.11	22.12	1
		1	7	22.01	22.16	22.17	1			1	2	22.02	22.15	22.20	1
		1	14	22.00	22.06	22.19	1			1	5	21.95	22.10	22.16	1
		8	0	20.98	20.99	21.09	2			3	0	21.18	21.18	21.32	2
		8	3	20.88	20.95	21.10	2			3	1	21.06	21.17	21.24	2
		8	7	20.89	21.01	20.97	2			3	3	21.04	21.21	21.19	2
		15	0	20.70	20.81	20.88	2			6	0	20.70	20.81	20.93	2



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LTE Band 7															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20850	21100	21350				Channel		20825	21100	21375	
		Frequency(MHz)		2510	2535	2560				Frequency(MHz)		2507.5	2535	2562.5	
20M	QPSK	1	0	22.96	22.96	22.74	0	15M	QPSK	1	0	22.95	22.94	22.66	0
		1	50	22.87	22.87	22.73	0			1	37	22.80	22.79	22.67	0
		1	99	23.06	23.09	22.95	0			1	74	23.03	23.03	22.93	0
		50	0	22.32	22.28	22.14	1			36	0	22.30	22.21	22.09	1
		50	25	22.50	22.51	22.39	1			36	19	22.44	22.41	22.37	1
		50	50	22.44	22.39	22.30	1			36	39	22.42	22.31	22.29	1
		100	0	22.39	22.44	22.27	1			75	0	22.31	22.40	22.22	1
	16QAM	1	0	22.73	22.68	22.59	1		16QAM	1	0	22.71	22.60	22.58	1
		1	50	22.65	22.70	22.53	1			1	37	22.57	22.66	22.48	1
		1	99	22.85	22.83	22.71	1			1	74	22.82	22.77	22.69	1
		50	0	21.61	21.57	21.43	2			36	0	21.59	21.50	21.38	2
		50	25	21.56	21.55	21.45	2			36	19	21.50	21.47	21.43	2
		50	50	21.76	21.76	21.54	2			36	39	21.75	21.74	21.46	2
		100	0	21.56	21.54	21.40	2			75	0	21.51	21.46	21.34	2
BW	MCS Index	Channel		20800	21100	21400	3GPP MPR (dB)	BW	MCS Index	Channel		20775	21100	21425	3GPP MPR (dB)
		Frequency(MHz)		2505	2535	2565				Frequency(MHz)		2502.5	2535	2567.5	
10M	QPSK	1	0	22.90	22.88	22.72	0	5M	QPSK	1	0	22.92	22.91	22.69	0
		1	24	22.85	22.79	22.72	0			1	12	22.79	22.86	22.68	0
		1	49	22.98	23.05	22.90	0			1	24	23.02	23.04	22.94	0
		25	0	22.30	22.20	22.13	1			12	0	22.26	22.26	22.09	1
		25	12	22.42	22.45	22.34	1			12	6	22.43	22.44	22.37	1
		25	25	22.41	22.33	22.28	1			12	13	22.36	22.37	22.25	1
		50	0	22.37	22.37	22.22	1			25	0	22.37	22.36	22.25	1
	16QAM	1	0	22.67	22.60	22.57	1		16QAM	1	0	22.65	22.62	22.51	1
		1	24	22.64	22.68	22.45	1			1	12	22.59	22.68	22.47	1
		1	49	22.80	22.75	22.65	1			1	24	22.78	22.78	22.69	1
		25	0	21.60	21.51	21.41	2			12	0	21.55	21.50	21.38	2
		25	12	21.54	21.47	21.44	2			12	6	21.49	21.50	21.43	2
		25	25	21.68	21.72	21.49	2			12	13	21.68	21.74	21.48	2
		50	0	21.54	21.46	21.39	2			25	0	21.48	21.53	21.38	2



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LTE Band 66															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572				Channel		132047	132322	132597	
		Frequency(MHz)		1720	1745	1770				Frequency(MHz)		1717.5	1745	1772.5	
20M	QPSK	1	0	23.01	23.07	23.02	0	15M	QPSK	1	0	22.95	23.05	22.96	0
		1	50	22.86	22.86	23.02	0			1	37	22.79	22.81	23.00	0
		1	99	22.91	22.82	22.95	0			1	74	22.85	22.75	22.90	0
		50	0	22.40	22.40	22.50	1			36	0	22.33	22.35	22.48	1
		50	25	22.44	22.56	22.51	1			36	19	22.36	22.54	22.45	1
		50	50	22.35	22.50	22.54	1			36	39	22.27	22.49	22.52	1
	16QAM	100	0	22.50	22.41	22.39	1			75	0	22.46	22.36	22.31	1
		1	0	23.00	23.15	22.99	1		16QAM	1	0	22.92	23.14	22.97	1
		1	50	23.03	22.97	22.87	1			1	37	22.98	22.92	22.83	1
		1	99	23.03	22.79	22.87	1			1	74	23.01	22.71	22.86	1
		50	0	21.62	21.68	21.72	2			36	0	21.54	21.64	21.67	2
		50	25	21.70	21.55	21.74	2			36	19	21.67	21.49	21.72	2
10M	QPSK	50	50	21.69	21.48	21.61	2	5M	QPSK	36	39	21.67	21.41	21.56	2
		100	0	21.67	21.55	21.80	2			75	0	21.61	21.47	21.78	2
	16QAM	1	0	22.93	23.03	22.97	0		QPSK	1	0	22.96	23.00	22.97	0
		1	24	22.84	22.78	23.01	0			1	12	22.84	22.78	23.00	0
		1	49	22.83	22.78	22.90	0			1	24	22.86	22.74	22.94	0
		25	0	22.37	22.34	22.48	1			12	0	22.36	22.35	22.45	1
		25	12	22.42	22.49	22.46	1			12	6	22.36	22.55	22.46	1
		25	25	22.29	22.42	22.52	1			12	13	22.31	22.45	22.53	1
3M	QPSK	50	0	22.49	22.39	22.31	1		QPSK	25	0	22.44	22.39	22.34	1
		1	0	22.93	23.07	22.93	1		16QAM	1	0	22.93	23.10	22.97	1
		1	24	23.00	22.91	22.85	1			1	12	22.95	22.95	22.82	1
		1	49	23.01	22.72	22.82	1			1	24	23.01	22.71	22.85	1
		25	0	21.56	21.60	21.70	2			12	0	21.54	21.62	21.64	2
		25	12	21.68	21.47	21.73	2			12	6	21.64	21.53	21.68	2
1.4M	QPSK	25	25	21.61	21.44	21.56	2	1.4M	QPSK	12	13	21.62	21.43	21.59	2
		50	0	21.65	21.47	21.79	2			25	0	21.61	21.48	21.75	2
	16QAM	1	0	22.95	23.02	23.01	0		QPSK	1	0	22.93	23.03	22.97	0
		1	7	22.85	22.84	22.97	0			1	2	22.83	22.80	23.00	0
		1	14	22.83	22.75	22.93	0			1	5	22.89	22.75	22.90	0
		8	0	22.39	22.36	22.47	1			3	0	22.84	22.82	22.98	1
1.4M	QPSK	8	3	22.41	22.55	22.45	1		QPSK	3	1	22.93	23.04	22.93	1
		8	7	22.31	22.45	22.52	1			3	3	22.80	22.92	22.98	1
		15	0	22.44	22.39	22.36	1			6	0	22.49	22.35	22.37	1
	16QAM	1	0	22.98	23.07	22.98	1		16QAM	1	0	22.95	23.08	22.94	1
		1	7	22.95	22.93	22.82	1			1	2	23.01	22.89	22.85	1
		1	14	23.00	22.73	22.85	1			1	5	22.98	22.71	22.86	1
1.4M	QPSK	8	0	21.61	21.63	21.64	2		QPSK	3	0	22.08	22.13	22.17	2
		8	3	21.64	21.52	21.70	2			3	1	22.12	22.04	22.19	2
		8	7	21.67	21.41	21.56	2			3	3	22.15	21.93	22.10	2
		15	0	21.61	21.47	21.78	2			6	0	21.61	21.53	21.75	2
	16QAM	1	0	22.95	23.02	23.01	0		QPSK	1	0	22.93	23.03	22.97	0
		1	7	22.85	22.84	22.97	0			1	2	22.83	22.80	23.00	0
		1	14	22.83	22.75	22.93	0			1	5	22.89	22.75	22.90	0
		8	0	22.39	22.36	22.47	1			3	0	22.84	22.82	22.98	1
		8	3	22.41	22.55	22.45	1			3	1	22.93	23.04	22.93	1
		8	7	22.31	22.45	22.52	1			3	3	22.80	22.92	22.98	1

WLAN/BT

WLAN2.4G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11b	1	18.42	99.04
		6	21.22	
		11	19.53	
	802.11g	1	15.83	95.14
		6	18.40	
		11	15.39	
	802.11n20	1	15.05	93.50
		6	17.95	
		11	15.37	
	802.11n40	3	16.18	89.23
		6	17.76	
		9	14.57	

WLAN5.2G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	36	15.72	95.14
		40	15.40	
		44	15.55	
		48	14.82	
	802.11n20	36	15.13	94.26
		40	14.72	
		44	14.55	
		48	14.24	
	802.11n40	38	12.18	89.23
		46	14.04	
	802.11ac20	36	15.42	94.31
		40	14.87	
		44	14.61	
		48	14.22	
	802.11ac40	38	12.09	89.23
		46	13.82	
	802.11ac80	42	10.35	80.56

WLAN5.3G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	52	15.42	95.14
		56	14.96	
		60	15.40	
		64	16.42	
	802.11n20	52	14.96	94.26
		56	14.47	
		60	14.45	
		64	14.31	
	802.11n40	54	14.32	89.23
		62	13.93	
	802.11ac20	52	14.97	94.31
		56	14.41	
		60	14.40	
		64	14.35	
	802.11ac40	54	14.28	89.23
		62	13.81	
	802.11ac80	58	13.62	80.56

WLAN5.6G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	100	16.43	95.14
		116	17.13	
		124	17.07	
		132	17.10	
		140	17.22	
		144	17.92	
	802.11n20	100	15.76	94.26
		116	16.56	
		124	17.00	
		132	17.05	
		140	16.73	
		144	17.24	
	802.11n40	102	15.46	89.23
		110	15.75	
		126	15.95	
		134	16.28	
		142	16.34	
	802.11ac20	100	15.85	94.31
		116	16.51	
		124	16.55	
		132	16.61	
		140	16.64	
		144	17.66	
	802.11ac40	102	15.35	89.23
		110	15.62	
		126	15.90	
		134	16.15	
		142	17.26	
	802.11ac80	106	14.92	80.56
		122	15.72	
		138	16.99	

WLAN5.8G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	149	15.72	95.14
		157	15.31	
		165	15.01	
	802.11n20	149	15.51	94.26
		157	15.55	
		165	15.26	
	802.11n40	151	15.41	89.23
		159	15.06	
	802.11ac20	149	15.83	94.31
		157	15.51	
		165	15.23	
	802.11ac40	151	15.27	89.23
		159	14.91	
	802.11ac80	155	14.49	80.56



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Bluetooth	Mode	Channel	Average power (dBm)	Duty Cycle %
	BT GFSK	0	9.64	77.87
		39	9.71	77.60
		78	9.04	77.60
	BT DQPSK	0	9.10	77.33
		39	9.55	
		78	8.50	
	BT 8DPSK	0	9.09	77.33
		39	9.52	
		78	8.48	
	BLE 1Mbps	0	2.57	87.23
		19	3.04	
		39	2.13	
	BLE 2Mbps	0	1.26	65.60
		19	1.72	
		39	0.87	
	BLE S2	0	2.48	81.28
		19	2.98	
		39	2.02	
	BLE S8	0	3.34	94.76
		19	3.84	
		39	2.88	

<Reduced Power>
WWAN

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GPRS (GMSK, 1Tx-slot)	27.65	27.66	27.65	25.16	24.93	24.72
GPRS (GMSK, 2Tx-slot)	25.46	25.49	25.47	22.98	22.84	22.60
GPRS (GMSK, 3Tx-slot)	24.16	24.18	24.17	20.97	20.79	20.52
GPRS (GMSK, 4Tx-slot)	21.95	22.02	22.06	19.66	19.46	19.18
EDGE (8PSK, 1Tx-slot)	26.31	26.23	26.04	25.14	24.56	25.02
EDGE (8PSK, 2Tx-slot)	23.92	23.86	23.55	21.28	20.83	21.16
EDGE (8PSK, 3Tx-slot)	21.44	21.46	21.22	19.65	18.89	19.32
EDGE (8PSK, 4Tx-slot)	18.98	18.89	19.13	17.83	17.05	17.58
Maximum Frame-Averaged Output Power						
GPRS (GMSK, 1Tx-slot)	18.65	18.66	18.65	16.16	15.93	15.72
GPRS (GMSK, 2Tx-slot)	19.46	19.49	19.47	16.98	16.84	16.60
GPRS (GMSK, 3Tx-slot)	19.90	19.92	19.91	16.71	16.53	16.26
GPRS (GMSK, 4Tx-slot)	18.95	19.02	19.06	16.66	16.46	16.18
EDGE (8PSK, 1Tx-slot)	17.31	17.23	17.04	16.14	15.56	16.02
EDGE (8PSK, 2Tx-slot)	17.92	17.86	17.55	15.28	14.83	15.16
EDGE (8PSK, 3Tx-slot)	17.18	17.20	16.96	15.39	14.63	15.06
EDGE (8PSK, 4Tx-slot)	15.98	15.89	16.13	14.83	14.05	14.58

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	15.33	15.81	15.29	15.55	15.25	15.28	20.52	20.50	20.55	-
HSDPA Subtest-1	14.08	14.02	14.33	14.60	14.66	14.38	19.61	19.53	19.60	0
HSDPA Subtest-2	14.06	14.10	14.07	14.58	14.62	14.32	19.55	19.58	19.58	0
HSDPA Subtest-3	13.50	13.58	13.39	14.01	14.11	13.96	19.02	19.00	19.11	0.5
HSDPA Subtest-4	13.47	13.52	13.55	14.05	14.15	13.95	18.97	19.03	19.07	0.5
DC-HSDPA Subtest-1	14.09	14.08	14.05	14.58	14.61	14.35	19.64	19.55	19.66	0
DC-HSDPA Subtest-2	14.02	14.12	14.03	14.55	14.53	14.39	19.58	19.56	16.60	0
DC-HSDPA Subtest-3	13.44	13.59	13.51	14.03	14.08	13.93	19.06	19.03	19.17	0.5
DC-HSDPA Subtest-4	13.46	13.43	13.42	14.00	14.04	13.88	19.11	19.05	19.08	0.5
HSUPA Subtest-1	13.99	14.04	14.04	14.52	14.66	14.33	19.56	19.53	19.49	0
HSUPA Subtest-2	12.52	12.30	12.45	12.69	12.58	12.39	17.66	17.52	17.46	2
HSUPA Subtest-3	13.44	13.47	13.31	13.45	13.64	13.55	18.49	18.62	18.53	1
HSUPA Subtest-4	12.64	12.56	12.29	12.73	12.46	12.45	17.60	17.44	17.52	2
HSUPA Subtest-5	14.07	14.05	14.13	14.61	14.55	14.40	19.56	19.44	19.46	0
HSPA+ Subtest-1	12.03	11.96	12.10	12.33	12.01	11.98	17.03	17.11	17.06	2.5



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LTE Band 2															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18700	18900	19100				Channel		18675	18900	19125	
		Frequency(MHz)		1860	1880	1900				Frequency(MHz)		1857.5	1880	1902.5	
20M	QPSK	1	0	15.47	16.13	15.68	0	15M	QPSK	1	0	15.39	16.09	15.63	0
		1	50	14.53	15.09	14.72	0			1	37	14.51	15.01	14.71	0
		1	99	14.62	15.28	14.83	0			1	74	14.54	15.24	14.78	0
		50	0	14.76	15.35	14.95	1			36	0	14.73	15.29	14.93	1
		50	25	14.27	14.84	14.42	1			36	19	14.25	14.77	14.37	1
		50	50	14.24	14.84	14.46	1			36	39	14.18	14.76	14.44	1
		100	0	14.52	15.13	14.63	1			75	0	14.51	15.11	14.55	1
	16QAM	1	0	15.16	15.77	15.35	1		16QAM	1	0	15.09	15.69	15.29	1
		1	50	14.10	14.69	14.29	1			1	37	14.07	14.63	14.27	1
		1	99	14.35	14.92	14.50	1			1	74	14.33	14.85	14.45	1
		50	0	13.80	14.40	14.02	2			36	0	13.74	14.32	14.00	2
		50	25	13.29	13.85	13.48	2			36	19	13.27	13.77	13.47	2
		50	50	13.18	13.84	13.39	2			36	39	13.10	13.80	13.34	2
		100	0	13.46	14.02	13.65	2			75	0	13.44	13.94	13.64	2
BW	MCS Index	Channel		18650	18900	19150	3GPP MPR (dB)	BW	MCS Index	Channel		18625	18900	19175	3GPP MPR (dB)
		Frequency(MHz)		1855	1880	1905				Frequency(MHz)		1852.5	1880	1907.5	
10M	QPSK	1	0	15.46	16.09	15.60	0	5M	QPSK	1	0	15.41	16.11	15.62	0
		1	24	14.49	15.06	14.66	0			1	12	14.46	15.04	14.70	0
		1	49	14.60	15.27	14.79	0			1	24	14.56	15.21	14.78	0
		25	0	14.70	15.30	14.94	1			12	0	14.69	15.30	14.93	1
		25	12	14.26	14.82	14.37	1			12	6	14.19	14.82	14.36	1
		25	25	14.16	14.77	14.44	1			12	13	14.16	14.83	14.44	1
		50	0	14.51	15.09	14.60	1			25	0	14.48	15.08	14.55	1
	16QAM	1	0	15.13	15.76	15.29	1		16QAM	1	0	15.08	15.76	15.33	1
		1	24	14.06	14.64	14.27	1			1	12	14.05	14.64	14.25	1
		1	49	14.29	14.90	14.47	1			1	24	14.33	14.84	14.49	1
		25	0	13.78	14.32	14.01	2			12	0	13.72	14.36	13.97	2
		25	12	13.21	13.81	13.43	2			12	6	13.26	13.79	13.46	2
		25	25	13.15	13.78	13.37	2			12	13	13.16	13.77	13.34	2
		50	0	13.45	13.97	13.57	2			25	0	13.40	13.94	13.63	2
BW	MCS Index	Channel		18615	18900	19185	3GPP MPR (dB)	BW	MCS Index	Channel		18607	18900	19193	3GPP MPR (dB)
		Frequency(MHz)		1851.5	1880	1908.5				Frequency(MHz)		1850.7	1880	1909.3	
3M	QPSK	1	0	15.42	16.06	15.63	0	1.4M	QPSK	1	0	15.39	16.09	15.63	0
		1	7	14.51	15.01	14.70	0			1	2	14.50	15.03	14.70	0
		1	14	14.57	15.20	14.82	0			1	5	14.60	15.21	14.78	0
		8	0	14.72	15.30	14.90	1			3	0	15.20	15.77	15.43	1
		8	3	14.19	14.83	14.37	1			3	1	14.76	15.32	14.84	1
		8	7	14.20	14.79	14.45	1			3	3	14.69	15.26	14.90	1
		15	0	14.46	15.11	14.58	1			6	0	14.51	15.07	14.61	1
	16QAM	1	0	15.09	15.72	15.33	1		16QAM	1	0	15.11	15.70	15.30	1
		1	7	14.02	14.67	14.24	1			1	2	14.08	14.61	14.27	1
		1	14	14.33	14.84	14.48	1			1	5	14.30	14.84	14.49	1
		8	0	13.72	14.34	13.94	2			3	0	14.26	14.85	14.47	2
		8	3	13.23	13.83	13.42	2			3	1	13.71	14.34	13.93	2
		8	7	13.11	13.79	13.37	2			3	3	13.64	14.29	13.88	2
		15	0	13.40	13.95	13.60	2			6	0	13.40	14.00	13.60	2



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LTE Band 4															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency(MHz)		1720	1732.5	1745				Frequency(MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	14.78	15.78	14.97	0	15M	QPSK	1	0	14.74	15.75	14.91	0
		1	50	14.07	15.19	14.26	0			1	37	14.05	15.18	14.22	0
		1	99	14.32	15.44	14.58	0			1	74	14.26	15.39	14.57	0
		50	0	13.76	14.86	13.93	1			36	0	13.75	14.84	13.88	1
		50	25	13.57	14.69	13.84	1			36	19	13.49	14.62	13.82	1
		50	50	13.77	14.85	13.96	1			36	39	13.76	14.81	13.93	1
		100	0	13.72	14.85	13.90	1			75	0	13.69	14.84	13.84	1
	16QAM	1	0	14.15	15.25	14.38	1		16QAM	1	0	14.11	15.20	14.36	1
		1	50	13.94	15.09	14.18	1			1	37	13.88	15.07	14.15	1
		1	99	14.23	15.28	14.45	1			1	74	14.21	15.20	14.44	1
		50	0	12.73	13.88	12.97	2			36	0	12.65	13.84	12.92	2
		50	25	12.66	13.74	12.88	2			36	19	12.63	13.68	12.86	2
		50	50	12.76	13.83	12.90	2			36	39	12.75	13.78	12.82	2
		100	0	12.70	13.84	12.93	2			75	0	12.64	13.81	12.89	2
W	MCS Index	Channel		20000	20175	20350	3GPP MPR (dB)	BW	MCS Index	Channel		19975	20175	20375	3GPP MPR (dB)
		Frequency(MHz)		1715	1732.5	1750				Frequency(MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	14.70	15.74	14.92	0	5M	QPSK	1	0	14.73	15.70	14.96	0
		1	24	14.04	15.13	14.24	0			1	12	14.03	15.14	14.21	0
		1	49	14.30	15.37	14.53	0			1	24	14.24	15.43	14.53	0
		25	0	13.70	14.78	13.91	1			12	0	13.72	14.81	13.92	1
		25	12	13.56	14.67	13.76	1			12	6	13.51	14.67	13.79	1
		25	25	13.70	14.77	13.90	1			12	13	13.70	14.80	13.94	1
		50	0	13.69	14.79	13.88	1			25	0	13.64	14.83	13.85	1
	16QAM	1	0	14.13	15.18	14.33	1		16QAM	1	0	14.13	15.17	14.36	1
		1	24	13.88	15.01	14.16	1			1	12	13.86	15.03	14.10	1
		1	49	14.21	15.20	14.44	1			1	24	14.17	15.26	14.39	1
		25	0	12.65	13.84	12.92	2			12	0	12.66	13.83	12.95	2
		25	12	12.64	13.66	12.87	2			12	6	12.60	13.67	12.83	2
		25	25	12.68	13.79	12.85	2			12	13	12.69	13.78	12.88	2
		50	0	12.67	13.78	12.91	2			25	0	12.62	13.82	12.87	2
BW	MCS Index	Channel		19965	20175	20385	3GPP MPR (dB)	BW	MCS Index	Channel		19957	20175	20393	3GPP MPR (dB)
		Frequency(MHz)		1711.5	1732.5	1753.5				Frequency(MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	14.72	15.71	14.92	0	1.4M	QPSK	1	0	14.70	15.74	14.92	0
		1	7	14.00	15.14	14.24	0			1	2	14.04	15.13	14.24	0
		1	14	14.24	15.42	14.52	0			1	5	14.30	15.37	14.53	0
		8	0	13.68	14.85	13.91	1			3	0	14.20	15.28	14.41	1
		8	3	13.53	14.64	13.76	1			3	1	14.06	15.17	14.26	1
		8	7	13.69	14.84	13.94	1			3	3	14.22	15.27	14.40	1
		15	0	13.67	14.80	13.86	1			6	0	13.71	14.79	13.88	1
	16QAM	1	0	14.13	15.17	14.37	1		16QAM	1	0	14.10	15.18	14.33	1
		1	7	13.86	15.05	14.13	1			1	2	13.92	15.01	14.16	1
		1	14	14.20	15.22	14.43	1			1	5	14.18	15.20	14.44	1
		8	0	12.71	13.81	12.92	2			3	0	13.19	14.33	13.42	2
		8	3	12.60	13.66	12.86	2			3	1	13.08	14.23	13.33	2
		8	7	12.75	13.81	12.82	2			3	3	13.22	14.28	13.39	2
		15	0	12.65	13.76	12.87	2			6	0	12.64	13.82	12.88	2



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LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency(MHz)		829	836.5	844				Frequency(MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	20.44	20.51	20.62	0	5M	QPSK	1	0	20.40	20.46	20.57	0
		1	24	20.42	20.57	20.64	0			1	12	20.34	20.56	20.59	0
		1	49	20.55	20.62	20.77	0			1	24	20.51	20.57	20.76	0
		25	0	19.77	19.89	20.02	1			12	0	19.71	19.87	19.97	1
		25	12	19.73	19.83	19.97	1			12	6	19.66	19.78	19.95	1
		25	25	19.67	19.81	19.89	1			12	13	19.59	19.79	19.84	1
		50	0	19.88	19.90	20.07	1			25	0	19.86	19.82	20.05	1
	16QAM	1	0	19.76	19.86	19.95	1		16QAM	1	0	19.68	19.80	19.87	1
		1	24	19.70	19.82	19.89	1			1	12	19.64	19.80	19.83	1
		1	49	19.65	19.75	19.89	1			1	24	19.58	19.70	19.87	1
		25	0	18.43	18.50	18.63	2			12	0	18.37	18.43	18.58	2
		25	12	18.28	18.38	18.52	2			12	6	18.21	18.33	18.50	2
		25	25	18.14	18.28	18.35	2			12	13	18.06	18.26	18.29	2
		50	0	18.29	18.44	18.54	2			25	0	18.21	18.43	18.52	2
BW	MCS Index	Channel		20415	20525	20635	3GPP MPR (dB)	BW	MCS Index	Channel		20407	20525	20643	3GPP MPR (dB)
		Frequency(MHz)		825.5	836.5	847.5				Frequency(MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	20.38	20.44	20.57	0	1.4M	QPSK	1	0	20.43	20.45	20.60	0
		1	7	20.35	20.52	20.62	0			1	2	20.37	20.50	20.59	0
		1	14	20.47	20.60	20.71	0			1	5	20.53	20.54	20.75	0
		8	0	19.69	19.88	20.00	1			3	0	19.92	20.01	20.21	1
		8	3	19.69	19.78	19.89	1			3	1	19.89	19.98	20.12	1
		8	7	19.59	19.80	19.87	1			3	3	19.79	20.00	20.04	1
		15	0	19.83	19.85	20.03	1			6	0	19.84	19.85	20.06	1
	16QAM	1	0	19.74	19.78	19.94	1		16QAM	1	0	19.70	19.84	19.90	1
		1	7	19.62	19.78	19.84	1			1	2	19.63	19.77	19.87	1
		1	14	19.62	19.69	19.87	1			1	5	19.57	19.73	19.84	1
		8	0	18.41	18.43	18.58	2			3	0	18.61	18.62	18.81	2
		8	3	18.22	18.30	18.50	2			3	1	18.40	18.52	18.64	2
		8	7	18.13	18.26	18.27	2			3	3	18.28	18.46	18.49	2
		15	0	18.24	18.36	18.48	2			6	0	18.24	18.36	18.53	2



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LTE Band 7															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20850	21100	21350				Channel		20825	21100	21375	
		Frequency(MHz)		2510	2535	2560				Frequency(MHz)		2507.5	2535	2562.5	
20M	QPSK	1	0	13.58	14.21	14.13	0	15M	QPSK	1	0	13.57	14.19	14.05	0
		1	50	13.22	13.85	13.85	0			1	37	13.15	13.77	13.79	0
		1	99	13.84	14.47	14.45	0			1	74	13.81	14.41	14.43	0
		50	0	13.06	13.65	13.65	1			36	0	13.04	13.58	13.60	1
		50	25	13.05	13.81	13.67	1			36	19	12.99	13.73	13.65	1
		50	50	12.97	13.55	13.60	1			36	39	12.95	13.47	13.59	1
		100	0	13.00	13.68	13.65	1			75	0	12.92	13.64	13.60	1
	16QAM	1	0	13.01	13.59	13.64	1		16QAM	1	0	12.99	13.51	13.63	1
		1	50	12.75	13.43	13.40	1			1	37	12.67	13.39	13.35	1
		1	99	13.02	13.63	13.65	1			1	74	12.99	13.57	13.63	1
		50	0	12.24	12.83	12.83	2			36	0	12.22	12.76	12.78	2
		50	25	12.08	12.70	12.74	2			36	19	12.02	12.62	12.72	2
		50	50	12.26	12.89	12.81	2			36	39	12.25	12.87	12.73	2
		100	0	12.16	12.77	12.77	2			75	0	12.11	12.69	12.71	2
BW	MCS Index	Channel		20800	21100	21400	3GPP MPR (dB)	BW	MCS Index	Channel		20775	21100	21425	3GPP MPR (dB)
		Frequency(MHz)		2505	2535	2565				Frequency(MHz)		2502.5	2535	2567.5	
10M	QPSK	1	0	13.52	14.13	14.11	0	5M	QPSK	1	0	13.54	14.16	14.08	0
		1	24	13.20	13.77	13.84	0			1	12	13.14	13.84	13.80	0
		1	49	13.76	14.43	14.40	0			1	24	13.80	14.42	14.44	0
		25	0	13.04	13.57	13.64	1			12	0	13.00	13.63	13.60	1
		25	12	12.97	13.77	13.62	1			12	6	12.98	13.76	13.65	1
		25	25	12.94	13.49	13.58	1			12	13	12.89	13.53	13.55	1
		50	0	12.98	13.61	13.60	1			25	0	12.98	13.60	13.63	1
	16QAM	1	0	12.95	13.51	13.62	1		16QAM	1	0	12.93	13.53	13.56	1
		1	24	12.74	13.41	13.32	1			1	12	12.69	13.41	13.34	1
		1	49	12.97	13.55	13.59	1			1	24	12.95	13.58	13.63	1
		25	0	12.23	12.77	12.81	2			12	0	12.18	12.76	12.78	2
		25	12	12.06	12.62	12.73	2			12	6	12.01	12.65	12.72	2
		25	25	12.18	12.85	12.76	2			12	13	12.18	12.87	12.75	2
		50	0	12.14	12.69	12.76	2			25	0	12.08	12.76	12.75	2



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LTE Band 66															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572				Channel		132047	132322	132597	
		Frequency(MHz)		1720	1745	1770				Frequency(MHz)		1717.5	1745	1772.5	
20M	QPSK	1	0	14.79	15.53	15.08	0	15M	QPSK	1	0	14.73	15.51	15.02	0
		1	50	14.65	14.97	14.89	0			1	37	14.58	14.92	14.87	0
		1	99	14.58	14.91	14.62	0			1	74	14.52	14.84	14.57	0
		50	0	13.67	14.16	13.61	1			36	0	13.60	14.11	13.59	1
		50	25	13.70	14.52	14.04	1			36	19	13.62	14.50	13.98	1
		50	50	13.59	14.29	13.77	1			36	39	13.51	14.28	13.75	1
		100	0	13.59	14.38	13.84	1			75	0	13.55	14.33	13.76	1
	16QAM	1	0	14.61	15.48	14.96	1		16QAM	1	0	14.53	15.47	14.94	1
		1	50	13.66	14.46	13.96	1			1	37	13.61	14.41	13.92	1
		1	99	14.22	14.96	14.52	1			1	74	14.20	14.88	14.51	1
		50	0	12.75	13.59	13.07	2			36	0	12.67	13.55	13.02	2
		50	25	12.68	13.15	12.68	2			36	19	12.65	13.09	12.66	2
		50	50	12.59	13.28	12.79	2			36	39	12.57	13.21	12.74	2
		100	0	12.63	13.41	12.96	2			75	0	12.57	13.33	12.94	2
BW	MCS Index	Channel		132022	132322	132622	3GPP MPR (dB)	BW	MCS Index	Channel		131997	132322	132647	3GPP MPR (dB)
		Frequency(MHz)		1715	1745	1775				Frequency(MHz)		1712.5	1745	1777.5	
		Frequency(MHz)		1715	1745	1775				Frequency(MHz)		1712.5	1745	1777.5	
10M	QPSK	1	0	14.71	15.49	15.03	0	5M	QPSK	1	0	14.74	15.46	15.03	0
		1	24	14.63	14.89	14.88	0			1	12	14.63	14.89	14.87	0
		1	49	14.50	14.87	14.57	0			1	24	14.53	14.83	14.61	0
		25	0	13.64	14.10	13.59	1			12	0	13.63	14.11	13.56	1
		25	12	13.68	14.45	13.99	1			12	6	13.62	14.51	13.99	1
		25	25	13.53	14.21	13.75	1			12	13	13.55	14.24	13.76	1
		50	0	13.58	14.36	13.76	1			25	0	13.53	14.36	13.79	1
	16QAM	1	0	14.54	15.40	14.90	1		16QAM	1	0	14.54	15.43	14.94	1
		1	24	13.63	14.40	13.94	1			1	12	13.58	14.44	13.91	1
		1	49	14.20	14.89	14.47	1			1	24	14.20	14.88	14.50	1
		25	0	12.69	13.51	13.05	2			12	0	12.67	13.53	12.99	2
		25	12	12.66	13.07	12.67	2			12	6	12.62	13.13	12.62	2
		25	25	12.51	13.24	12.74	2			12	13	12.52	13.23	12.77	2
		50	0	12.61	13.33	12.95	2			25	0	12.57	13.34	12.91	2
BW	MCS Index	Channel		131987	132322	132657	3GPP MPR (dB)	BW	MCS Index	Channel		131979	132322	132665	3GPP MPR (dB)
		Frequency(MHz)		1711.5	1745	1778.5				Frequency(MHz)		1710.7	1745	1779.3	
		Frequency(MHz)		1711.5	1745	1778.5				Frequency(MHz)		1710.7	1745	1779.3	
3M	QPSK	1	0	14.73	15.48	15.07	0	1.4M	QPSK	1	0	14.71	15.49	15.03	0
		1	7	14.64	14.95	14.84	0			1	2	14.62	14.91	14.87	0
		1	14	14.50	14.84	14.60	0			1	5	14.56	14.84	14.57	0
		8	0	13.66	14.12	13.58	1			3	0	14.11	14.58	14.09	1
		8	3	13.67	14.51	13.98	1			3	1	14.19	15.00	14.46	1
		8	7	13.55	14.24	13.75	1			3	3	14.04	14.71	14.21	1
		15	0	13.53	14.36	13.81	1			6	0	13.58	14.32	13.82	1
	16QAM	1	0	14.59	15.40	14.95	1		16QAM	1	0	14.56	15.41	14.91	1
		1	7	13.58	14.42	13.91	1			1	2	13.64	14.38	13.94	1
		1	14	14.19	14.90	14.50	1			1	5	14.17	14.88	14.51	1
		8	0	12.74	13.54	12.99	2			3	0	13.21	14.04	13.52	2
		8	3	12.62	13.12	12.64	2			3	1	13.10	13.64	13.13	2
		8	7	12.57	13.21	12.74	2			3	3	13.05	13.73	13.28	2
		15	0	12.57	13.33	12.94	2			6	0	12.57	13.39	12.91	2

WLAN/BT

WLAN2.4G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11b	1	13.57	99.04
		6	16.44	
		11	14.53	
	802.11g	1	11.80	95.14
		6	14.45	
		11	12.92	
	802.11n20	1	11.07	93.50
		6	13.98	
		11	12.31	
	802.11n40	3	12.22	89.23
		6	13.82	
		9	11.92	

WLAN5.2G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	36	8.75	95.14
		40	8.21	
		44	8.15	
		48	7.81	
	802.11n20	36	8.09	94.26
		40	7.69	
		44	7.31	
		48	6.91	
	802.11n40	38	7.45	89.23
		46	6.65	
	802.11ac20	36	8.05	94.31
		40	7.63	
		44	7.30	
		48	6.81	
	802.11ac40	38	6.90	89.23
		46	6.39	
	802.11ac80	42	6.49	80.56

WLAN5.3G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	52	8.15	95.14
		56	8.01	
		60	7.74	
		64	8.59	
	802.11n20	52	7.64	94.26
		56	7.32	
		60	7.03	
		64	6.85	
	802.11n40	54	7.01	89.23
		62	6.51	
	802.11ac20	52	7.55	94.31
		56	7.22	
		60	7.01	
		64	6.81	
	802.11ac40	54	6.81	89.23
		62	6.33	
	802.11ac80	58	6.12	80.56

WLAN5.6G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	100	10.84	95.14
		116	12.16	
		124	12.11	
		132	11.86	
		140	12.25	
		144	12.09	
	802.11n20	100	10.50	94.26
		116	11.51	
		124	11.91	
		132	11.81	
		140	11.61	
		144	11.72	
	802.11n40	102	10.25	89.23
		110	10.72	
		126	11.56	
		134	11.34	
		142	11.44	
	802.11ac20	100	10.58	94.31
		116	11.55	
		124	11.98	
		132	11.81	
		140	11.64	
		144	11.72	
	802.11ac40	102	10.15	89.23
		110	10.56	
		126	11.39	
		134	11.22	
		142	11.29	
	802.11ac80	106	9.90	80.56
		122	10.77	
		138	10.66	

WLAN5.8G	Mode	Channel	Average power (dBm)	Duty Cycle %
	802.11a	149	12.46	95.14
		157	12.13	
		165	11.82	
	802.11n20	149	11.92	94.26
		157	11.45	
		165	11.20	
	802.11n40	151	11.39	89.23
		159	11.06	
	802.11ac20	149	11.89	94.31
		157	11.40	
		165	11.23	
	802.11ac40	151	11.28	89.23
		159	10.85	
	802.11ac80	155	10.13	80.56

4.6 SAR Testing Results

4.6.1 SAR Test Reduction Considerations

<KDB 447498 D04, General RF Exposure Guidance>

Testing of other required channels within the operating mode of a frequency band is not required when the reported SAR for the mid-band or highest output power channel is:

- (1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- (2) ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- (3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

<KDB 941225 D01, 3G SAR Measurement Procedures>

The mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

<KDB 941225 D05, SAR Evaluation Considerations for LTE Devices>

- (1) QPSK with 1 RB and 50% RB allocation

Start with the largest channel bandwidth and measure SAR, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

- (2) QPSK with 100% RB allocation

SAR is not required when the highest maximum output power for 100% RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

- (3) Higher order modulations

SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> 1/2$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

- (4) Other channel bandwidth

SAR is required when the highest maximum output power of the smaller channel bandwidth is $> 1/2$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

<KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters>

- (1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is ≤ 0.4 W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
- (2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is ≤ 0.8 W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is ≤ 1.2 W/kg.
- (3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is ≤ 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is ≤ 1.2 W/kg.
- (4) For WLAN MIMO mode, the power-based standalone SAR test exclusion or the sum of SAR provision in KDB 447498 to determine simultaneous transmission SAR test exclusion should be applied. Otherwise, SAR for MIMO mode will be measured with all applicable antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

4.6.2 SAR Results for Body Exposure Condition (Separation Distance is 0 cm Gap)

<GSM / WCDMA>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Power Reduction	Sample	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
	GSM850	GPRS 2Tx slot	Rear Face	1.3	189	Full Power	1	32.0	30.43	-0.12	0.419	1.44	0.60
1	GSM850	GPRS 2Tx slot	Rear Face	0	128	Reduced Power	1	26.5	25.46	0.03	0.903	1.27	1.15
	GSM850	GPRS 2Tx slot	Rear Face	0	251	Reduced Power	1	26.5	25.47	-0.06	0.636	1.27	0.81
	GSM850	GPRS 2Tx slot	Rear Face	0	189	Reduced Power	1	26.5	25.49	-0.12	0.778	1.26	0.98
	GSM850	GPRS 2Tx slot	Rear Face	0	128	Reduced Power	2	26.5	25.46	0.17	0.863	1.27	1.10
	GSM1900	GPRS 2Tx slot	Rear Face	1.3	512	Full Power	1	29.0	27.94	0.04	0.285	1.28	0.36
2	GSM1900	GPRS 2Tx slot	Rear Face	0	512	Reduced Power	1	23.5	22.98	-0.14	1.040	1.13	1.17
	GSM1900	GPRS 2Tx slot	Rear Face	0	661	Reduced Power	1	23.5	22.84	-0.1	0.870	1.16	1.01
	GSM1900	GPRS 2Tx slot	Rear Face	0	810	Reduced Power	1	23.5	22.60	0.09	0.761	1.23	0.94
	GSM1900	GPRS 2Tx slot	Rear Face	0	512	Reduced Power	2	23.5	22.98	0.02	0.913	1.13	1.03
	WCDMA II	RMC12.2K	Rear Face	1.3	9400	Full Power	1	24.0	22.14	0.05	0.415	1.53	0.64
	WCDMA II	RMC12.2K	Rear Face	0	9400	Reduced Power	1	16.5	15.81	0.03	0.797	1.17	0.93
3	WCDMA II	RMC12.2K	Rear Face	0	9262	Reduced Power	1	16.5	15.33	0.19	0.866	1.31	1.13
	WCDMA II	RMC12.2K	Rear Face	0	9538	Reduced Power	1	16.5	15.29	-0.11	0.759	1.32	1.00
	WCDMA II	RMC12.2K	Rear Face	0	9262	Reduced Power	2	16.5	15.33	0.05	0.553	1.31	0.72
	WCDMA IV	RMC12.2K	Rear Face	1.3	1312	Full Power	1	24.0	22.34	0.03	0.293	1.47	0.43
	WCDMA IV	RMC12.2K	Rear Face	0	1312	Reduced Power	1	17.0	15.55	0.08	0.724	1.40	1.01
4	WCDMA IV	RMC12.2K	Rear Face	0	1413	Reduced Power	1	17.0	15.25	-0.06	0.763	1.50	1.14
	WCDMA IV	RMC12.2K	Rear Face	0	1513	Reduced Power	1	17.0	15.28	-0.01	0.719	1.49	1.07
	WCDMA IV	RMC12.2K	Rear Face	0	1413	Reduced Power	2	17.0	15.25	0.15	0.674	1.50	1.01
	WCDMA V	RMC12.2K	Right Side	0.7	4233	Full Power	1	24.0	22.45	0.03	0.242	1.43	0.35
	WCDMA V	RMC12.2K	Right Side	0	4182	Reduced Power	1	22.0	20.50	-0.08	0.614	1.41	0.87
5	WCDMA V	RMC12.2K	Right Side	0	4132	Reduced Power	1	22.0	20.52	-0.03	0.828	1.41	1.16
	WCDMA V	RMC12.2K	Right Side	0	4233	Reduced Power	1	22.0	20.55	0.07	0.615	1.40	0.86
	WCDMA V	RMC12.2K	Right Side	0	4132	Reduced Power	2	22.0	20.52	0.12	0.644	1.41	0.91

<LTE>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Power Reduction	Sample	RB	offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
6	LTE 2	QPSK20M	Rear Face	1.3	18900	Full Power	1	1	0	24.0	23.27	0.05	0.439	1.18	0.52
	LTE 2	QPSK20M	Rear Face	0	19100	Reduced Power	1	1	0	17.0	15.68	0.09	0.869	1.36	1.18
	LTE 2	QPSK20M	Rear Face	0	18700	Reduced Power	1	1	0	17.0	15.47	0.12	0.707	1.42	1.01
	LTE 2	QPSK20M	Rear Face	0	18900	Reduced Power	1	1	0	17.0	16.13	-0.05	0.772	1.22	0.94
	LTE 2	QPSK20M	Rear Face	0	19100	Reduced Power	2	1	0	17.0	15.68	0.07	0.728	1.36	0.99
7	LTE 5	QPSK10M	Rear Face	1.3	20600	Full Power	1	1	49	24.0	22.43	0.07	0.259	1.44	0.37
	LTE 5	QPSK10M	Right Side	0	20525	Reduced Power	1	1	49	22.0	20.62	-0.04	0.812	1.37	1.12
	LTE 5	QPSK10M	Right Side	0	20450	Reduced Power	1	1	49	22.0	20.55	-0.07	0.796	1.40	1.11
	LTE 5	QPSK10M	Right Side	0	20600	Reduced Power	1	1	49	22.0	20.77	-0.06	0.786	1.33	1.04
	LTE 5	QPSK10M	Right Side	0	20525	Reduced Power	2	1	49	22.0	20.62	-0.02	0.653	1.37	0.90
8	LTE 7	QPSK20M	Rear Face	1.3	21100	Full Power	1	1	99	23.5	23.09	0.1	0.615	1.10	0.68
	LTE 7	QPSK20M	Rear Face	0	21100	Reduced Power	1	1	99	15.0	14.47	0.09	1.010	1.13	1.14
	LTE 7	QPSK20M	Rear Face	0	20850	Reduced Power	1	1	99	15.0	13.84	0.05	0.827	1.31	1.08
	LTE 7	QPSK20M	Rear Face	0	21350	Reduced Power	1	1	99	15.0	14.45	-0.03	0.937	1.14	1.06
	LTE 7	QPSK20M	Rear Face	0	21100	Reduced Power	2	1	99	15.0	14.47	0.08	0.906	1.13	1.02
9	LTE 66	QPSK20M	Rear Face	1.3	132322	Full Power	1	1	0	24.0	23.07	0.03	0.320	1.24	0.40
	LTE 66	QPSK20M	Rear Face	0	132572	Reduced Power	1	1	0	16.5	15.08	0.09	0.680	1.39	0.94
	LTE 66	QPSK20M	Rear Face	0	132322	Reduced Power	1	1	0	16.5	15.53	-0.02	0.951	1.25	1.19
	LTE 66	QPSK20M	Rear Face	0	132072	Reduced Power	1	1	0	16.5	14.79	0.09	0.626	1.48	0.93
	LTE 66	QPSK20M	Rear Face	0	132322	Reduced Power	2	1	0	16.5	15.53	-0.1	0.823	1.25	1.03

<WLAN / BT >

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Power Reduction	Sample	Duty Cycle %	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Power Drift (dB)	Measured SAR-1g (W/kg)	Duty Cycle Scaling Factor	Tune-up Scaling Factor	Scaled SAR-1g (W/kg)
10	WLAN2.4G	802.11b	Rear Face	0	6	Reduced Power	1	99.04	17.0	16.44	0	0.587	1.01	1.14	0.67
	WLAN2.4G	802.11b	Left Side	0	6	Reduced Power	1	99.04	17.0	16.44	0.03	0.231	1.01	1.14	0.27
	WLAN2.4G	802.11b	Top Side	0	6	Reduced Power	1	99.04	17.0	16.44	0.06	0.082	1.01	1.14	0.09
	WLAN2.4G	802.11b	Rear Face	1.3	6	Full Power	1	99.04	22.0	21.22	-0.09	0.143	1.01	1.20	0.17
	WLAN2.4G	802.11b	Left Side	0.7	6	Full Power	1	99.04	22.0	21.22	0.02	0.208	1.01	1.20	0.25
	WLAN2.4G	802.11b	Top Side	1.5	6	Full Power	1	99.04	22.0	21.22	0.05	0.075	1.01	1.20	0.09
	WLAN2.4G	802.11b	Rear Face	0	6	Reduced Power	2	99.04	17.0	16.44	-0.01	0.522	1.01	1.14	0.60
11	WLAN5G	802.11a	Rear Face	0	64	Reduced Power	1	95.14	9.0	8.59	0.11	0.413	1.05	1.10	0.48
	WLAN5G	802.11a	Left Side	0	64	Reduced Power	1	95.14	9.0	8.59	-0.03	0.084	1.05	1.10	0.10
	WLAN5G	802.11a	Top Side	0	64	Reduced Power	1	95.14	9.0	8.59	0.01	0.120	1.05	1.10	0.14
	WLAN5G	802.11a	Rear Face	1.3	64	Full Power	1	95.14	17.0	16.42	0.05	0.094	1.05	1.14	0.11
	WLAN5G	802.11a	Left Side	0.7	64	Full Power	1	95.14	17.0	16.42	0.18	0.151	1.05	1.14	0.18
	WLAN5G	802.11a	Top Side	1.5	64	Full Power	1	95.14	17.0	16.42	0.05	0.051	1.05	1.14	0.06
	WLAN5G	802.11a	Rear Face	0	64	Reduced Power	2	95.14	9.0	8.59	-0.09	0.360	1.05	1.10	0.42
12	WLAN5G	802.11a	Rear Face	0	140	Reduced Power	1	95.14	13.0	12.25	0.05	0.241	1.05	1.19	0.30
	WLAN5G	802.11a	Left Side	0	140	Reduced Power	1	95.14	13.0	12.25	0.03	0.054	1.05	1.19	0.07
	WLAN5G	802.11a	Top Side	0	140	Reduced Power	1	95.14	13.0	12.25	0.14	0.064	1.05	1.19	0.08
	WLAN5G	802.11a	Rear Face	1.3	144	Full Power	1	95.14	18.5	17.92	-0.06	0.048	1.05	1.14	0.06
	WLAN5G	802.11a	Left Side	0.7	144	Full Power	1	95.14	18.5	17.92	0.01	0.067	1.05	1.14	0.08
	WLAN5G	802.11a	Top Side	1.5	144	Full Power	1	95.14	18.5	17.92	0.06	0.127	1.05	1.14	0.15
	WLAN5G	802.11a	Rear Face	0	140	Reduced Power	2	95.14	13.0	12.25	-0.03	0.176	1.05	1.19	0.22
13	WLAN5G	802.11a	Rear Face	0	149	Reduced Power	1	95.14	13.0	12.46	-0.11	0.314	1.05	1.13	0.37
	WLAN5G	802.11a	Left Side	0	149	Reduced Power	1	95.14	13.0	12.46	0.02	0.073	1.05	1.13	0.09
	WLAN5G	802.11a	Top Side	0	149	Reduced Power	1	95.14	13.0	12.46	-0.08	0.112	1.05	1.13	0.13
	WLAN5G	802.11a	Rear Face	1.3	149	Full Power	1	95.14	16.5	15.72	0.05	0.070	1.05	1.20	0.09
	WLAN5G	802.11a	Left Side	0.7	149	Full Power	1	95.14	16.5	15.72	0.01	0.065	1.05	1.20	0.08
	WLAN5G	802.11a	Top Side	1.5	149	Full Power	1	95.14	16.5	15.72	0.04	0.137	1.05	1.20	0.17
	WLAN5G	802.11a	Rear Face	0	149	Reduced Power	2	95.14	13.0	12.46	-0.06	0.251	1.05	1.13	0.30
14	BT	GFSK	Rear Face	0	39	Full Power	1	77.6	10.5	9.70	-0.13	0.170	1.29	1.20	0.26
	BT	GFSK	Top Side	0	39	Full Power	1	77.6	10.5	9.70	0.07	0.060	1.29	1.20	0.09
	BT	GFSK	Rear Face	0	39	Full Power	2	77.6	10.5	9.70	0.03	0.156	1.29	1.20	0.24

4.6.3 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 , or when the original or repeated measurement is ≥ 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 , and the original, first or second repeated measurement is ≥ 1.5 W/kg, perform a third repeated measurement.

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
GSM850	Rear Face	128	0.903	0.886	1.02	N/A	N/A	N/A	N/A
LTE 66	Rear Face	132322	0.951	0.939	1.01	N/A	N/A	N/A	N/A
GSM1900	Rear Face	512	1.040	0.994	1.05	N/A	N/A	N/A	N/A
LTE 7	Rear Face	21100	1.010	0.989	1.02	N/A	N/A	N/A	N/A



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4.6.4 Simultaneous Multi-band Transmission Evaluation

<SAR Summation Analysis>

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR_{1g} of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR_{1g} 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR_{1g} is greater than the SAR limit (SAR_{1g} 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM850	Rear Face at 0mm	1.147	0.674	0.477	0.263	2.085	1.888
	Left side at 0mm	0.056	0.265	0.097		0.321	0.153
	Right side at 0mm	0.722				0.722	0.722
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.544				0.544	0.544
	Rear Face at 13mm	0.601	0.173	0.113		0.774	0.714
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.332				0.332	0.332
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.419				0.419	0.419
GSM1900	Rear Face at 0mm	1.172	0.674	0.477	0.263	2.110	1.913
	Left side at 0mm	0.104	0.265	0.097		0.369	0.201
	Right side at 0mm	0.278				0.278	0.278
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.575				0.575	0.575
	Rear Face at 13mm	0.364	0.173	0.113		0.537	0.477
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.280				0.280	0.280
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.176				0.176	0.176
WCDMA II	Rear Face at 0mm	1.134	0.674	0.477	0.263	2.071	1.874
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	0.343				0.343	0.343
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.504				0.504	0.504
	Rear Face at 13mm	0.637	0.173	0.113		0.810	0.750
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.652				0.652	0.652

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WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.315				0.315	0.315
WCDMA IV	Rear Face at 0mm	1.142	0.674	0.477	0.263	2.079	1.882
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	0.318				0.318	0.318
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.413				0.413	0.413
	Rear Face at 13mm	0.429	0.173	0.113		0.602	0.542
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.403				0.403	0.403
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.171				0.171	0.171
WCDMA V	Rear Face at 0mm	0.928	0.674	0.477	0.263	1.866	1.668
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	1.164				1.164	1.164
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.570				0.570	0.570
	Rear Face at 13mm	0.406	0.173	0.113		0.579	0.519
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.346				0.346	0.346
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.264				0.264	0.264
LTE 2	Rear Face at 0mm	1.178	0.674	0.477	0.263	2.115	1.918
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	0.357				0.357	0.357
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.568				0.568	0.568
	Rear Face at 13mm	0.519	0.173	0.113		0.692	0.632
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.487				0.487	0.487
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.289				0.289	0.289
LTE 5	Rear Face at 0mm	0.957	0.674	0.477	0.263	1.894	1.697
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	1.116				1.116	1.116
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232



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WWAN Band	Exposure Position	1	2	3	4	1+2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
	Bottom side at 0mm	0.604				0.604	0.604
	Rear Face at 13mm	0.372	0.173	0.113		0.545	0.485
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.247				0.247	0.247
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.281				0.281	0.281
LTE 7	Rear Face at 0mm	1.141	0.674	0.477	0.263	2.079	1.882
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	0.546				0.546	0.546
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.932				0.932	0.932
	Rear Face at 13mm	0.676	0.173	0.113		0.849	0.789
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.381				0.381	0.381
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.550				0.550	0.550
LTE 66 / 4	Rear Face at 0mm	1.189	0.674	0.477	0.263	2.127	1.929
	Left side at 0mm		0.265	0.097		0.265	0.097
	Right side at 0mm	0.339				0.339	0.339
	Top side at 0mm		0.094	0.139	0.093	0.187	0.232
	Bottom side at 0mm	0.769				0.769	0.769
	Rear Face at 13mm	0.396	0.173	0.113		0.569	0.509
	Left side at 7mm		0.251	0.181		0.251	0.181
	Right side at 7mm	0.273				0.273	0.273
	Top side at 15mm		0.091	0.172		0.091	0.172
	Bottom side at 12mm	0.159				0.159	0.159

Note:

- Summed 1+2+4 covers Summed 1+2 / 1+4 / 2+4, Summed 1+3+4 covers Summed 1+3 / 1+4 / 3+4.
- Except for verified data, all of the data use for the Simultaneous Transmission analysis on this report was copied from the original report (W7L-P22050002SA01).

<SAR to Peak Location Separation Ratio Analysis>

The simultaneous transmitting antennas in each operating mode and exposure condition combination are considered one pair at a time to determine the SPLSR. When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following formula.

$$\text{Peak Location Separation Distance} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

Where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the area or zoom scans.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna. Due to curvatures on the SAM phantom, when SAR is estimated for one of the antennas in an antenna pair, the measured peak SAR location will be translated onto the test device to determine the peak location separation for the antenna pair.

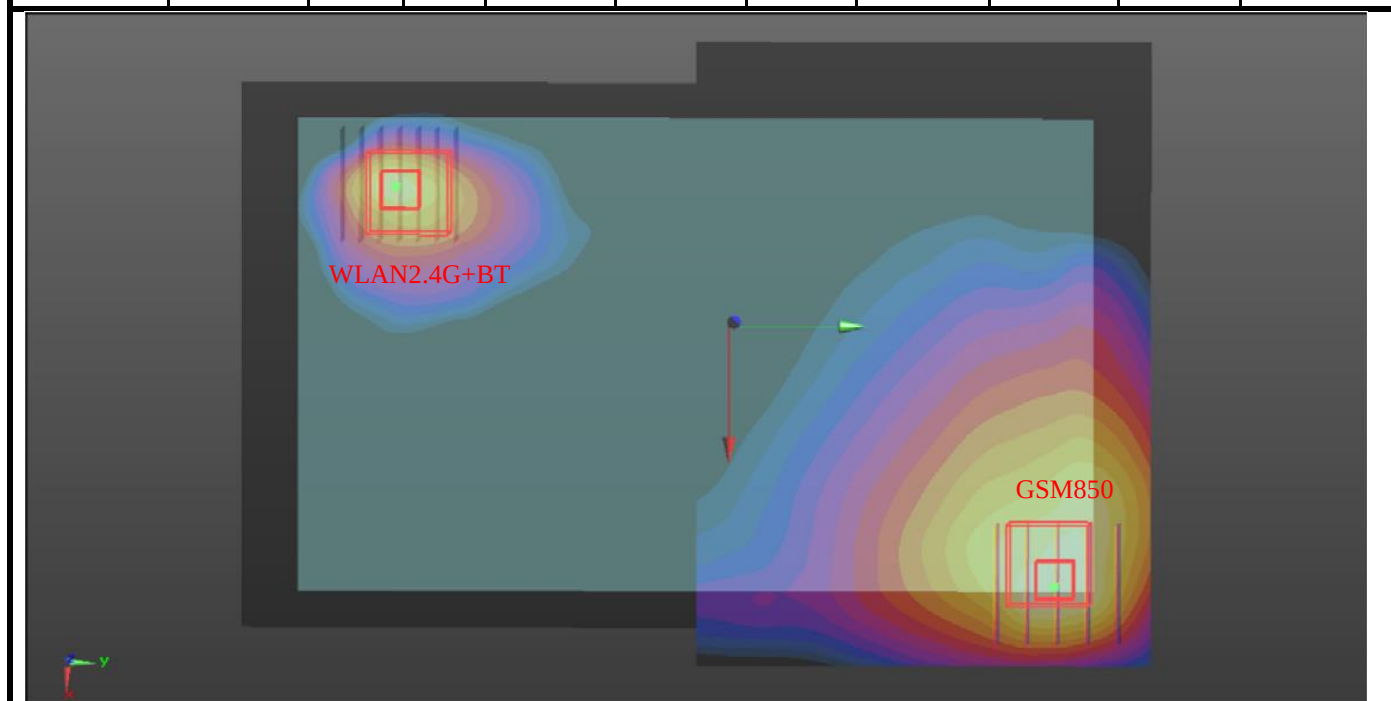
The SPLSR is determined by the following formula.

$$\text{SPLSR} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{R_i}$$

Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

When the SPLSR is ≤ 0.04 , the simultaneous transmission SAR is not required. Otherwise, the enlarged zoom scan and volume scan post-processing procedures will be performed.

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
GSM850	Rear Face	1.15	0	0.0615	0.0945	-0.18	203.2	2.08	0.01	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





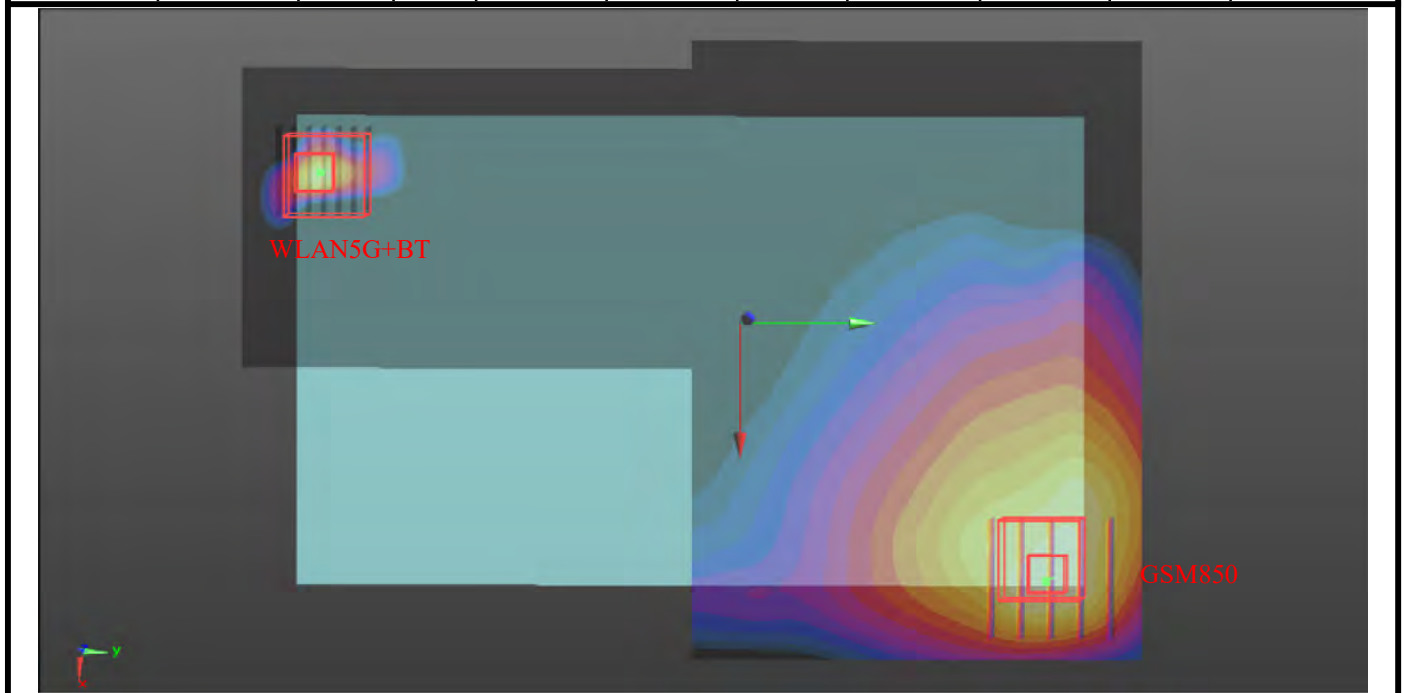
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
GSM850	Rear Face	1.15	0	0.0615	0.0945	-0.18	217.1	1.89	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





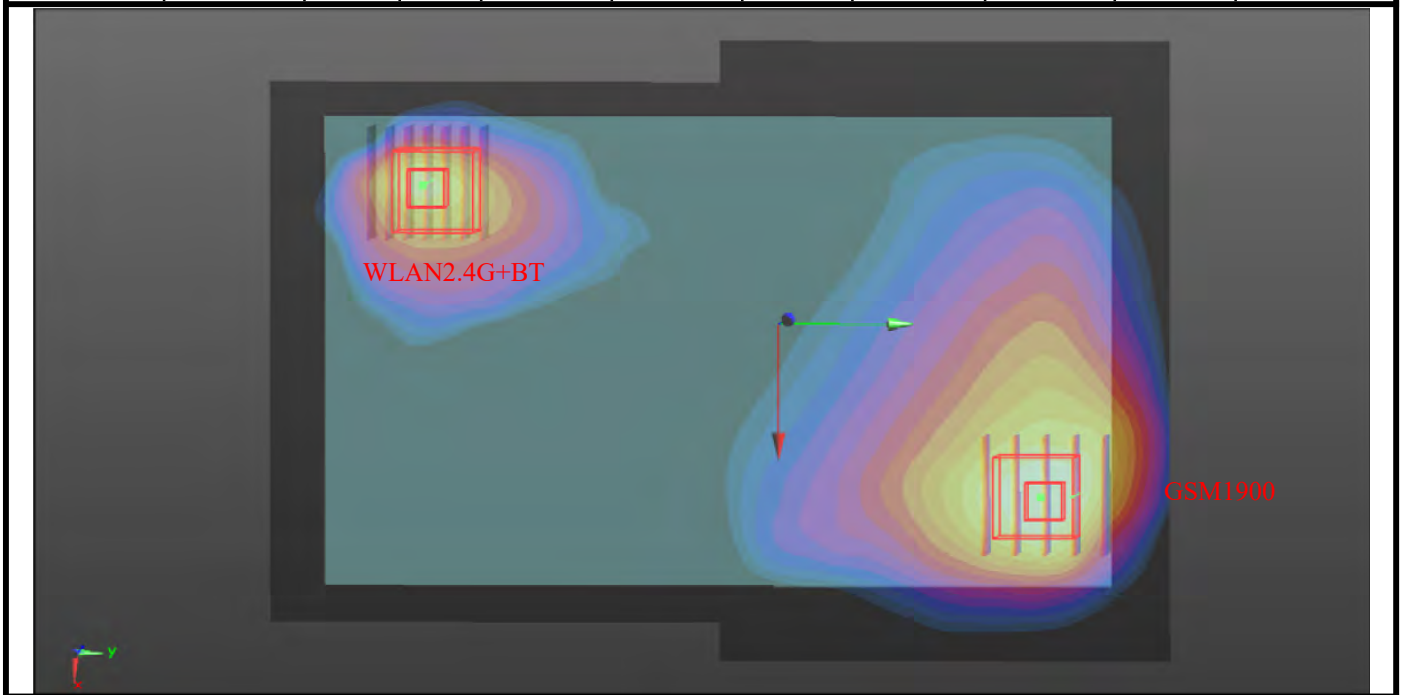
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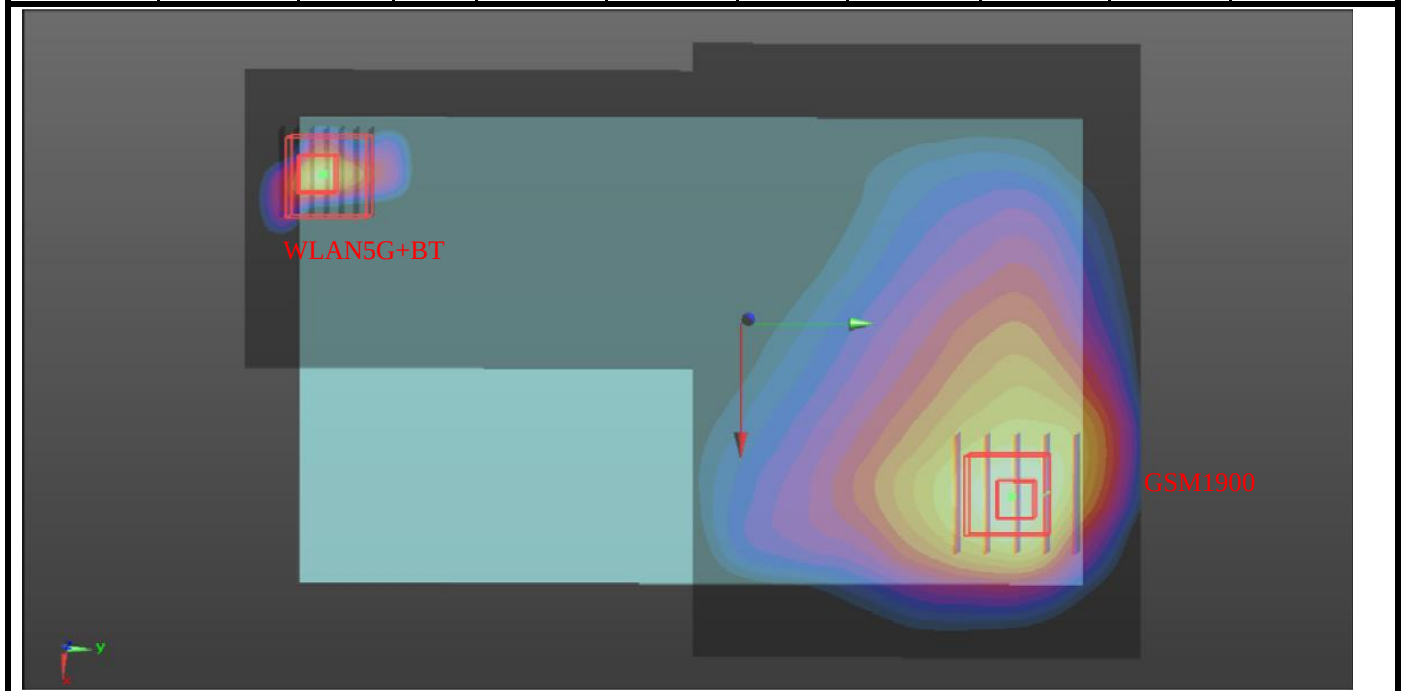
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
GSM1900	Rear Face	1.17	0	0.039	0.0935	-0.18	191.6	2.11	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
GSM1900	Rear Face	1.17	0	0.039	0.0935	-0.18	205.3	1.91	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





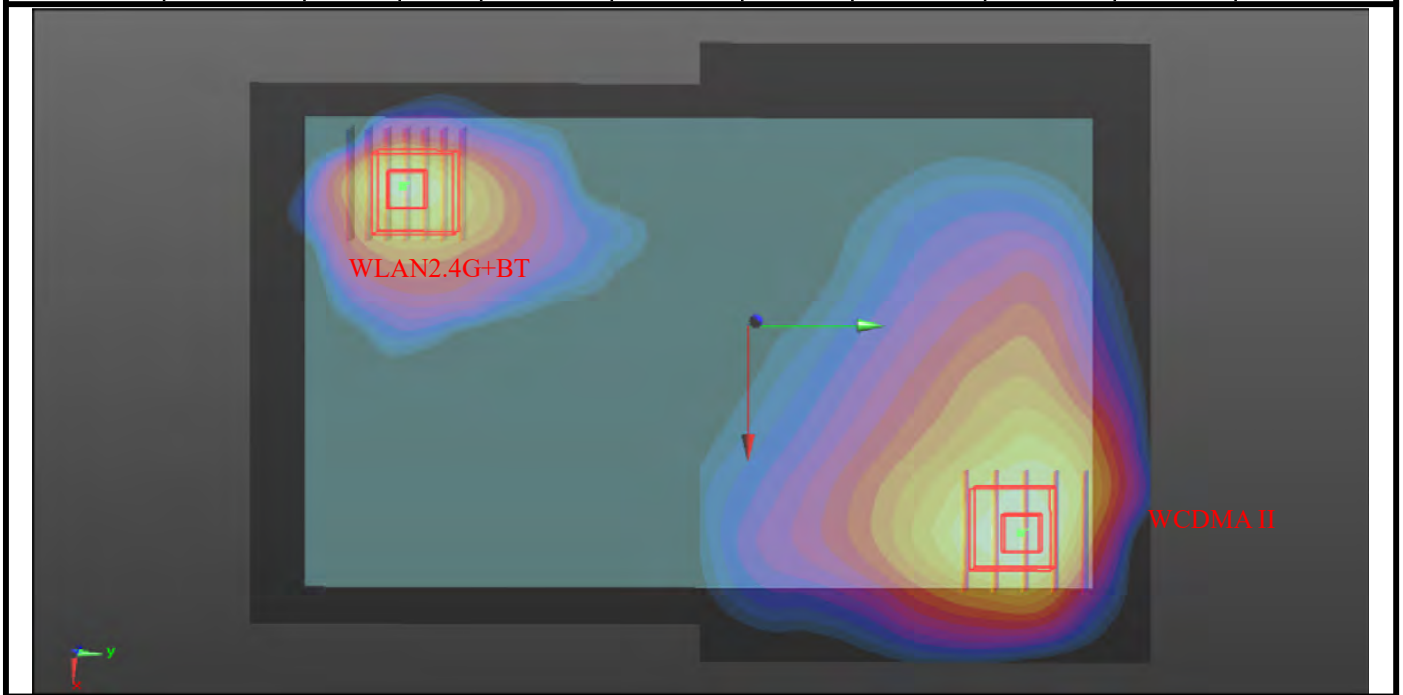
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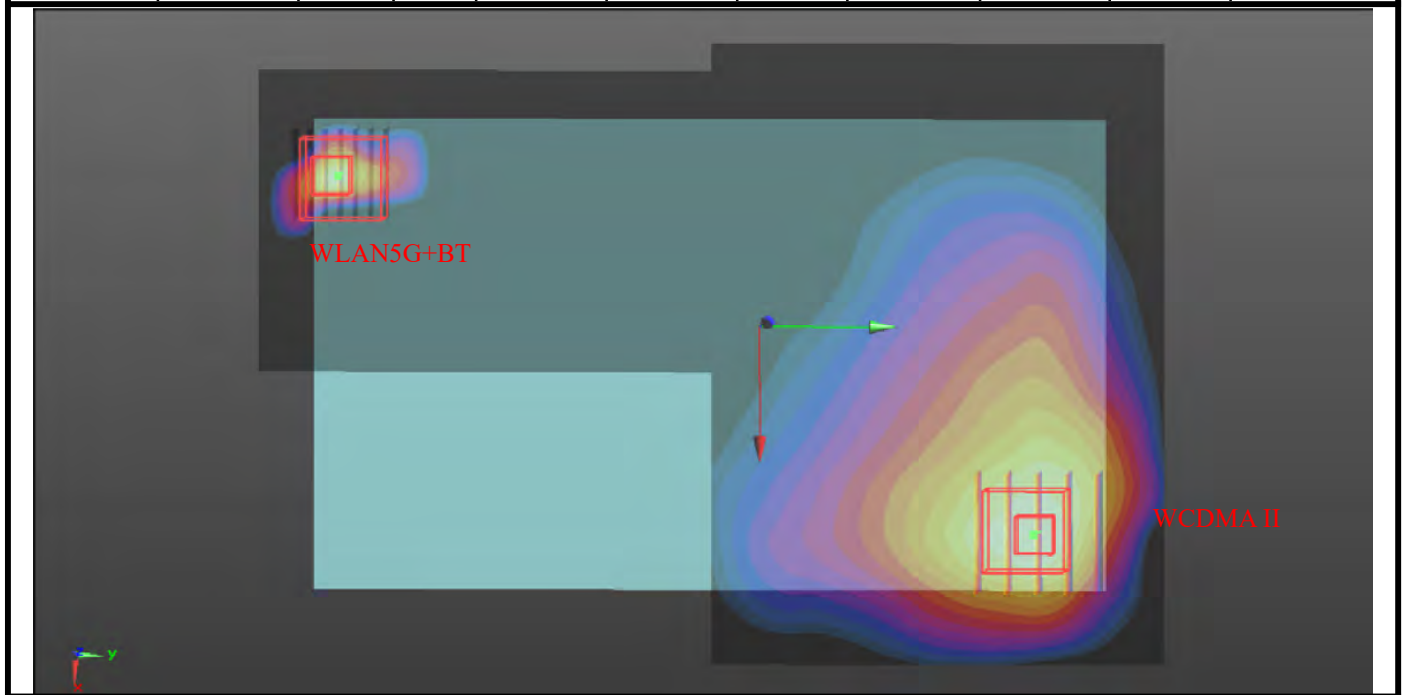
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
WCDMA II	Rear Face	1.13	0	0.048	0.0855	-0.18	188.6	2.07	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
WCDMA II	Rear Face	1.13	0	0.048	0.0855	-0.18	202.5	1.87	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





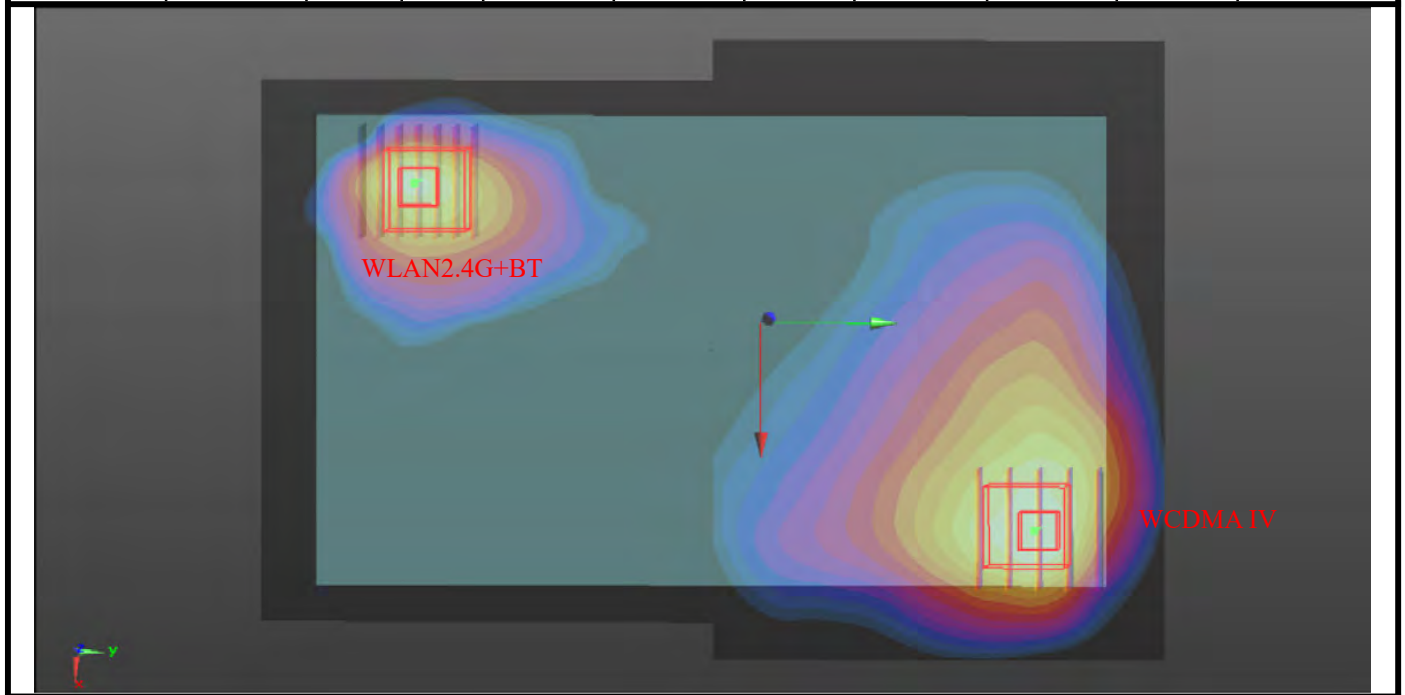
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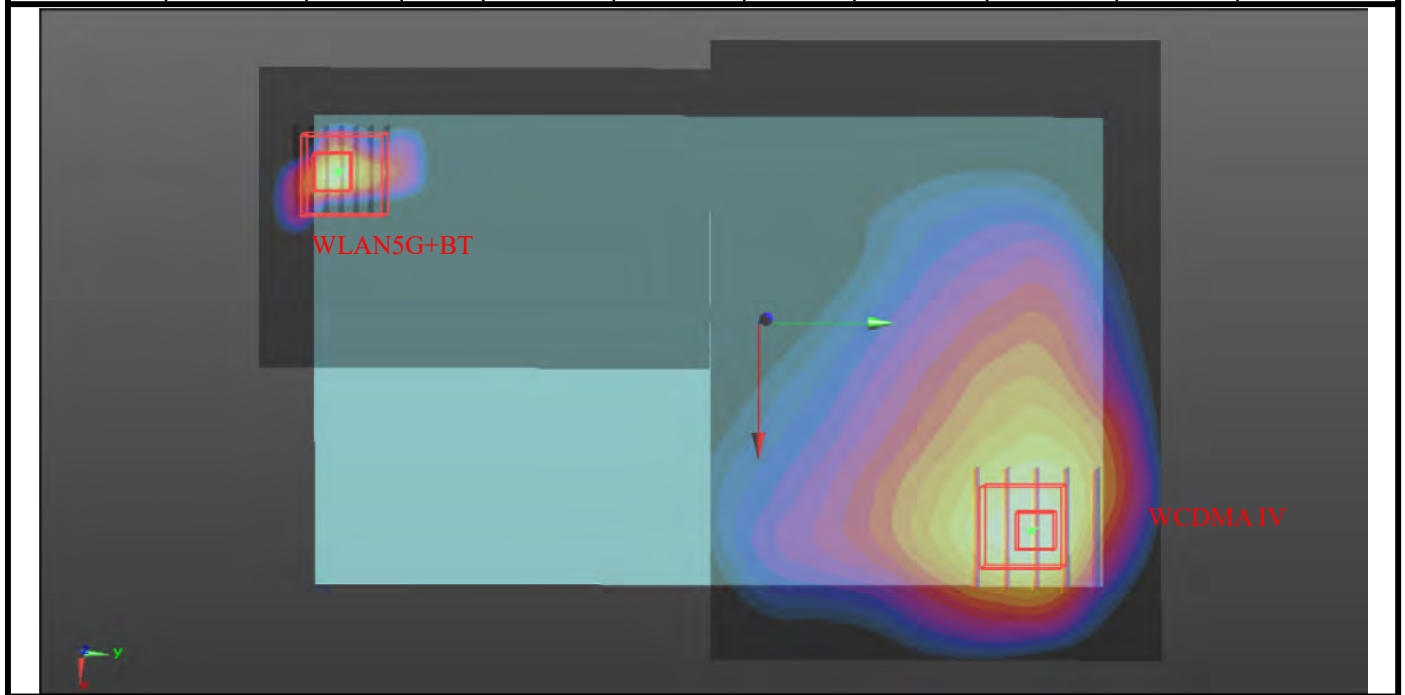
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Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
WCDMA IV	Rear Face	1.14	0	0.048	0.0855	-0.18	188.6	2.08	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				



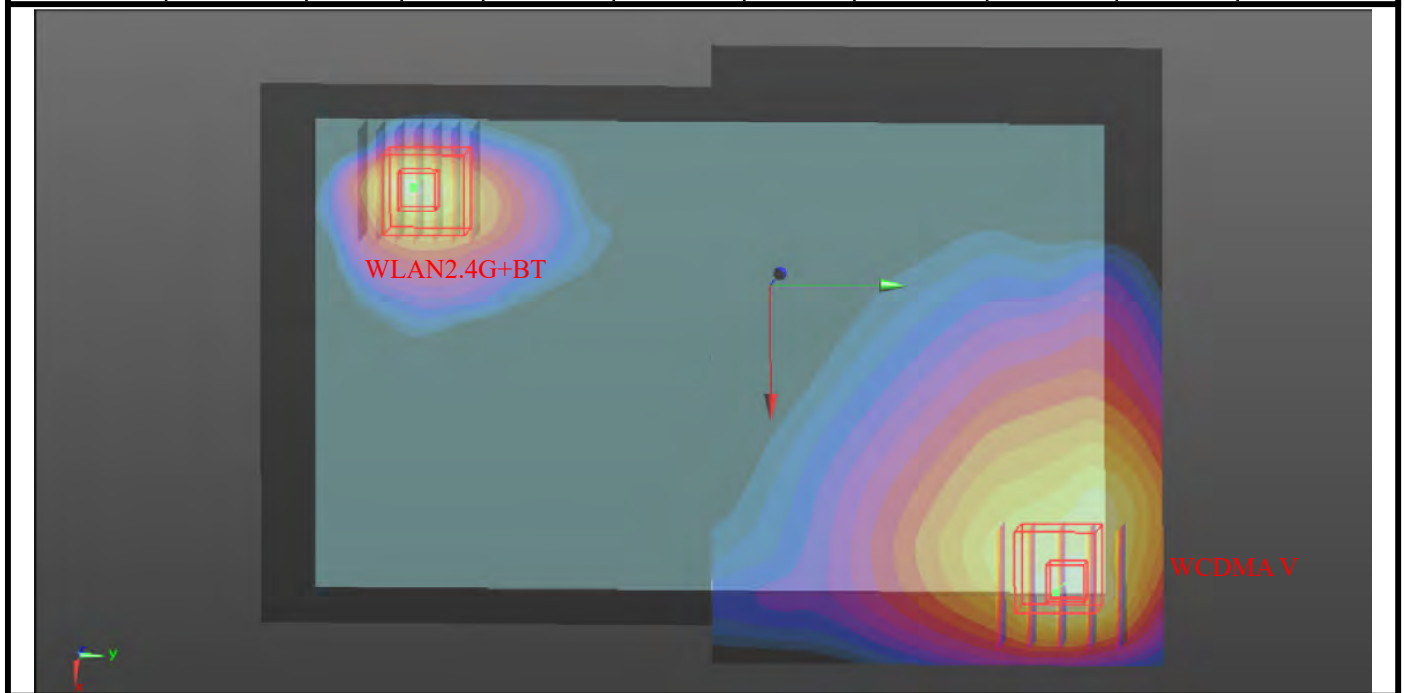


Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA IV	Rear Face	1.14	0	0.048	0.0855	-0.18	202.5	1.88	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				



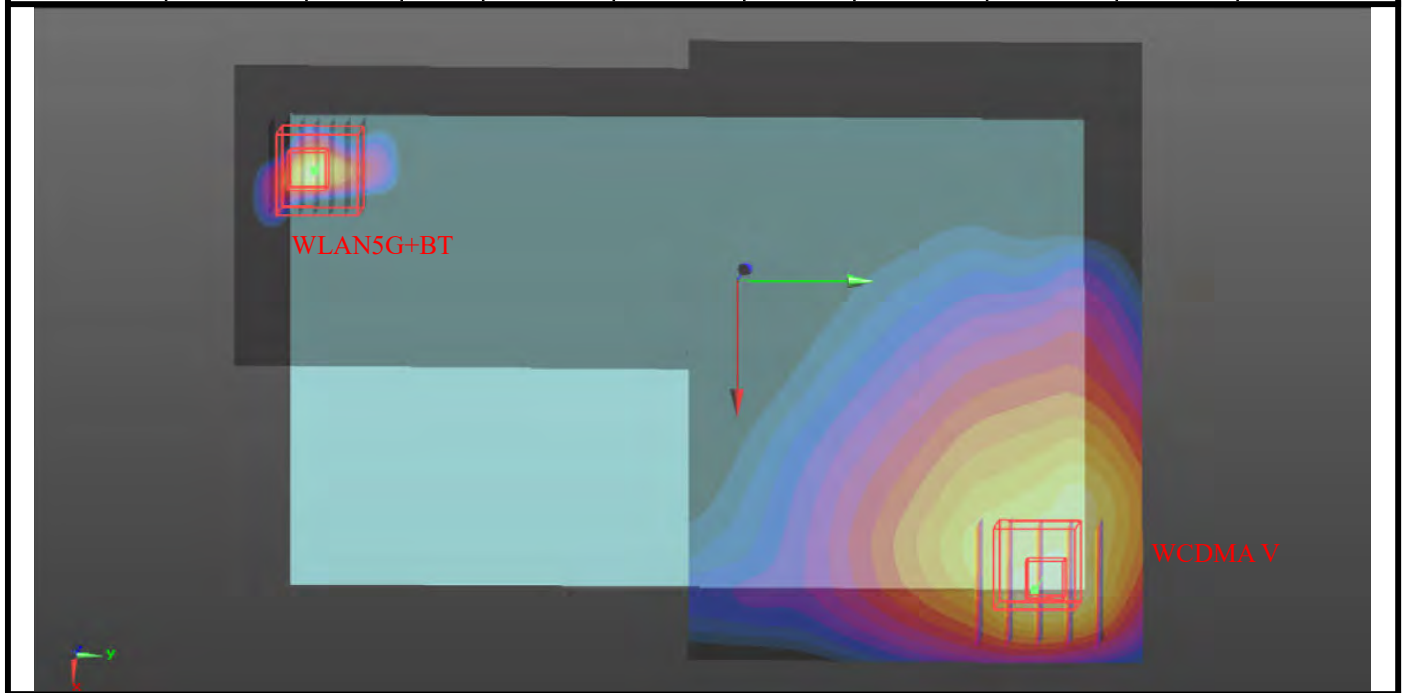


Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
WCDMA V	Rear Face	0.93	0	0.063	0.0915	-0.18	201.4	1.87	0.01	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
WCDMA V	Rear Face	0.93	0	0.063	0.0915	-0.18	215.4	1.67	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





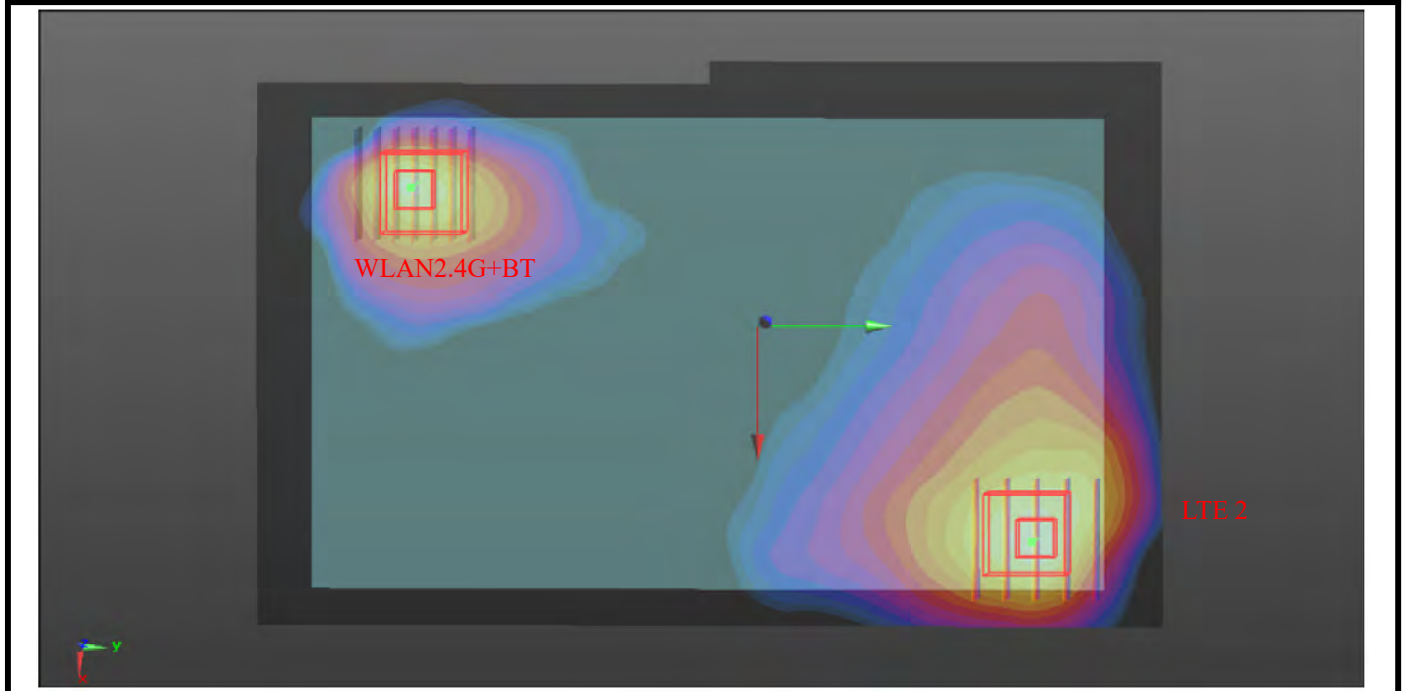
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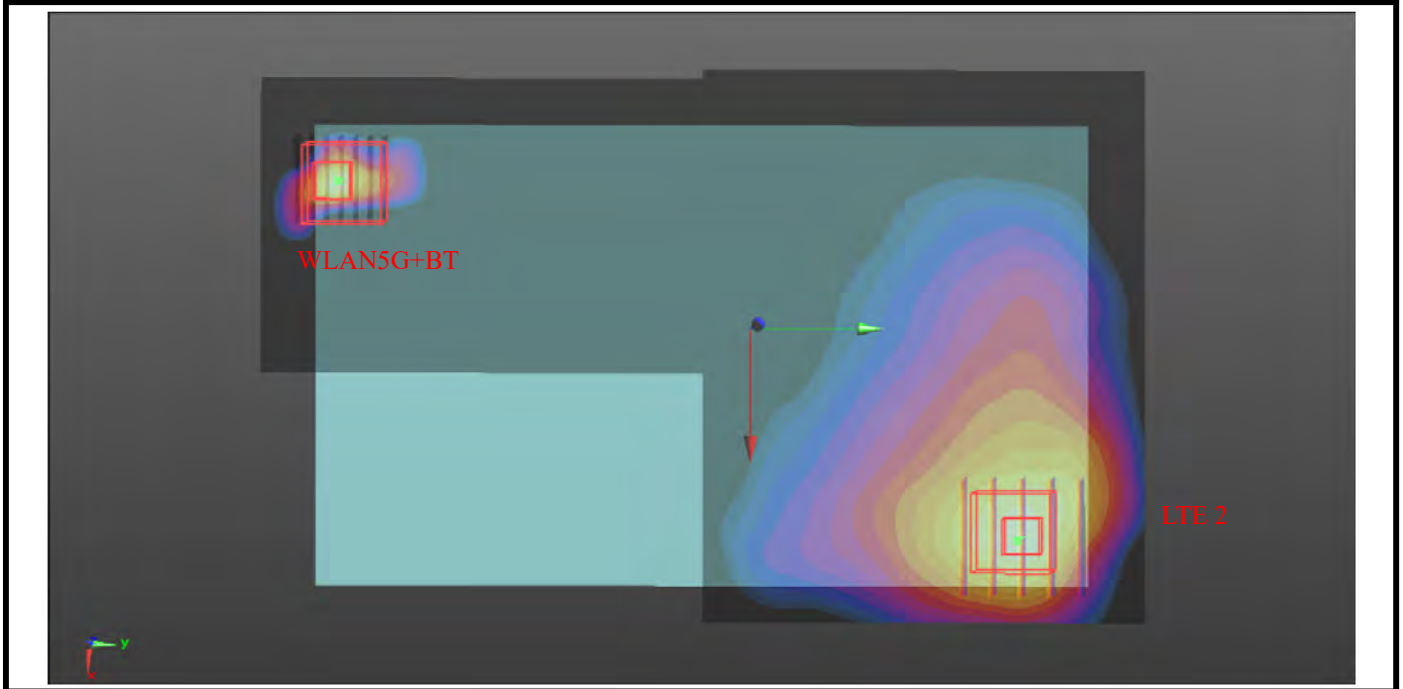
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 2	Rear Face	1.18	0	0.05	0.0855	-0.18	189.6	2.12	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 2	Rear Face	1.18	0	0.05	0.0855	-0.18	203.5	1.92	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





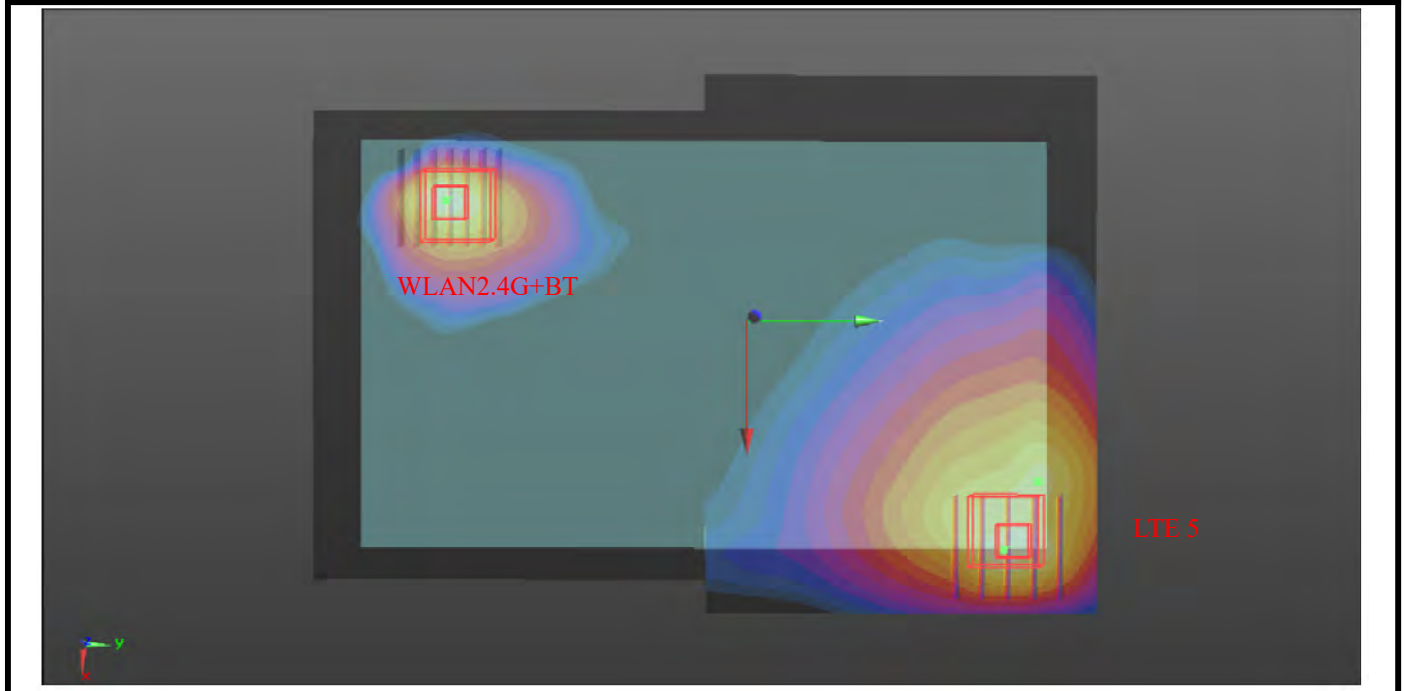
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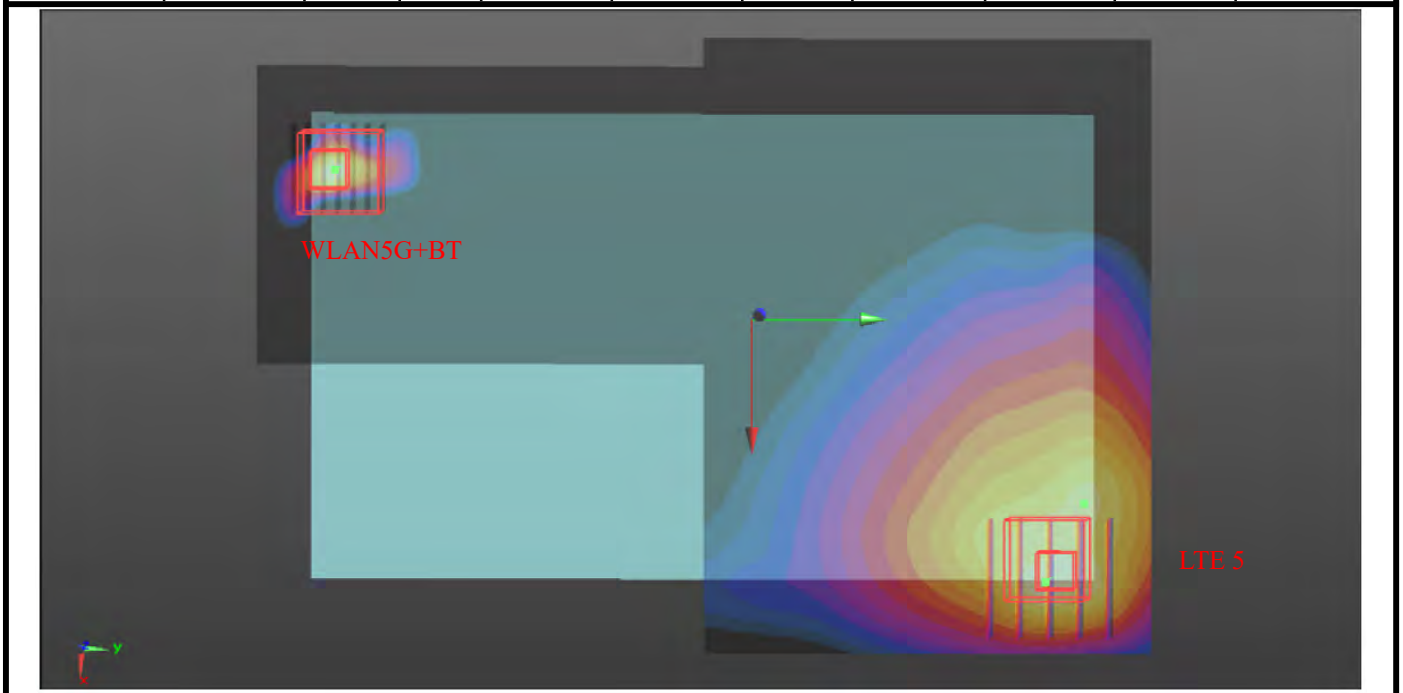
Certificate #6613.01

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 5	Rear Face	0.96	0	0.063	0.0915	-0.18	201.4	1.89	0.01	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 5	Rear Face	0.96	0	0.063	0.0915	-0.18	215.4	1.70	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





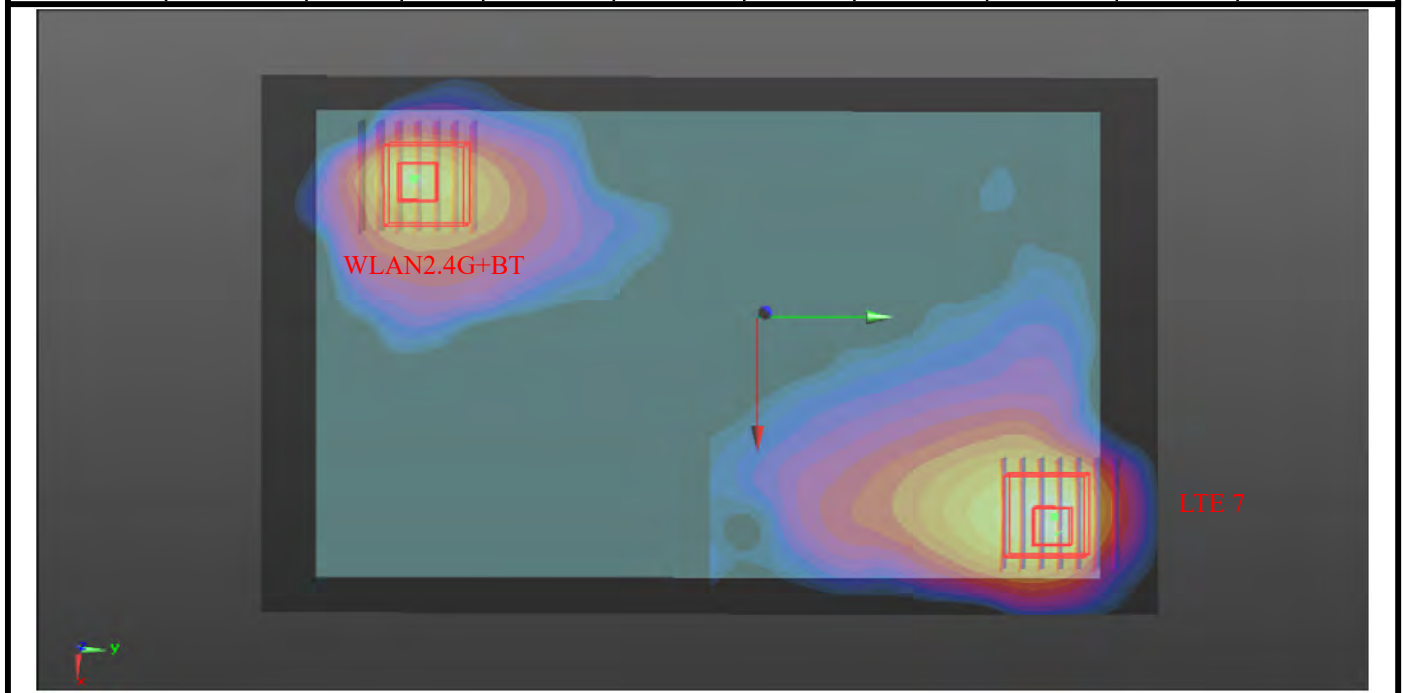
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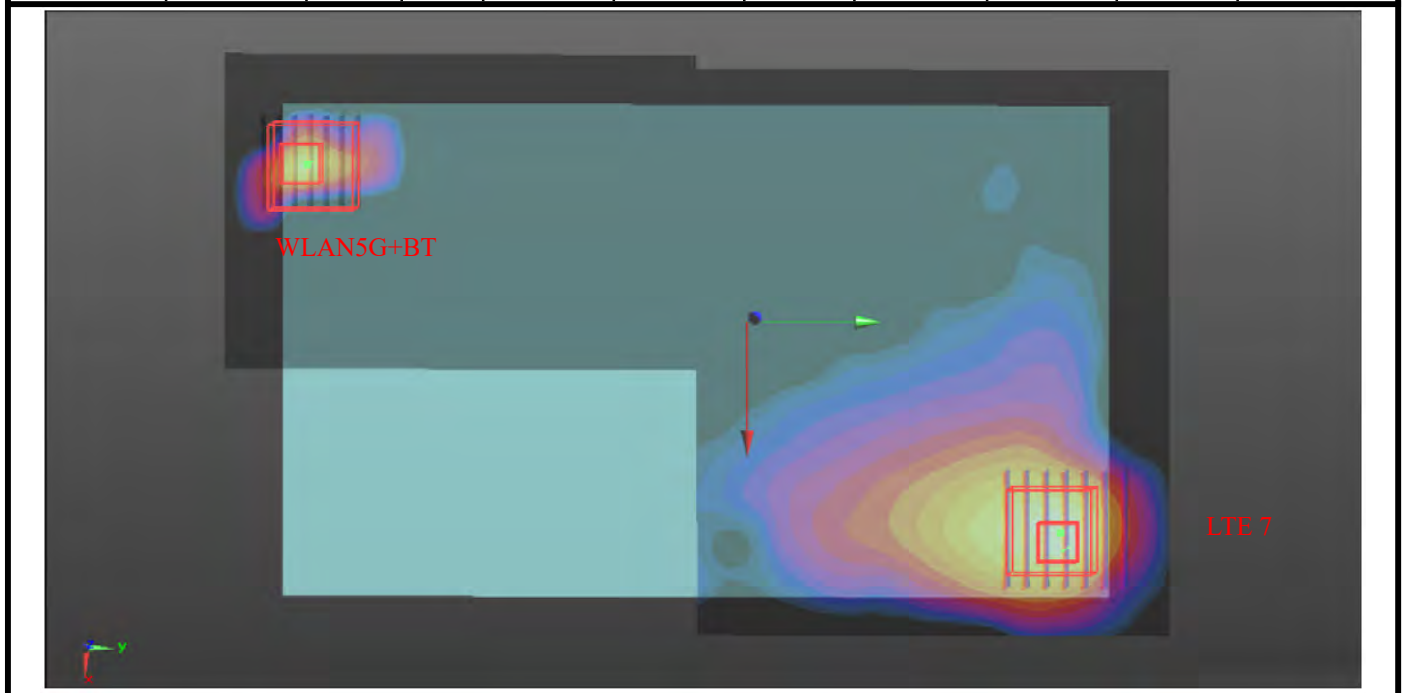
Certificate #6613.01

Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 7	Rear Face	1.14	0	0.0511	0.0924	-0.18	196.1	2.08	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				



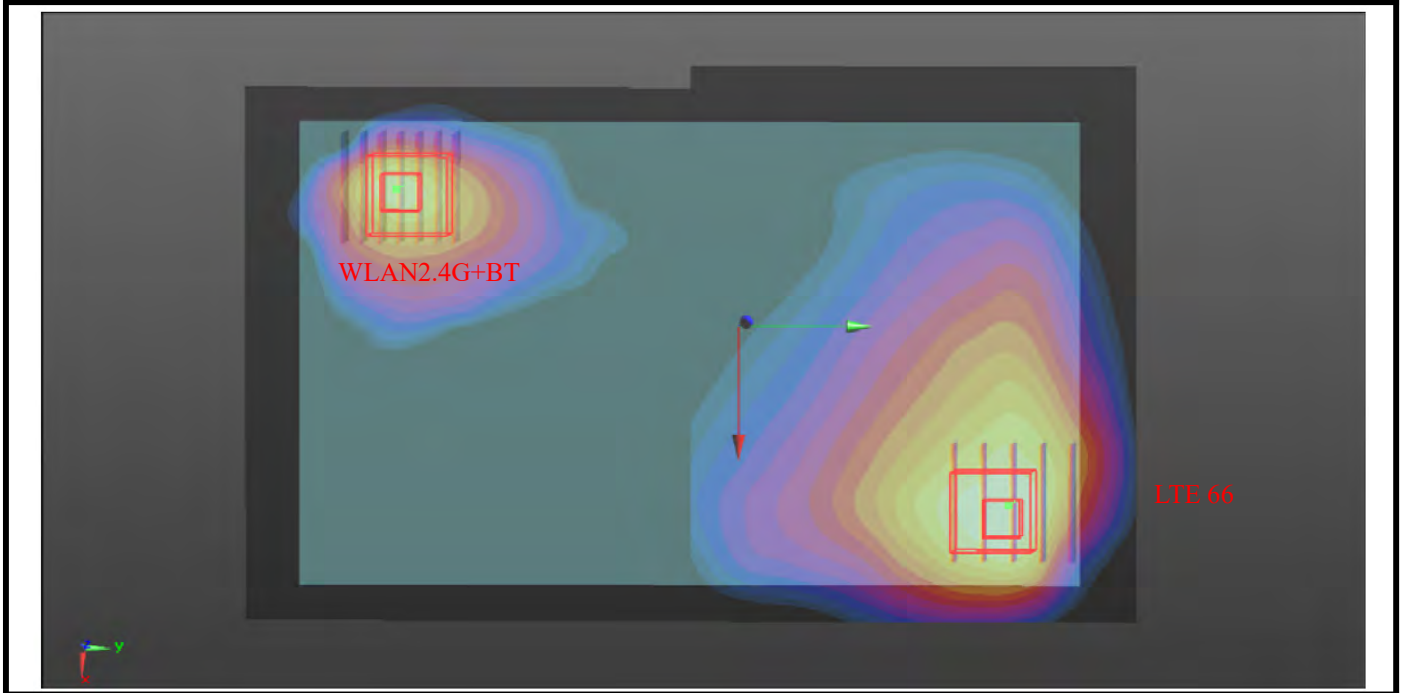


Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 7	Rear Face	1.14	0	0.0511	0.0924	-0.18	210.0	1.88	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				





Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 66	Rear Face	1.19	0	0.041	0.0855	-0.18	185.3	2.13	0.02	Not required
WLAN2.4G+BT		0.94	0	-0.0439	-0.0792	-0.18				





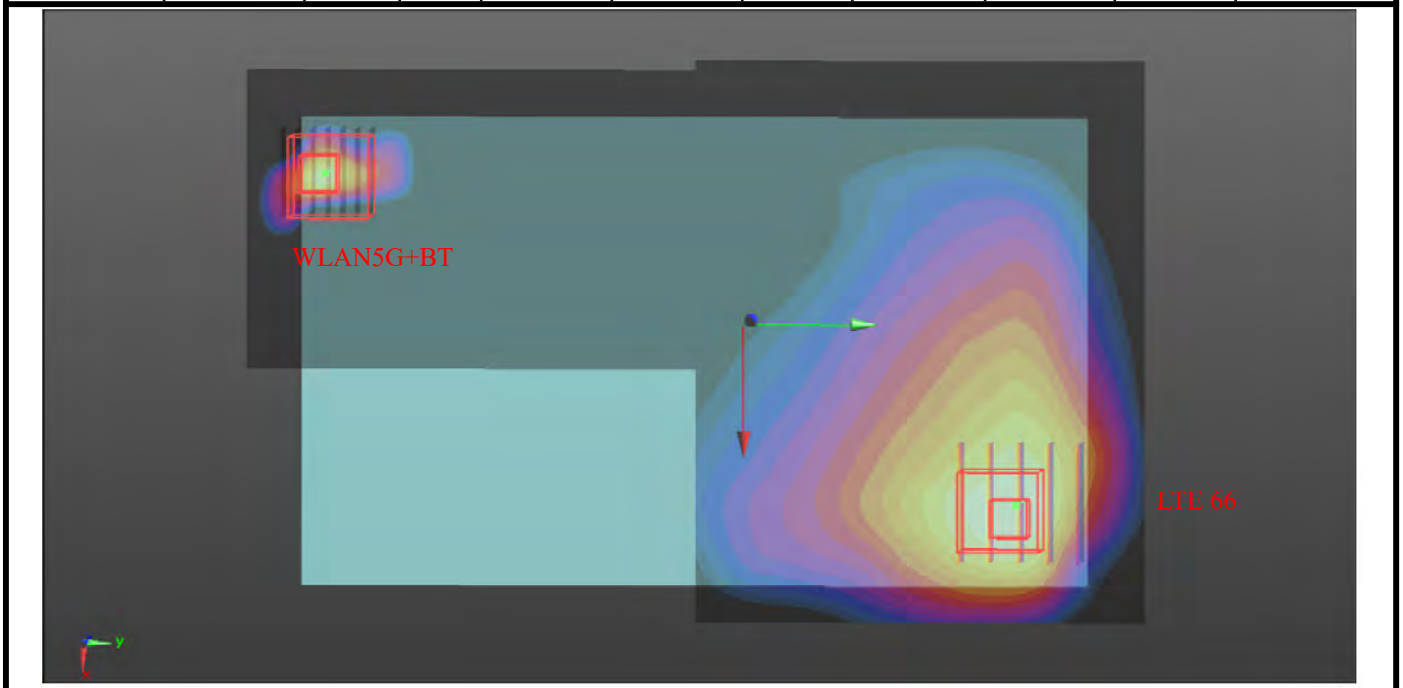
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Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
			(mm)	X	Y	Z				
LTE 66	Rear Face	1.19	0	0.041	0.0855	-0.18	199.1	1.93	0.01	Not required
WLAN5G+BT		0.74	0	-0.053	-0.09	-0.179				



Test Engineer : Chang Gao, and Zixiao Xia

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D835V2	4d265	Oct. 18, 2021	3 Year
System Validation Dipole	SPEAG	D1750V2	1176	Oct. 19, 2021	3 Year
System Validation Dipole	SPEAG	D1900V2	5d159	Sep. 16, 2021	3 Year
System Validation Dipole	SPEAG	D2450V2	1048	Oct. 21, 2021	3 Year
System Validation Dipole	SPEAG	D2600V2	1110	Sep. 16, 2021	3 Year
System Validation Dipole	SPEAG	D5GHzV2	1315	Oct. 22, 2021	3 Year
Data Acquisition Electronics	SPEAG	DAE4	1633	Oct. 26, 2021	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7612	Jan. 27, 2022	1 Year
Magnetic Field Probe	SPEAG	DAKS-3.5	1119	Feb. 28, 2022	1 Year
Vector network analyzer	SPEAG	DAKS_VNA R140	0121219	Feb. 28, 2022	1 Year
Wideband Radio Communication Tester	Rohde&Schwarz	CMW 500	169210	Jun. 22, 2022	1 Year
Power Meter	Rohde&Schwarz	NRX	102380	Feb. 15, 2022	1 Year
Power Sensor	Rohde&Schwarz	NRP6A	102942	Feb. 15, 2022	1 Year
Power Sensor	Rohde&Schwarz	NRP6A	102943	Feb. 15, 2022	1 Year
ESG Analog Signal Generator	Rohde&Schwarz	SMB100A03	182185	Feb. 16, 2022	1 Year
Coupler	Woken	0110A056020-10	COM27R W1A3	May. 11, 2022	1 Year
Temp.&Humi.Recorder	ANYMETER	JR912	SZ01	Jun. 19, 2022	1 Year

Note:

- Referring to KDB 865664 D01 v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipole are also not physically damaged, or repaired during the interval. The dipole justification can be found in appendix C.
The return loss is $< -20\text{dB}$, within 20% of prior calibration, the impedance is with 5ohm of prior calibration.

6. Measurement Uncertainty

DASY6 Uncertainty Budget According to IEC 62209-2/2010 (30 MHz - 6 GHz range)								
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)	(Vi) Veff
Measurement System								
Probe Calibration	6.65	N	1	1	1	6.7	6.7	∞
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9	∞
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2	∞
Linearity	4.7	R	1.732	1	1	2.7	2.7	∞
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6	∞
Modulation Response	3.2	R	1.732	1	1	1.8	1.8	∞
Readout Electronics	0.3	N	1	1	1	0.3	0.3	∞
Response Time	0.0	R	1.732	1	1	0.0	0.0	∞
Integration Time	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7	∞
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2	∞
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9	∞
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3	∞
Test Sample Related								
Device Positioning	4.3	N	1	1	1	4.3	4.3	35
Device Holder	4.9	N	1	1	1	4.9	4.9	12
Power Drift	5.0	R	1.732	1	1	2.9	2.9	∞
Power Scaling	0.0	R	1.732	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty	6.6	R	1.732	1	1	3.8	3.8	∞
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0	∞
Liquid Conductivity Repeatability	0.16	N	1	0.78	0.71	0.1	0.1	5
Liquid Conductivity (target)	10.0	R	1.732	0.78	0.71	4.5	4.1	∞
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0	∞
Temp. unc. - Conductivity	3.64	R	1.732	0.78	0.71	1.6	1.5	∞
Liquid Permittivity Repeatability	0.08	N	1	0.23	0.26	0.0	0.0	5
Liquid Permittivity (target)	10.0	R	1.732	0.23	0.26	1.3	1.5	∞
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4	∞
Temp. unc. - Permittivity	1.78	R	1.732	0.23	0.26	0.2	0.3	∞
Combined Std. Uncertainty						14.0%	13.9%	624
Coverage Factor for 95 %						K=2	K=2	
Expanded STD Uncertainty						28.0%	27.7%	

Uncertainty budget for frequency range 30 MHz to 6 GHz

7. Information on the Testing Laboratories

We, Huarui 7layers High Technology (Suzhou) Co., Ltd., were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation.

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

Add: Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province

Tel: [+86 \(0557\) 368 1008](tel:+86(0557)3681008)

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

Web: <http://www.7Layers.com>

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Appendix A. SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

System Check_HSL835_220924**DUT: Dipole:835MHz;Type:D835V2**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL835_0924 Medium parameters used: $f = 835$ MHz; $\sigma = 0.937$ S/m; $\epsilon_r = 43.308$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.57, 10.57, 10.57); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.84 W/kg

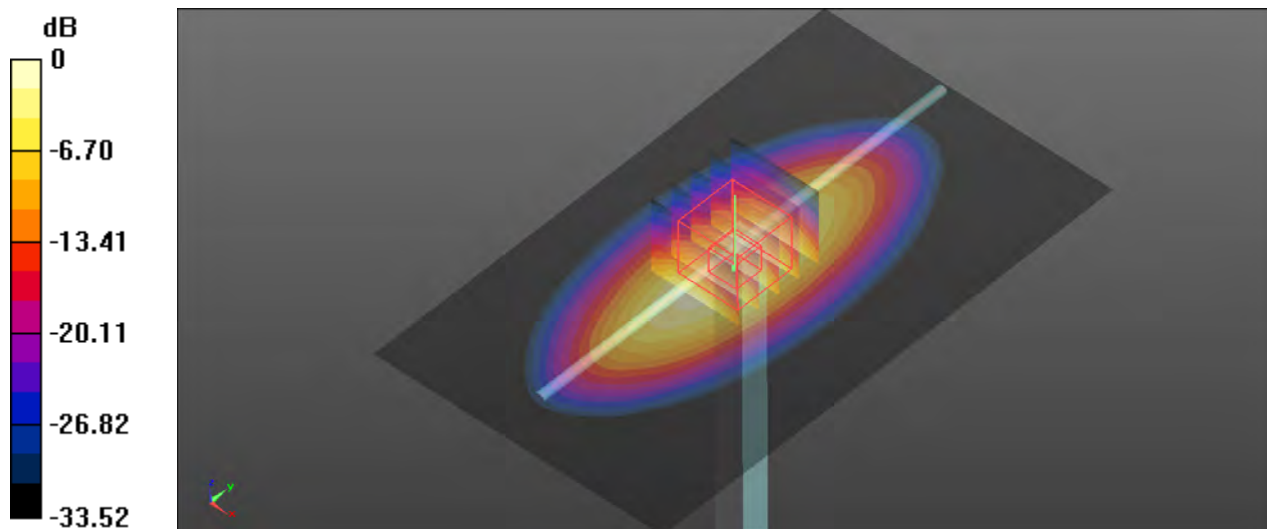
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.70 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.91 W/kg

SAR(1 g) = 2.54 W/kg; SAR(10 g) = 1.66 W/kg

Maximum value of SAR (measured) = 2.85 W/kg



System Check_HSL1750_220923**DUT: Dipole:1750 MHz;Type:D1750V2**

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL1750_0923 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.423$ S/m; $\epsilon_r = 41.125$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.3 W/kg

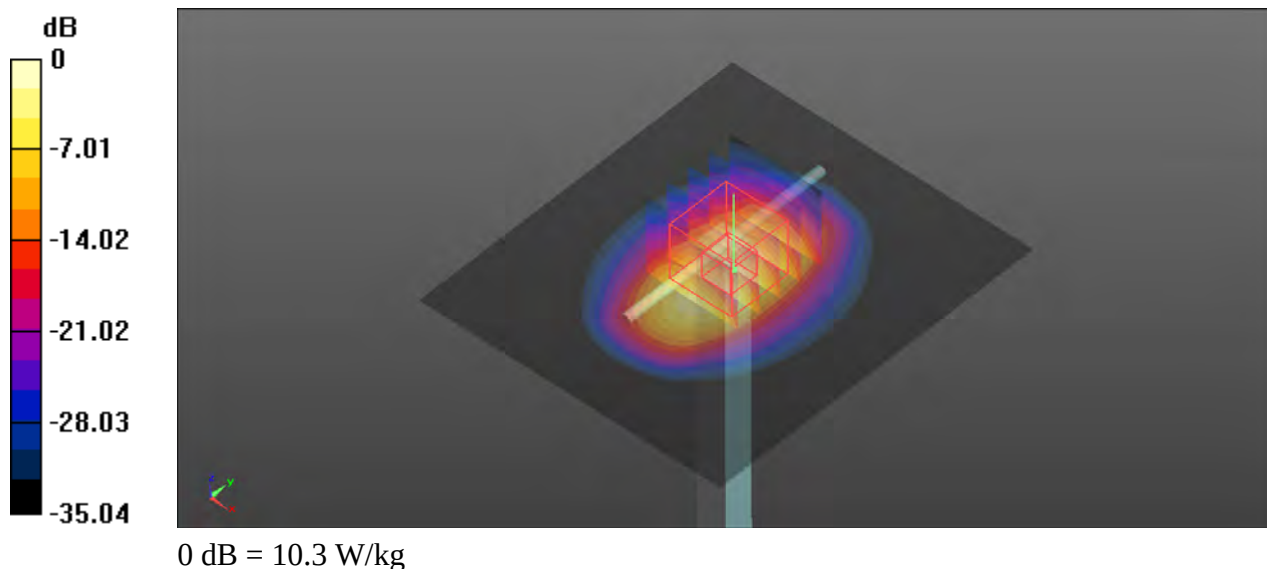
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 84.24 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 9.23 W/kg; SAR(10 g) = 4.93 W/kg

Maximum value of SAR (measured) = 10.3 W/kg



System Check_HSL1900_220923**DUT: Dipole:1900MHz;Type:D1900V2**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900_0923 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.411$ S/m; $\epsilon_r = 40.438$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.73, 8.73, 8.73); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.8 W/kg

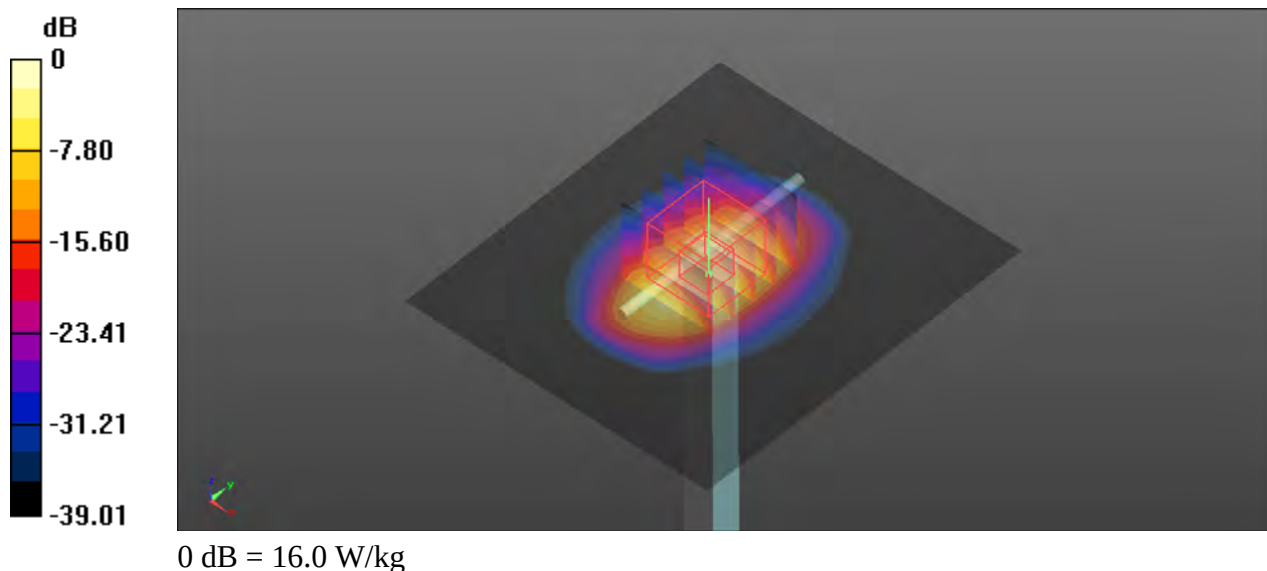
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 102.0 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 19.4 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.1 W/kg

Maximum value of SAR (measured) = 16.0 W/kg



System Check_HSL2450_220921**DUT: Dipole:2450MHz;Type:D2450V2**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450_0921 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.817$ S/m; $\epsilon_r = 39.309$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.9, 7.9, 7.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 14.6 W/kg

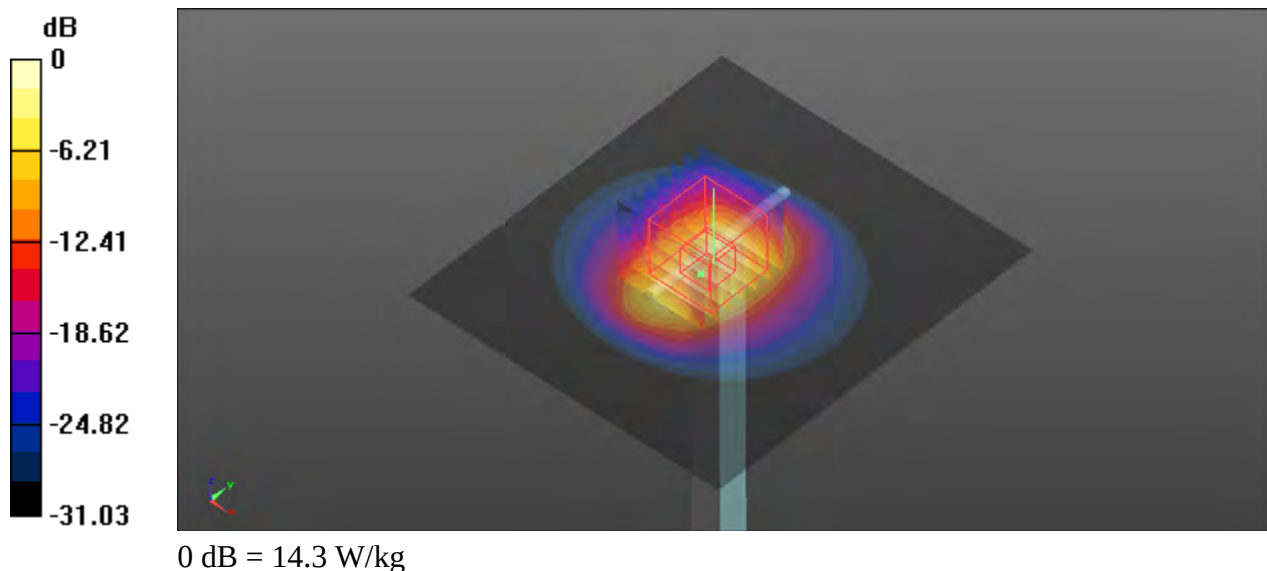
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 83.41 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 26.2 W/kg

SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.88 W/kg

Maximum value of SAR (measured) = 14.3 W/kg



System Check_HSL2600_220923**DUT: Dipole:2600 MHz;Type:D2600V2**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: HSL2600_0923 Medium parameters used: $f = 2600$ MHz; $\sigma = 1.935$ S/m; $\epsilon_r = 39.092$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.7, 7.7, 7.7); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 24.6 W/kg

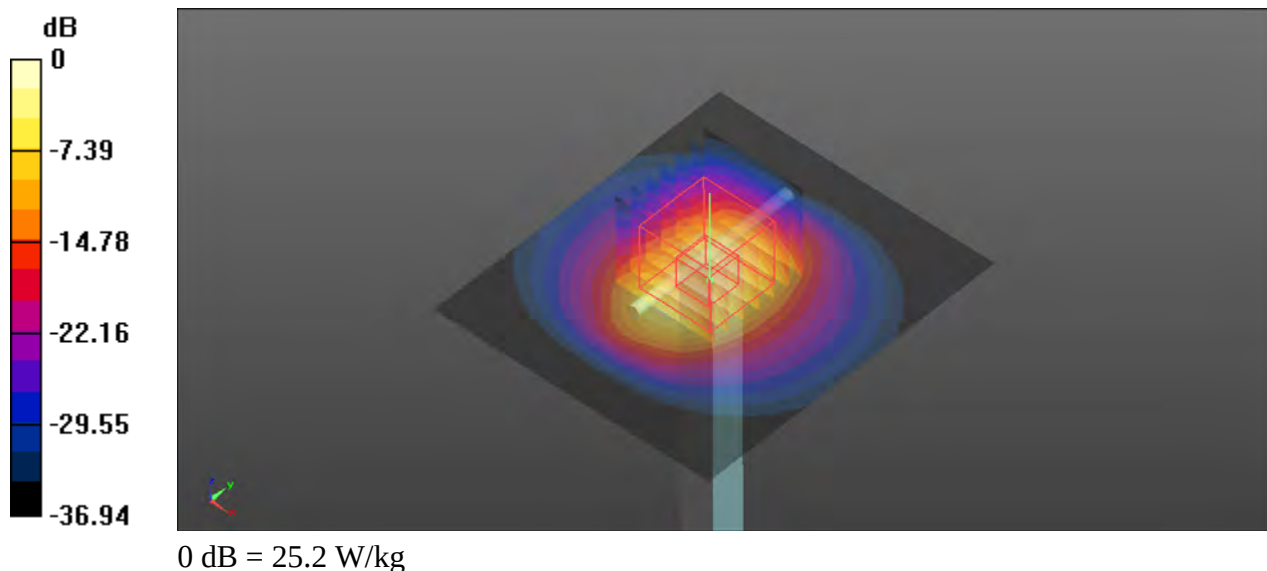
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.2 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 31.5 W/kg

SAR(1 g) = 14.7 W/kg; SAR(10 g) = 6.46 W/kg

Maximum value of SAR (measured) = 25.2 W/kg



System Check_HSL5250_220922**DUT: Dipole:D5GHzV2;Type:D5GHzV2**

Communication System: CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: HSL5G_0922 Medium parameters used: $f = 5250$ MHz; $\sigma = 4.631$ S/m; $\epsilon_r = 36.193$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.54, 5.54, 5.54); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 18.6 W/kg

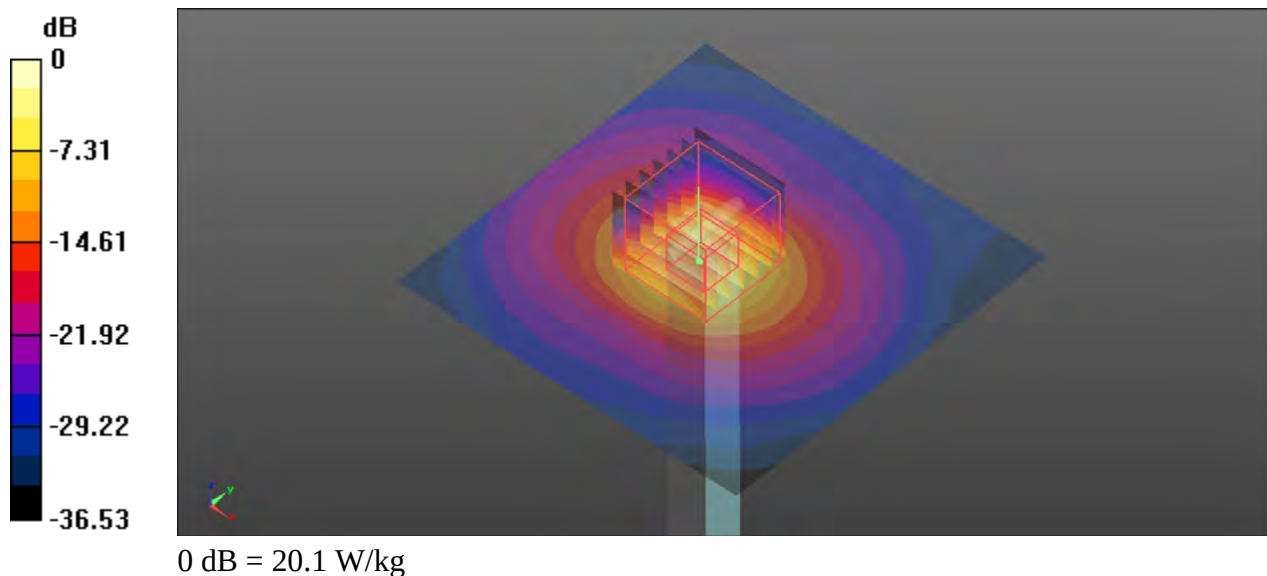
Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 32.70 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 33.5 W/kg

SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.2 W/kg

Maximum value of SAR (measured) = 20.1 W/kg



System Check_HSL5600_220922**DUT: Dipole:D5GHzV2;Type:D5GHzV2**

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: HSL5G_0922 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.014$ S/m; $\epsilon_r = 35.631$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.11, 5.11, 5.11); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 20.5 W/kg

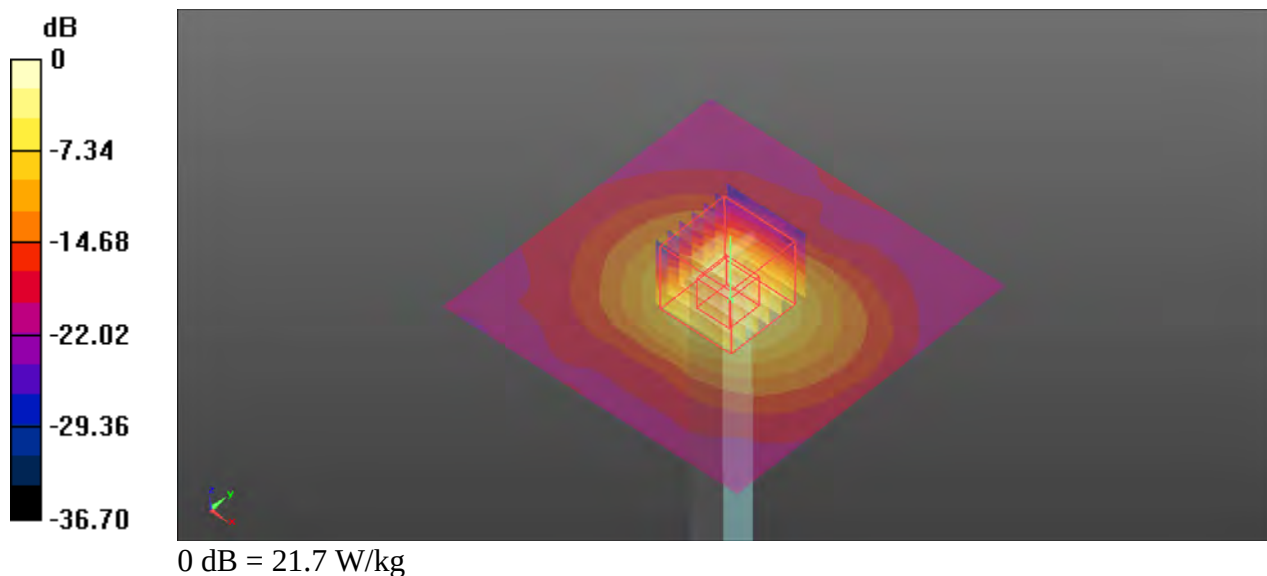
Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 24.96 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 37.0 W/kg

SAR(1 g) = 8.33 W/kg; SAR(10 g) = 2.34 W/kg

Maximum value of SAR (measured) = 21.7 W/kg



System Check_HSL5750_220922**DUT: Dipole:D5GHzV2;Type:D5GHzV2**

Communication System: CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: HSL5G_0922 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.153$ S/m; $\epsilon_r = 35.335$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.2, 5.2, 5.2); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 19.2 W/kg

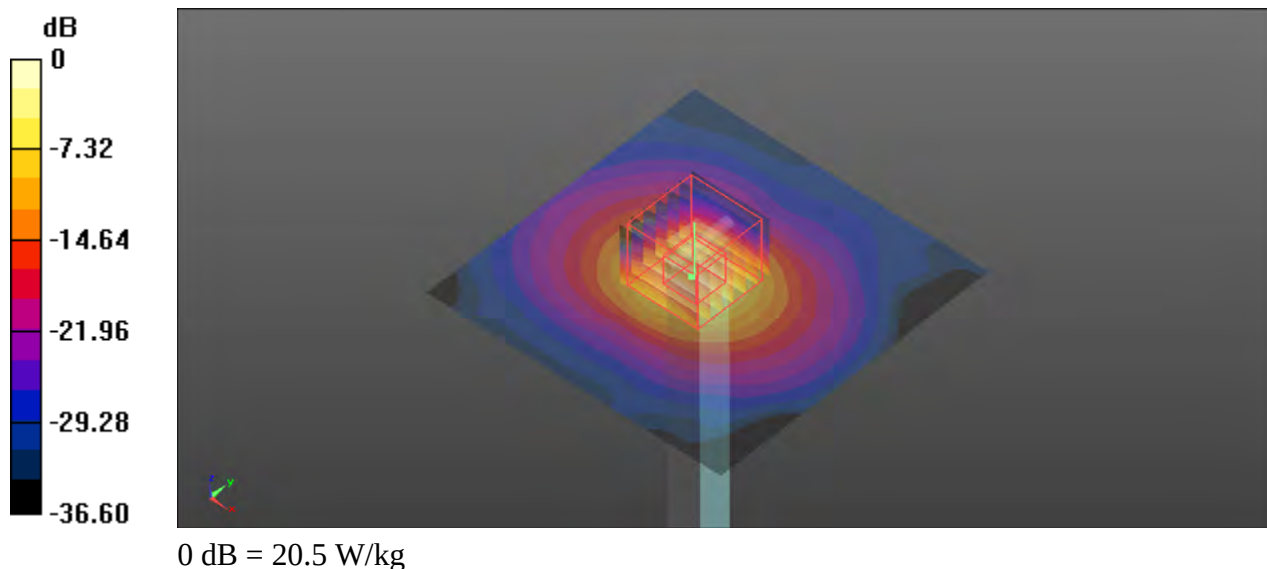
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 23.27 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 36.3 W/kg

SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.19 W/kg

Maximum value of SAR (measured) = 20.5 W/kg



Appendix B. SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

P01 GSM850_GPRS 2TX slot_Rear Face_0cm_Ch128

Communication System: GPRS 2TX slot; Frequency: 824.2 MHz; Duty Cycle: 1:4.15

Medium: HSL835_0924 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.933$ S/m; $\epsilon_r = 43.403$; $\rho =$

1000 kg/m^3

Ambient Temperature : 23.6°C ; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.57, 10.57, 10.57); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (111x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.42 W/kg

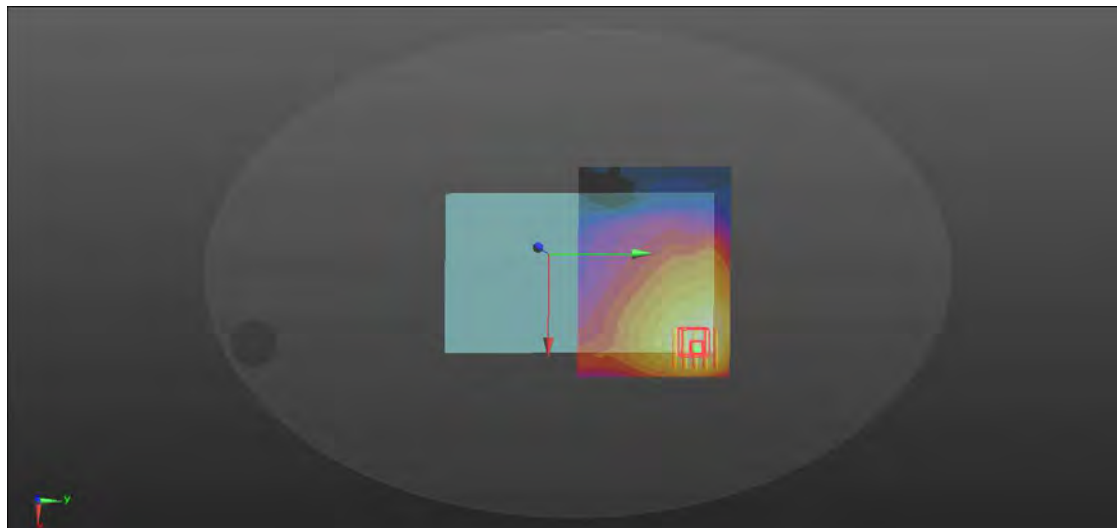
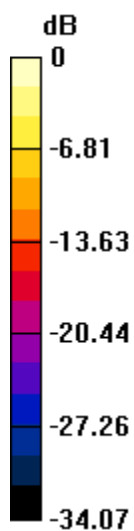
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.678 V/m ; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 2.15 W/kg

SAR(1 g) = 0.903 W/kg ; SAR(10 g) = 0.500 W/kg

Maximum value of SAR (measured) = 1.43 W/kg



0 dB = 1.43 W/kg

P02 GSM1900_GPRS 2TX slot_Rear Face_0cm_Ch512

Communication System: GPRS 2TX slot; Frequency: 1850.2 MHz; Duty Cycle: 1:4.15

Medium: HSL1900_0923 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.384$ S/m; $\epsilon_r = 40.478$; $\rho =$

1000 kg/m^3

Ambient Temperature : 23.4°C ; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.73, 8.73, 8.73); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (111x81x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.92 W/kg

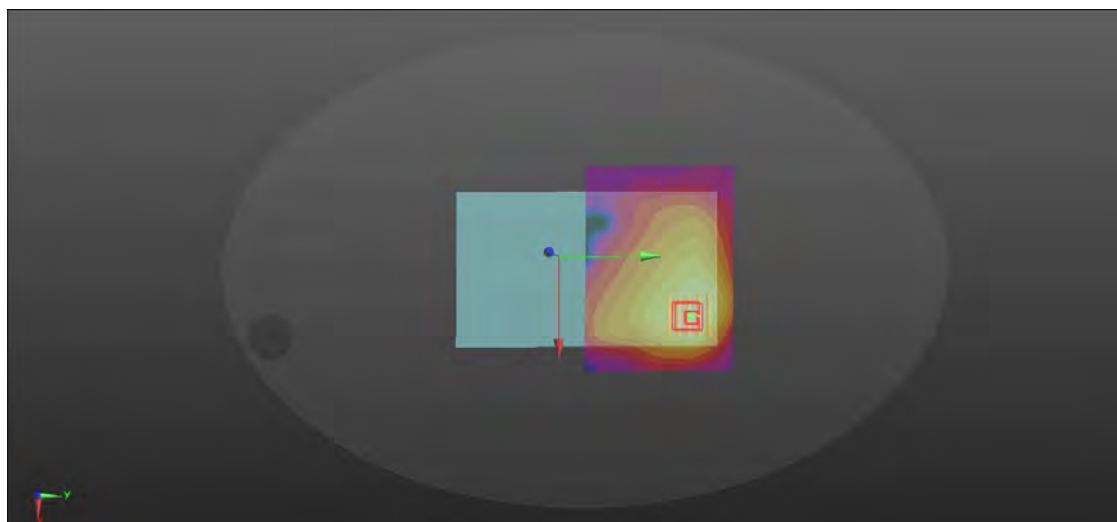
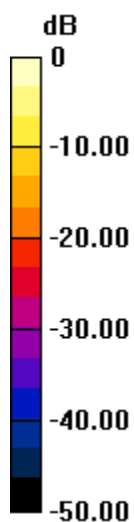
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.267 V/m ; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 2.66 W/kg

SAR(1 g) = 1.04 W/kg ; SAR(10 g) = 0.557 W/kg

Maximum value of SAR (measured) = 1.65 W/kg



0 dB = 1.65 W/kg

P03 WCDMA B2_RMC12.2k_Rear Face_0cm_Ch9262

Communication System: WCDMA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: HSL1900_0923 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.385$ S/m; $\epsilon_r = 40.474$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.73, 8.73, 8.73); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (111x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.50 W/kg

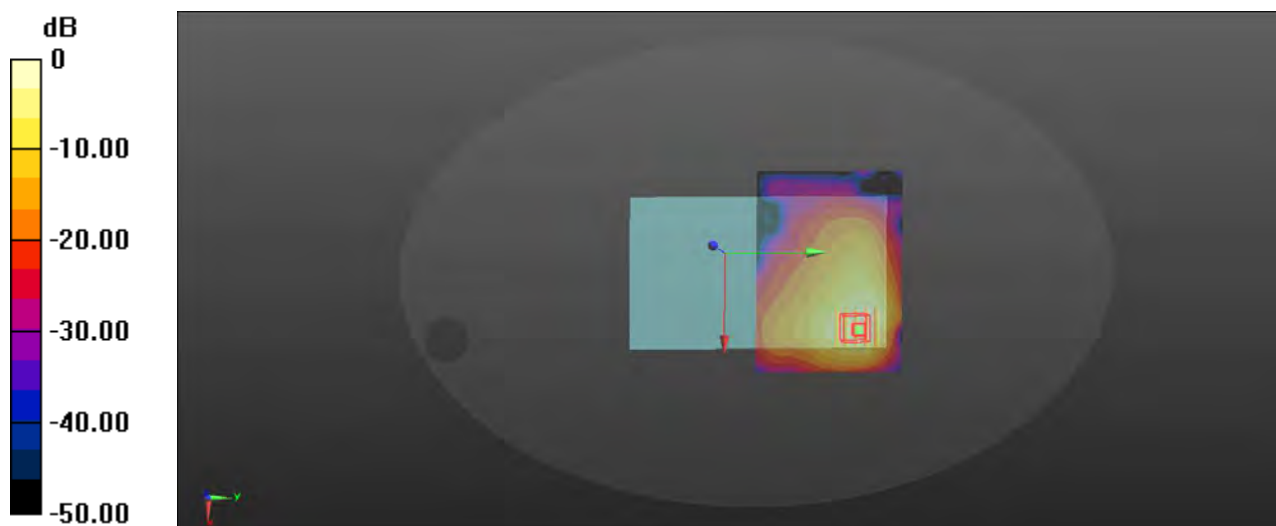
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.8820 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.91 W/kg

SAR(1 g) = 0.866 W/kg; SAR(10 g) = 0.429 W/kg

Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.22 W/kg

P04 WCDMA B4_RMC12.2k_Rear Face_0cm_Ch1413

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium: HSL1750_0923 Medium parameters used: $f = 1733$ MHz; $\sigma = 1.41$ S/m; $\epsilon_r = 41.144$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (111x81x1)**: Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.54 W/kg

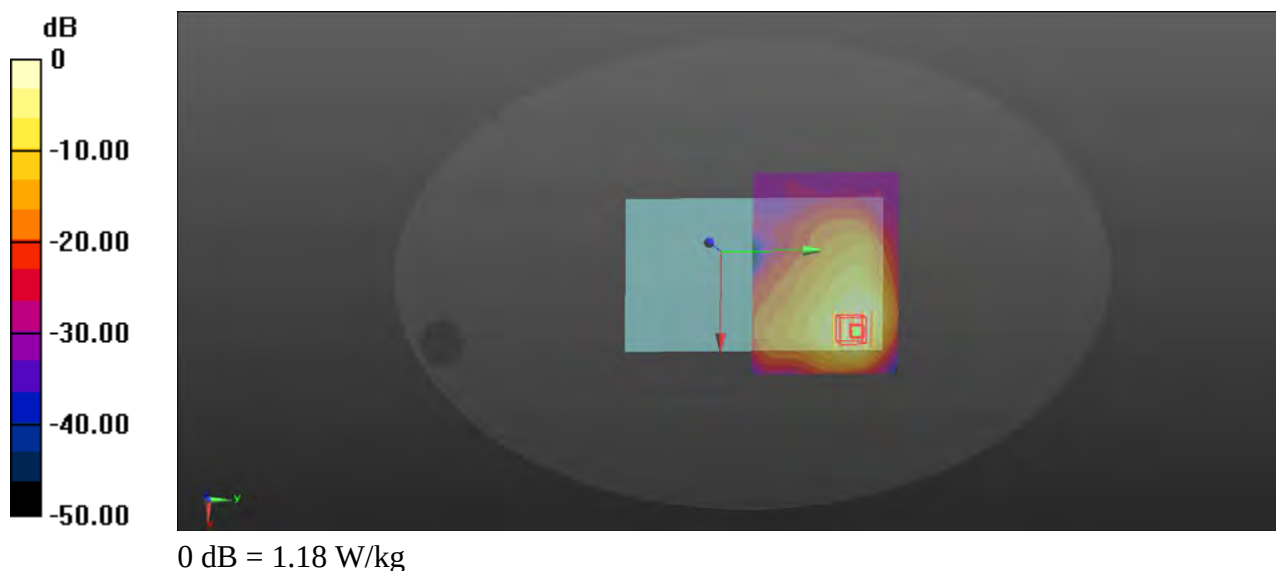
- **Zoom Scan (5x5x7)/Cube 0**: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.328 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 0.763 W/kg; SAR(10 g) = 0.420 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



P05 WCDMA B5_RMC12.2K_Right Side_0cm_Ch4132

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL835_0924 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 43.392$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.57, 10.57, 10.57); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (31x81x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 2.16 W/kg

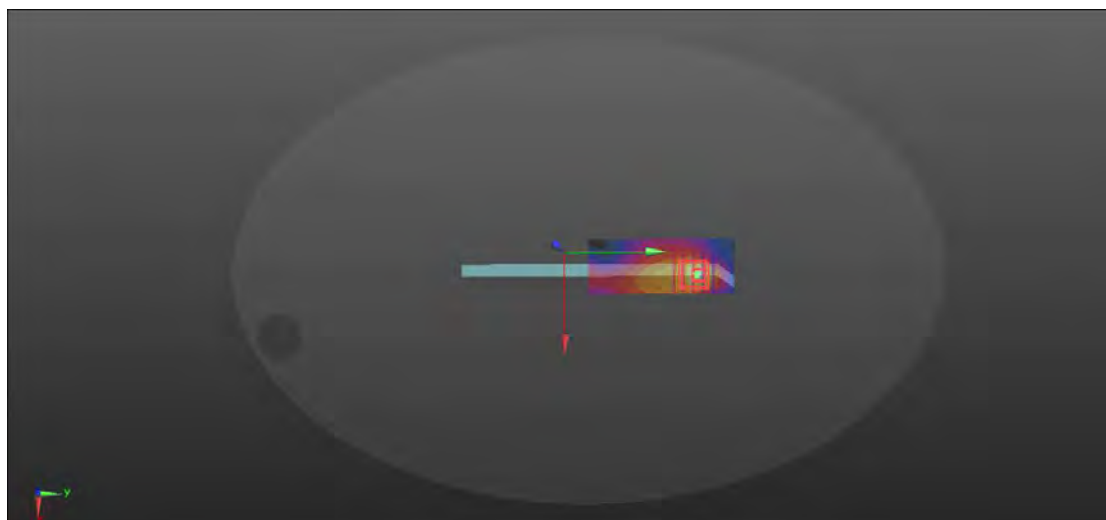
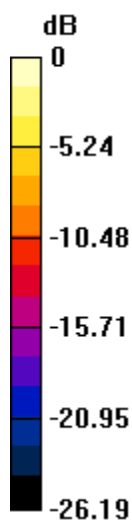
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 10.26 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 4.11 W/kg

SAR(1 g) = 0.828 W/kg; SAR(10 g) = 0.289 W/kg

Maximum value of SAR (measured) = 2.03 W/kg



0 dB = 2.03 W/kg

P06 LTE B2_QPSK20M_Rear Face_0cm_Ch19100_1RB_OS0

Communication System: LTE_FDD; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900_0923 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.411$ S/m; $\epsilon_r = 40.438$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.73, 8.73, 8.73); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (101x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.13 W/kg

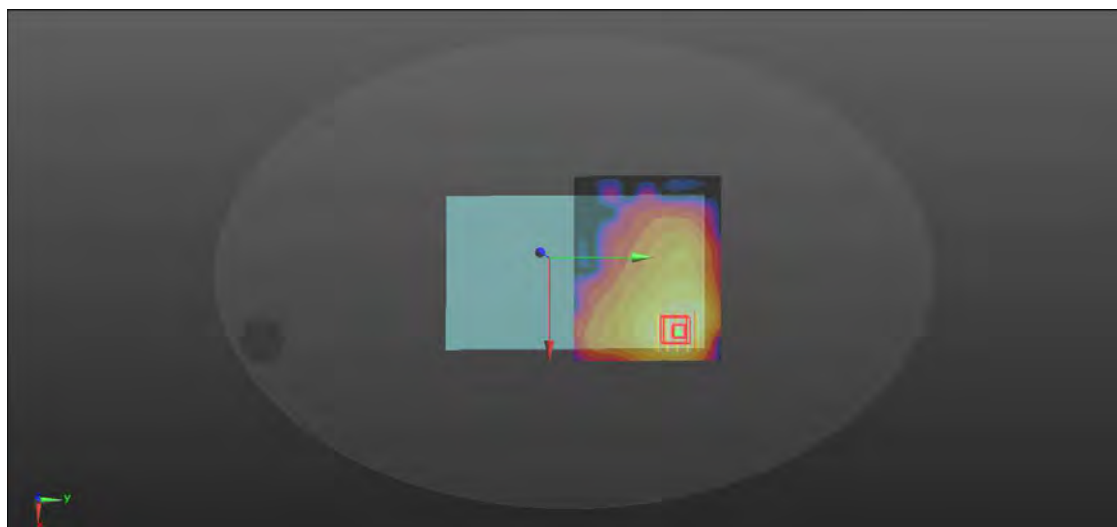
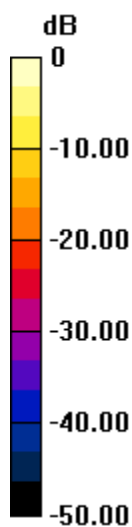
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.99 W/kg

SAR(1 g) = 0.869 W/kg; SAR(10 g) = 0.455 W/kg

Maximum value of SAR (measured) = 1.27 W/kg



0 dB = 1.27 W/kg

P07 LTE B5_QPSK10M_Right Side_0cm_Ch20525_1RB_OS49

Communication System: LTE_FDD; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: HSL835_0924 Medium parameters used: $f = 836.5$ MHz; $\sigma = 0.938$ S/m; $\epsilon_r = 43.292$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(10.57, 10.57, 10.57); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (31x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.54 W/kg

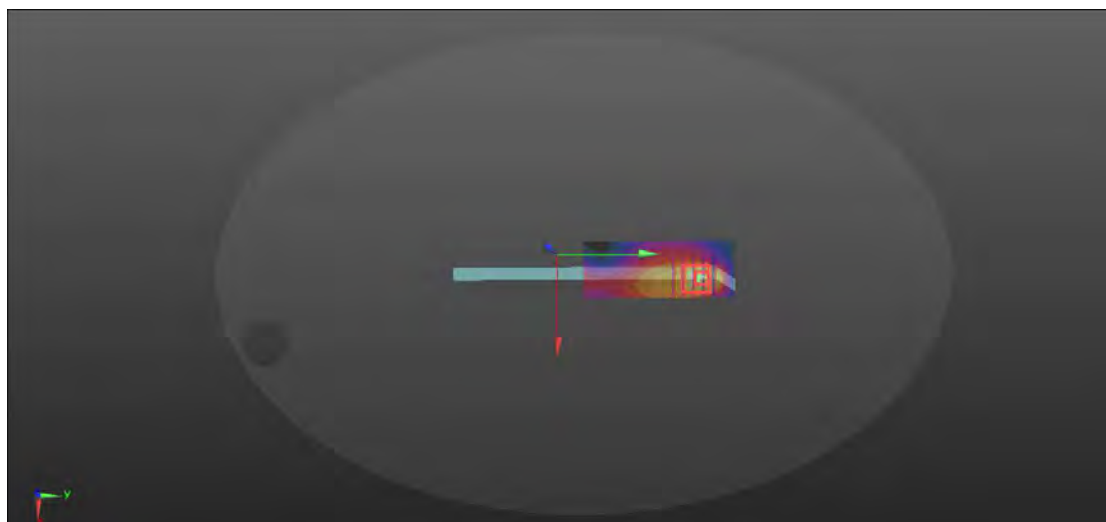
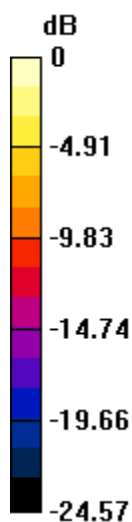
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.42 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 0.812 W/kg; SAR(10 g) = 0.281 W/kg

Maximum value of SAR (measured) = 1.92 W/kg



0 dB = 1.92 W/kg

P08 LTE B7_QPSK20M_Rear Face_0cm_Ch21100_1RB_OS99

Communication System: LTE_FDD; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: HSL2600_0923 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.884$ S/m; $\epsilon_r = 39.182$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.7, 7.7, 7.7); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (121x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.30 W/kg

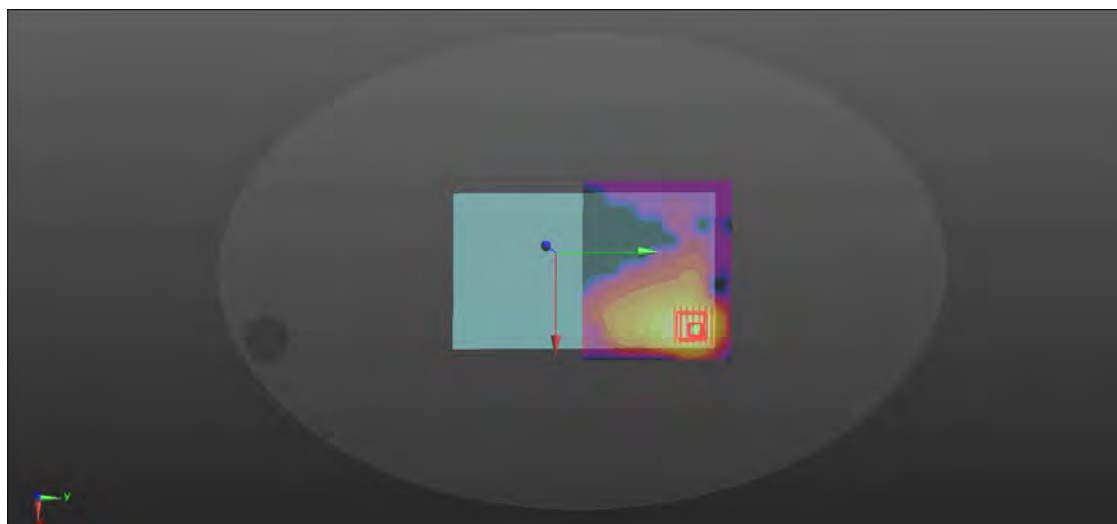
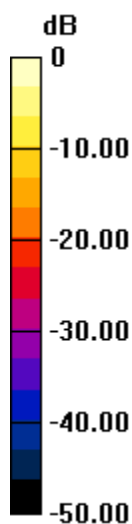
- **Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 3.90 W/kg

SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.421 W/kg

Maximum value of SAR (measured) = 2.17 W/kg



0 dB = 2.17 W/kg

P09 LTE B66_QPSK20M_Rear Face_0cm_Ch132332_1RB_OS0

Communication System: LTE_FDD; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: HSL1750_0923 Medium parameters used: $f = 1745$ MHz; $\sigma = 1.419$ S/m; $\epsilon_r = 41.135$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4°C; Liquid Temperature : 22.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(8.9, 8.9, 8.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (101x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.84 W/kg

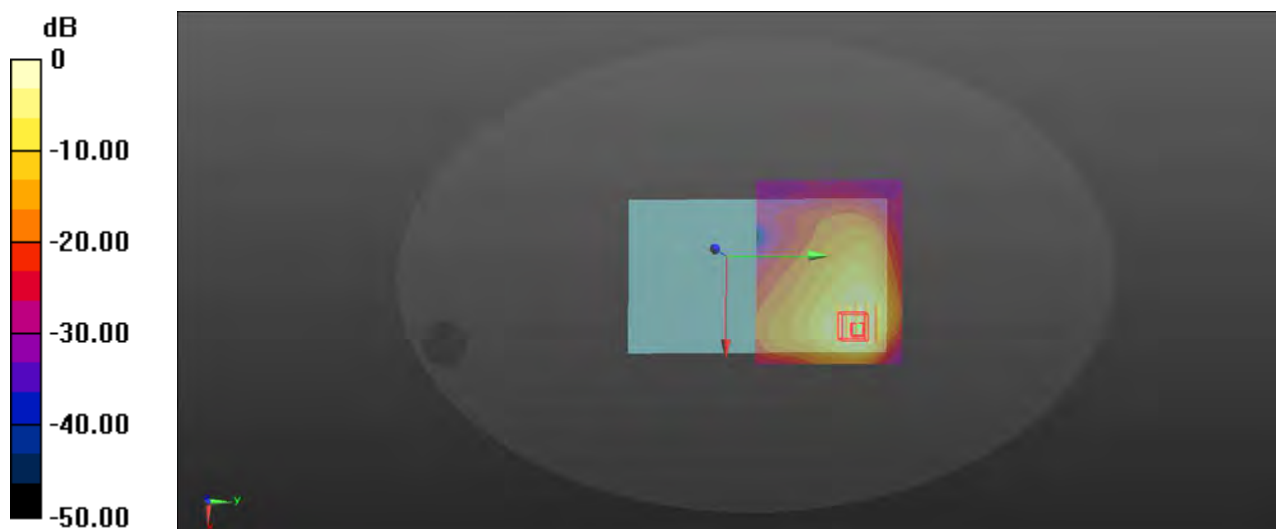
-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.754 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.26 W/kg

SAR(1 g) = 0.951 W/kg; SAR(10 g) = 0.503 W/kg

Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg

P10 WLAN 2.4G_802.11b_Rear Face_0cm_Ch6

Communication System: 802.11 b; Frequency: 2437 MHz; Duty Cycle: 1:1.01

Medium: HSL2450_0921 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.807$ S/m; $\epsilon_r = 39.331$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.9, 7.9, 7.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (121x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.00 W/kg

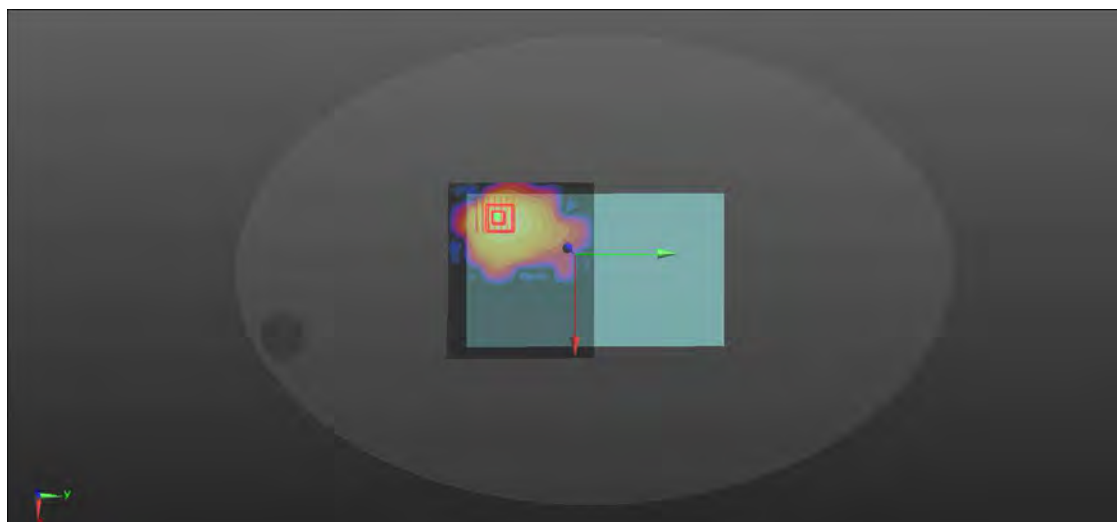
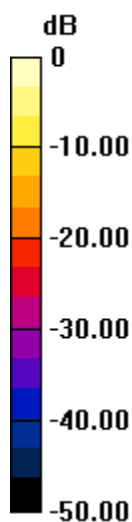
-Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 0.587 W/kg; SAR(10 g) = 0.212 W/kg

Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg

P11 WLAN 5G_802.11a_Rear Face_0cm_Ch64

Communication System: 802.11a; Frequency: 5320 MHz; Duty Cycle: 1:1.05

Medium: HSL5G_0922 Medium parameters used: $f = 5320$ MHz; $\sigma = 4.684$ S/m; $\epsilon_r = 35.99$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.54, 5.54, 5.54); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (81x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.00 W/kg

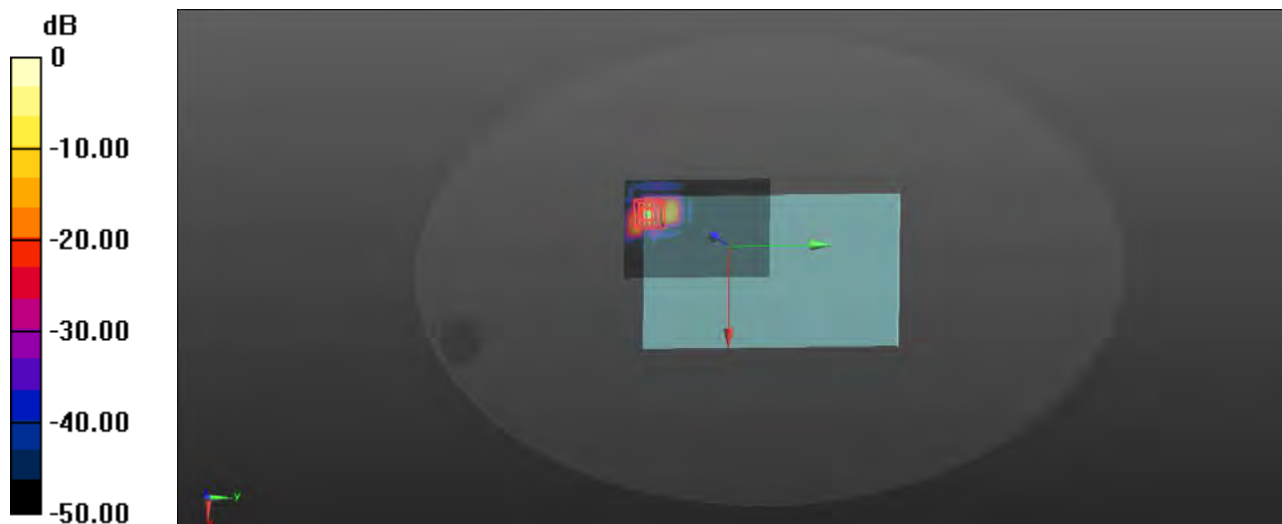
-Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 0 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.36 W/kg

SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.071 W/kg

Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg

P12 WLAN 5G_802.11a_Rear Face_0cm_Ch140

Communication System: 802.11a; Frequency: 5700 MHz; Duty Cycle: 1:1.05

Medium: HSL5G_0922 Medium parameters used: $f = 5700$ MHz; $\sigma = 5.104$ S/m; $\epsilon_r = 35.446$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.11, 5.11, 5.11); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.526 W/kg

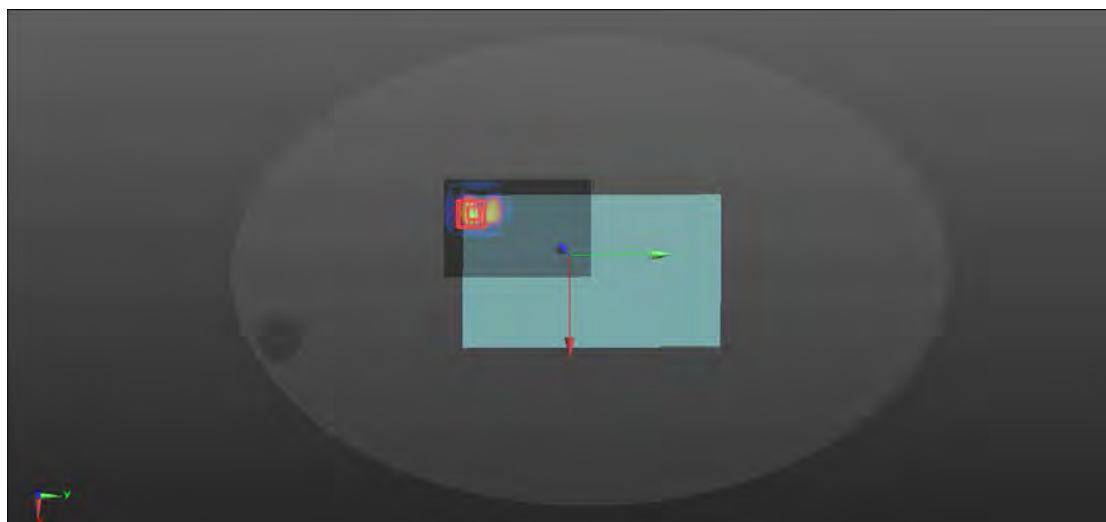
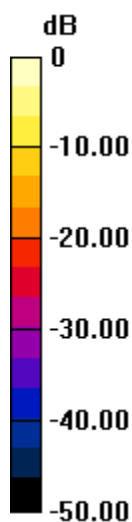
-Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.039 W/kg

Maximum value of SAR (measured) = 0.739 W/kg



0 dB = 0.739 W/kg

P13 WLAN 5G_802.11a_Rear Face_0cm_Ch149

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1.05

Medium: HSL5G_0922 Medium parameters used: $f = 5745$ MHz; $\sigma = 5.149$ S/m; $\epsilon_r = 35.349$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7°C; Liquid Temperature : 22.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(5.2, 5.2, 5.2); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

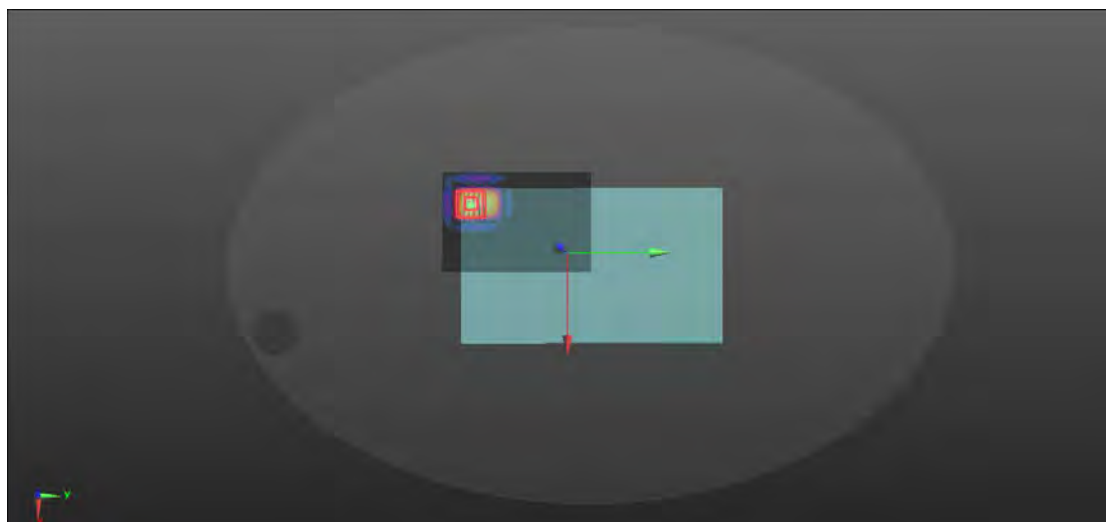
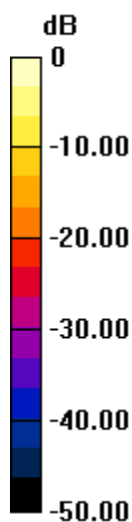
-Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.5650 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.314 W/kg; SAR(10 g) = 0.056 W/kg

Maximum value of SAR (measured) = 0.832 W/kg



0 dB = 0.832 W/kg

P14 BT_GFSK_Rear Face_0cm_Ch39

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1.29

Medium: HSL2450_0921 Medium parameters used: $f = 2441$ MHz; $\sigma = 1.81$ S/m; $\epsilon_r = 39.324$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5°C; Liquid Temperature : 22.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7612; ConvF(7.9, 7.9, 7.9); Calibrated: 27/1/2022;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1633; Calibrated: 26/10/2021
- Phantom: ELI v5.0 ; Type: QDOVA002AA; Serial: TP:1054
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

-Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.304 W/kg

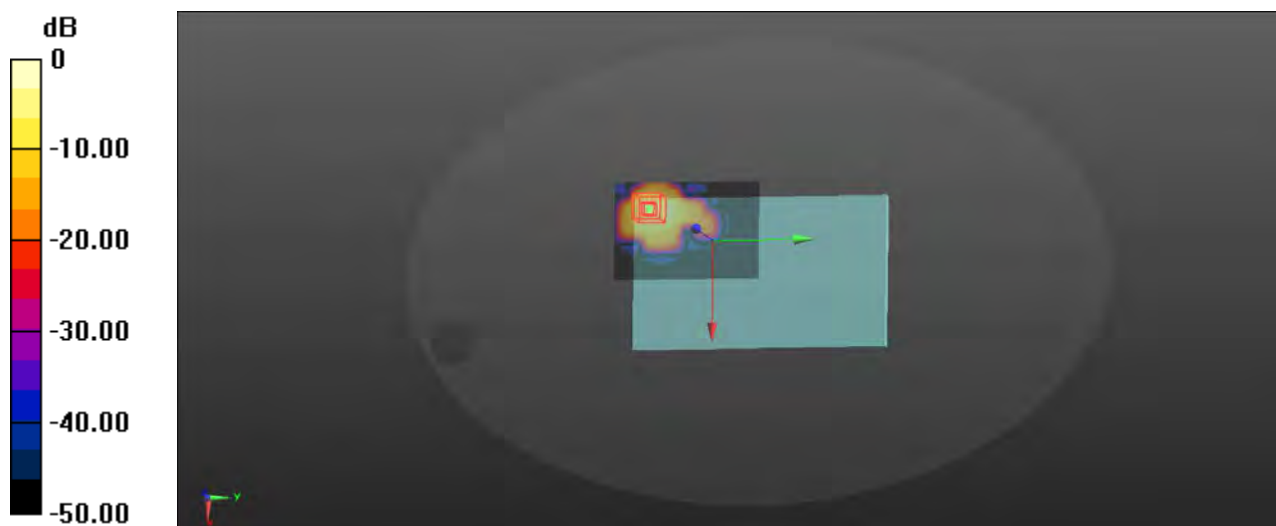
-Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.1590 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.543 W/kg

SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.061 W/kg

Maximum value of SAR (measured) = 0.319 W/kg



0 dB = 0.319 W/kg

Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Client : **7layers**

Certificate No: **Z21-60419**

CALIBRATION CERTIFICATE

Object **DAE4 - SN: 1633**

Calibration Procedure(s) **FF-Z11-002-01**
Calibration Procedure for the Data Acquisition Electronics (DAEx)

Calibration date: **October 26, 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(Calibrated by, Certificate No.)	Scheduled Calibration
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Process Calibrator 753	1971018	15-Jun-21 (CTTL, No.J21X04465)	Jun-22
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	Name	Function
Calibrated by:	Yu Zongying	SAR Test Engineer
Reviewed by:	Lin Hao	SAR Test Engineer
Approved by:	Qi Dianyuan	SAR Project Leader

Signature

Issued: October 28, 2021

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



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Glossary:

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.



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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	405.269 $\pm$ 0.15% (k=2)	405.554 $\pm$ 0.15% (k=2)	405.055 $\pm$ 0.15% (k=2)
Low Range	4.00305 $\pm$ 0.7% (k=2)	4.00239 $\pm$ 0.7% (k=2)	4.01353 $\pm$ 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	318° $\pm$ 1 °
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Client **7layers**

Certificate No: **Z21-60418**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN : 7612**

Calibration Procedure(s) **FF-Z11-004-02**
Calibration Procedures for Dosimetric E-field Probes

Calibration date: **January 27, 2022**

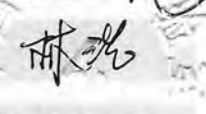
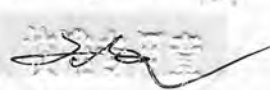
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

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(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Power sensor NRP-Z91	101547	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Power sensor NRP-Z91	101548	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Reference 10dBA attenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBA attenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 3617	27-Jan-21(SPEAG, No.EX3-3617_Jan21)	Jan-22
DAE4	SN 1555	20-Aug-21(SPEAG, No.DAE4-1555_Aug21/2)	Aug-22

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	16-Jun-21(CTTL, No.J21X04467)	Jun-22
Network Analyzer E5071C	MY46110673	14-Jan-22(CTTL, No.J22X00406)	Jan-23

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: January 29, 2022

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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	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 $\theta=0$ 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 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (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}; VR_{x,y,z}; A,B,C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7612

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.68	0.62	0.82	±10.0%
DCP(mV) ^B	113.3	110.1	113.8	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max Dev.	Max Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	224.1	±2.4%	±4.7%
		Y	0.0	0.0	1.0		207.8		
		Z	0.0	0.0	1.0		251.5		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	2.64	64.20	8.96	10.00	60	±2.4%	±9.6%
		Y	2.06	62.28	7.70		60		
		Z	20.00	99.37	26.61		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	0.96	60.00	6.23	6.99	80	±1.7%	±9.6%
		Y	1.01	60.33	5.66		80		
		Z	6.54	87.03	22.64		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.53	60.00	5.47	3.98	95	±1.4%	±9.6%
		Y	0.49	60.00	4.52		95		
		Z	1.13	65.20	13.72		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.33	60.43	5.67	2.22	120	±1.8%	±9.6%
		Y	15.66	136.05	0.13		120		
		Z	0.71	60.66	11.10		120		
10387-AAA	QPSK Waveform, 1 MHz	X	0.76	62.38	11.40	1.00	150	±4.4%	±9.6%
		Y	1.01	64.59	12.17		150		
		Z	1.15	61.08	11.60		150		
10388-AAA	QPSK Waveform, 10 MHz	X	1.44	64.02	13.02	0.00	150	±3.2%	±9.6%
		Y	1.62	65.39	13.73		150		
		Z	1.75	62.35	12.28		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.83	64.27	15.49	3.01	150	±2.8%	±9.6%
		Y	1.79	64.93	16.05		150		
		Z	2.34	63.64	15.46		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.37	66.77	15.57	0.00	150	±6.2%	±9.6%
		Y	4.53	66.73	15.66		150		
		Z	4.60	65.91	15.08		150		

Note: For details on UID parameters see Appendix

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

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

^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.



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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7612

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	13.65	95.55	31.39	6.32	0.00	4.90	0.60	0.00	1.00
Y	18.49	131.39	32.28	4.88	0.00	4.93	0.44	0.00	1.01
Z	13.05	92.14	31.34	6.95	0.00	4.90	0.68	0.00	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	15.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7612

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	11.02	11.02	11.02	0.16	1.28	±12.1%
835	41.5	0.90	10.57	10.57	10.57	0.17	1.26	±12.1%
900	41.5	0.97	10.51	10.51	10.51	0.18	1.32	±12.1%
1750	40.1	1.37	8.90	8.90	8.90	0.24	1.01	±12.1%
1900	40.0	1.40	8.73	8.73	8.73	0.19	1.28	±12.1%
2100	39.8	1.49	8.45	8.45	8.45	0.15	1.40	±12.1%
2300	39.5	1.67	8.22	8.22	8.22	0.57	0.73	±12.1%
2450	39.2	1.80	7.90	7.90	7.90	0.56	0.73	±12.1%
2600	39.0	1.96	7.70	7.70	7.70	0.43	0.89	±12.1%
3300	38.2	2.71	7.32	7.32	7.32	0.45	0.91	±13.3%
3500	37.9	2.91	7.17	7.17	7.17	0.45	0.97	±13.3%
3700	37.7	3.12	6.96	6.96	6.96	0.42	1.04	±13.3%
3900	37.5	3.32	6.75	6.75	6.75	0.40	1.27	±13.3%
4100	37.2	3.53	6.74	6.74	6.74	0.40	1.15	±13.3%
4200	37.1	3.63	6.68	6.68	6.68	0.35	1.35	±13.3%
4400	36.9	3.84	6.56	6.56	6.56	0.40	1.25	±13.3%
4600	36.7	4.04	6.50	6.50	6.50	0.50	1.15	±13.3%
4800	36.4	4.25	6.47	6.47	6.47	0.45	1.20	±13.3%
4950	36.3	4.40	6.22	6.22	6.22	0.45	1.25	±13.3%
5250	35.9	4.71	5.54	5.54	5.54	0.40	1.55	±13.3%
5600	35.5	5.07	5.11	5.11	5.11	0.50	1.30	±13.3%
5750	35.4	5.22	5.20	5.20	5.20	0.55	1.25	±13.3%

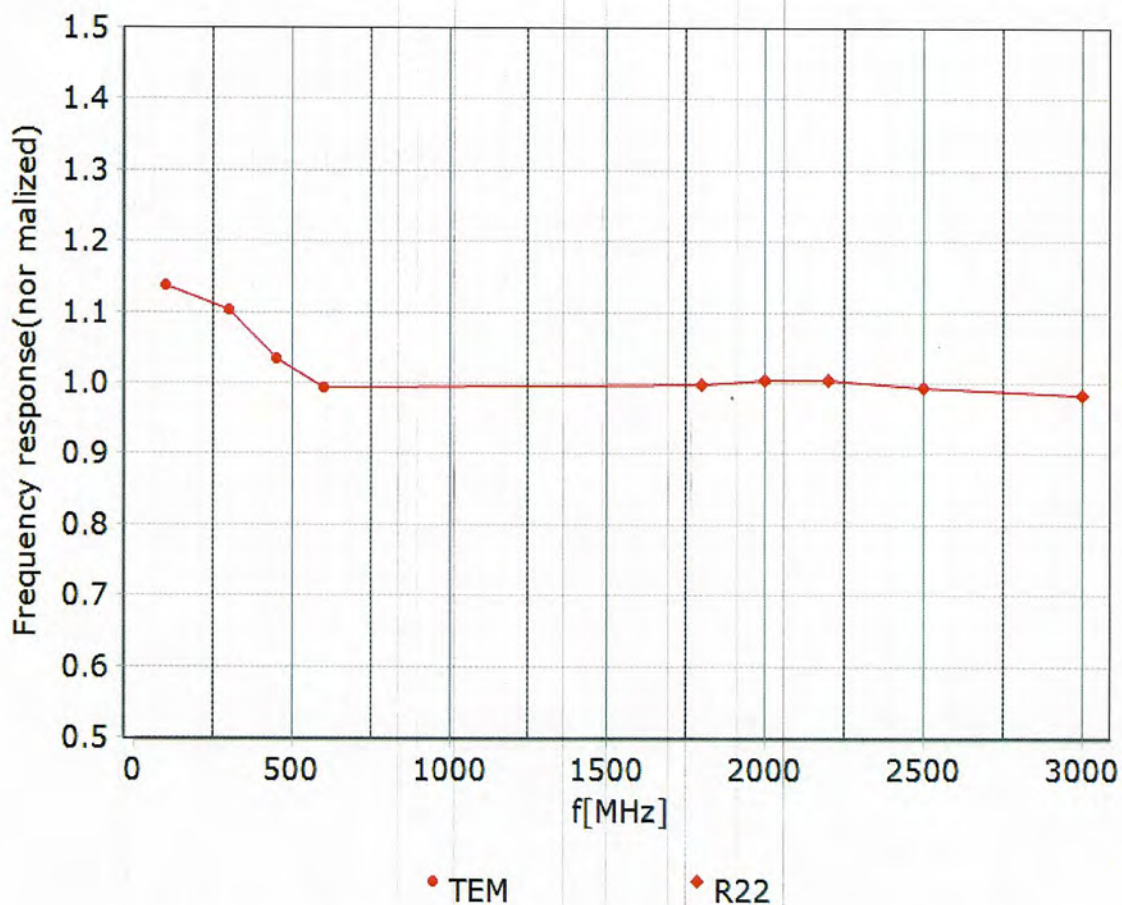
^C Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25,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

^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

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Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)

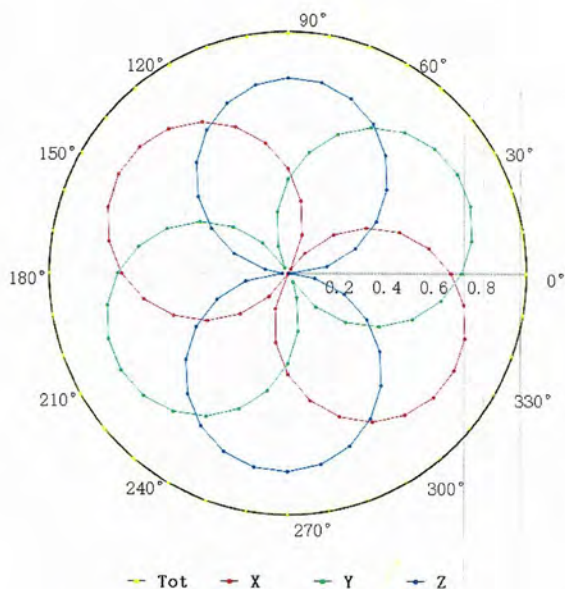


Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

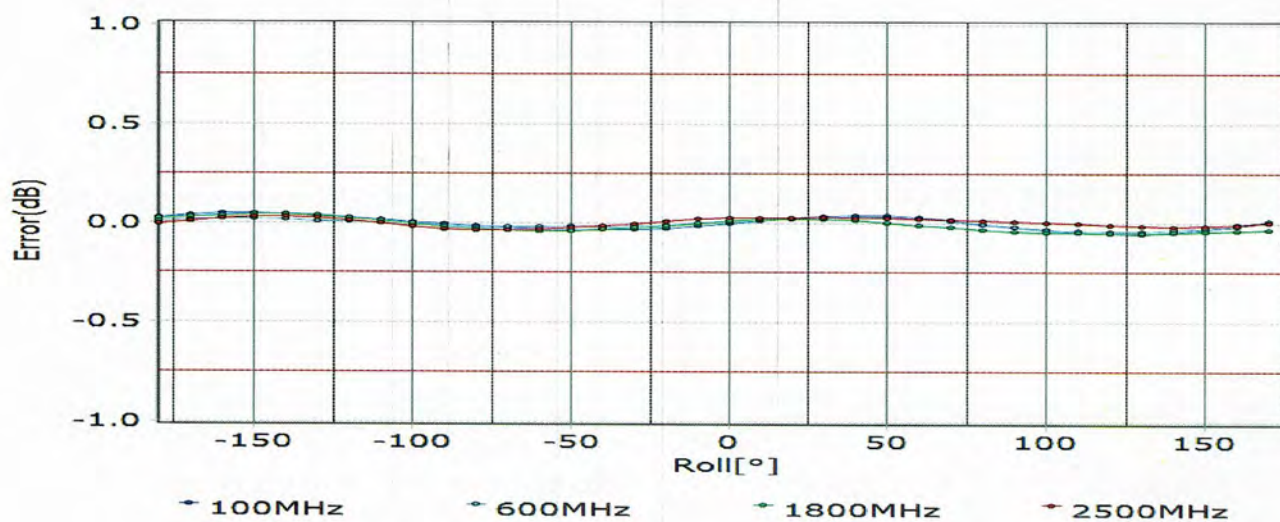
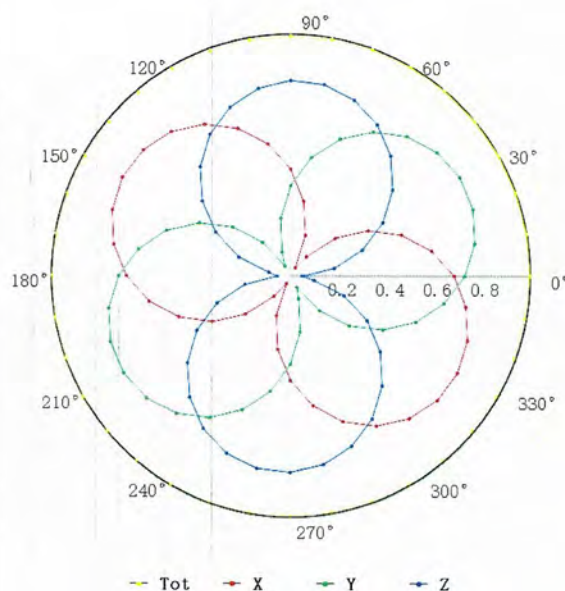
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Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM



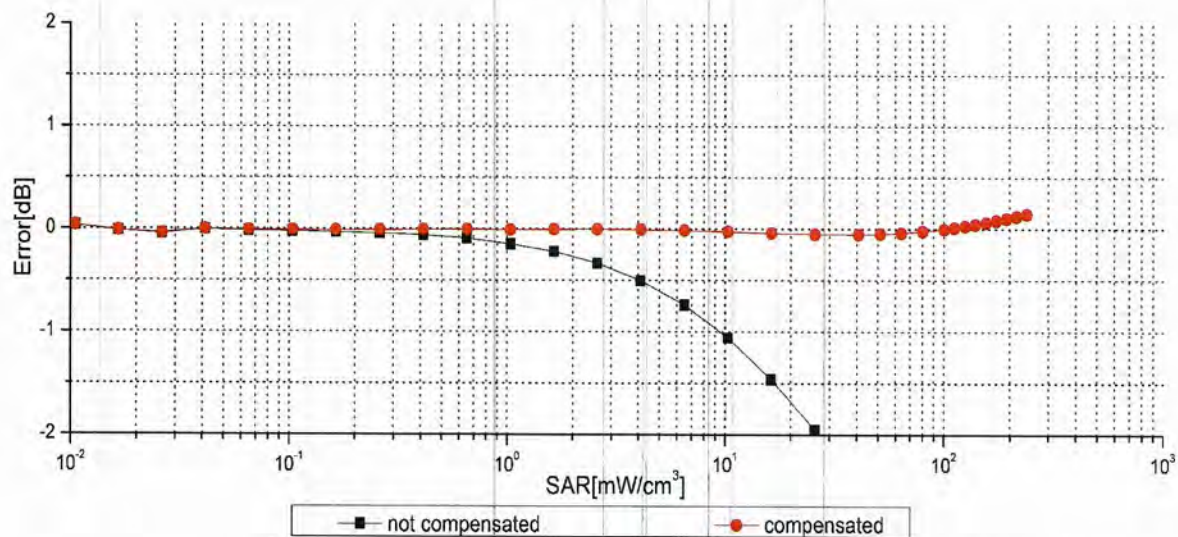
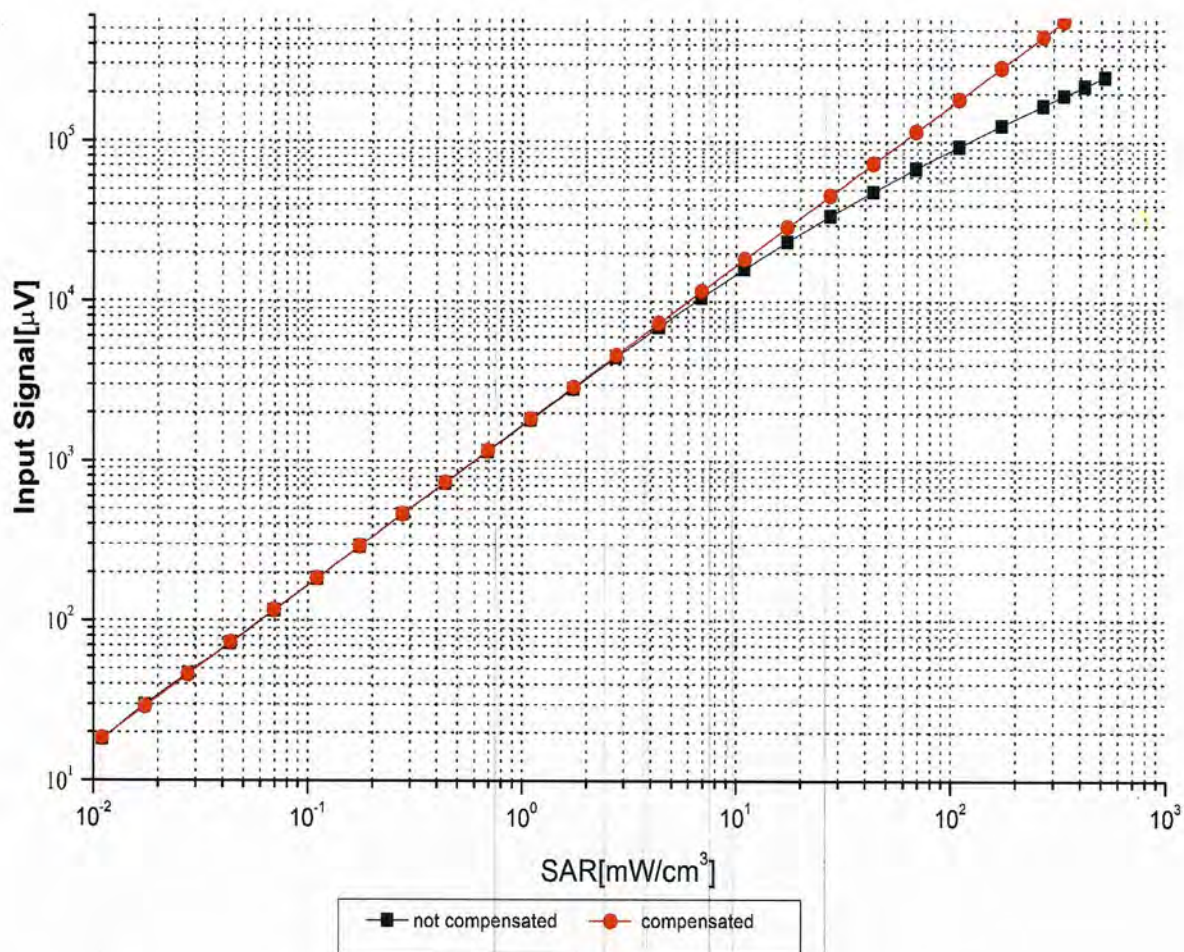
f=1800 MHz, R22



Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)

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Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)



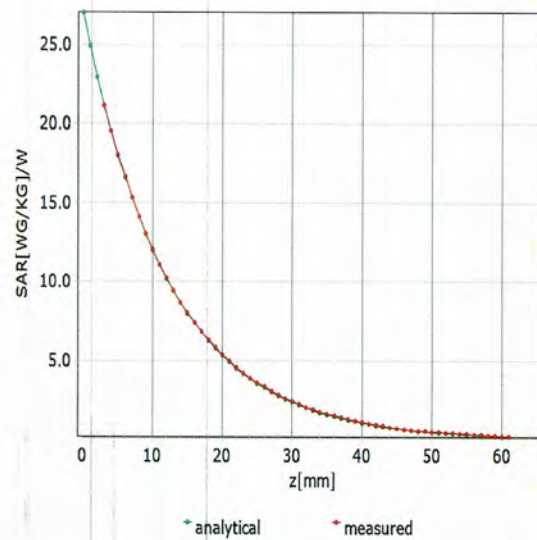
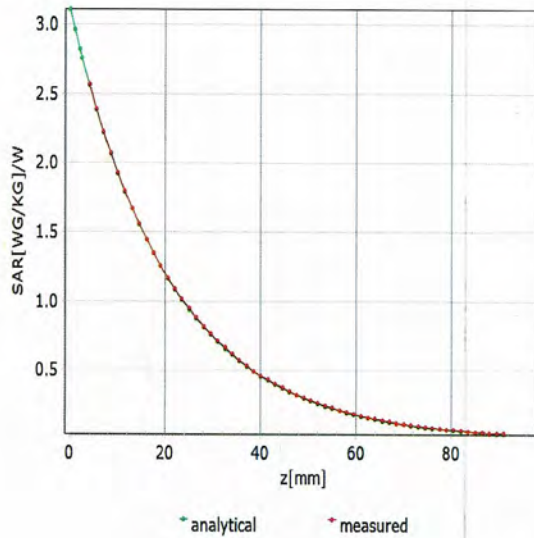
Uncertainty of Linearity Assessment: ±0.9% (k=2)

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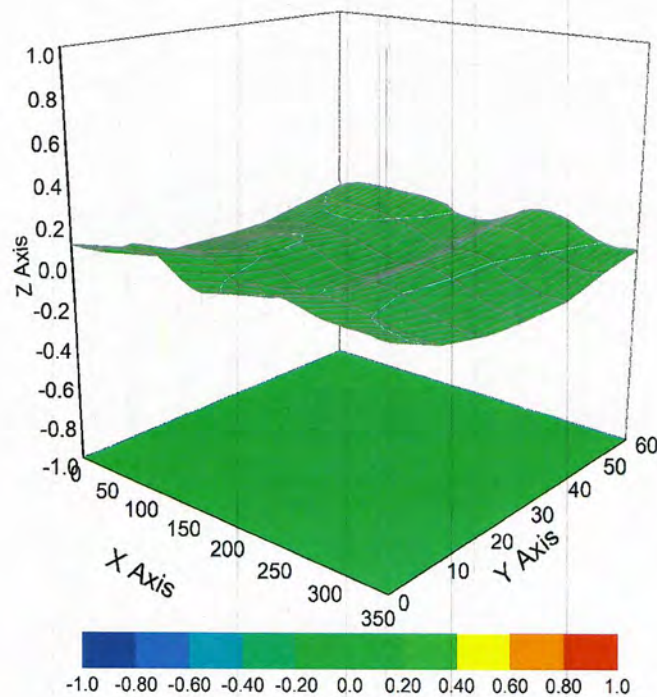
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)



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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	UncE (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 %



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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 %



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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 %



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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 %



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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 %



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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 %



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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 %



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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 %



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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 %



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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	AAC	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 %



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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 %