

FCC SAR Test Report

Report No. : SA190417C27

Applicant : Inventec Appliances Corp.

Address : 37 Wugong 5th road, New Taipei Industrial Park, Wugu District, New Taipei City, Taiwan 24890

Product : Notebook

FCC ID : POTWA02

Brand : Inventec Appliances Corp.

Model No. : WA02

Standards : FCC 47 CFR Part 2 (2.1093), IEEE C95.1:1992, IEEE Std 1528:2013
KDB 865664 D01 v01r04, KDB 865664 D02 v01r02,
KDB 248227 D01 v02r02, KDB 447498 D01 v06, KDB 616217 D04 v01r02,
KDB 941225 D01 v03r01, KDB 941225 D05 v02r05

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

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FCC Accredited No.: TW0003

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Table of Contents

Release Control Record	3
1. Summary of Maximum SAR Value	4
2. Description of Equipment Under Test	5
3. SAR Measurement System	6
3.1 Definition of Specific Absorption Rate (SAR)	6
3.2 SPEAG DASY6 System	6
3.2.1 Robot	7
3.2.2 Probes	8
3.2.3 Data Acquisition Electronics (DAE)	8
3.2.4 Phantoms	8
3.2.5 Device Holder	9
3.2.6 System Validation Dipoles	9
3.2.7 Tissue Simulating Liquids	10
3.3 SAR System Verification	12
3.4 SAR Measurement Procedure	13
3.4.1 Area & Zoom Scan Procedure	13
3.4.2 Volume Scan Procedure	13
3.4.3 Power Drift Monitoring	14
3.4.4 Spatial Peak SAR Evaluation	14
3.4.5 SAR Averaged Methods	14
4. SAR Measurement Evaluation	15
4.1 EUT Configuration and Setting	15
4.2 EUT Testing Position	23
4.2.1 Body Exposure Conditions	23
4.3 Tissue Verification	24
4.4 System Validation	24
4.5 System Verification	25
4.6 Maximum Output Power	26
4.6.1 Maximum Target Conducted Power	26
4.6.2 Measured Conducted Power Result	34
4.7 SAR Testing Results	53
4.7.1 SAR Test Reduction Considerations	53
4.7.2 SAR Results for Body Exposure Condition	55
4.7.3 SAR Measurement Variability	57
4.7.4 Simultaneous Multi-band Transmission Evaluation	58
5. Calibration of Test Equipment	65
6. Measurement Uncertainty	66
7. Information of the Testing Laboratories	70
Appendix A. SAR Plots of System Verification	
Appendix B. SAR Plots of SAR Measurement	
Appendix C. Calibration Certificate for Probe and Dipole	
Appendix D. Photographs of EUT and Setup	

Release Control Record

Report No.	Reason for Change	Date Issued
SA190417C27	Initial release	Sep. 18, 2019

FCC SAR Test Report

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest SAR-1g Body (W/kg)
PCB	WCDMA II	0.73
	WCDMA V	0.55
	LTE 2	0.97
	LTE 5	0.88
	LTE 7	0.89
	LTE 41 & 38	0.92
	LTE 66 & 4	0.61
DTS	2.4G WLAN	0.73
NII	5.2G WLAN	0.54
	5.3G WLAN	0.81
	5.6G WLAN	0.70
	5.8G WLAN	0.93
DSS	Bluetooth	0.22

Highest Simultaneous Transmission SAR	Highest SAR-1g Body (W/kg)
	1.56

Note:

1. The SAR criteria (**Head & Body: SAR-1g1.6 W/kg, and 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. This device supports both LTE band 66 and band 4. The frequency span of LTE band 66 can completely cover LTE band 4, and they has the same tune-up power. SAR was tested for LTE band 66 only.
3. This device supports both LTE band 41 and band 38. The frequency span of LTE band 41 can completely cover LTE band 38, and they has the same tune-up power. SAR was tested for LTE band 41 only.

FCC SAR Test Report

2. Description of Equipment Under Test

EUT Type	Notebook
FCC ID	POTWA02
Brand Name	Inventec Appliances Corp.
Model Name	WA02
Tx Frequency Bands (Unit: MHz)	WCDMA Band II : 1852.4 ~ 1907.6 WCDMA Band V : 826.4 ~ 846.6 LTE Band 2 : 1850.7 ~ 1909.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 4 : 1710.7 ~ 1754.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 5 : 824.7 ~ 848.3 (BW: 1.4M, 3M, 5M, 10M) LTE Band 7 : 2502.5 ~ 2567.5 (BW: 5M, 10M, 15M, 20M) LTE Band 38 : 2572.5 ~ 2617.5 (BW: 5M, 10M, 15M, 20M) LTE Band 41 : 2498.5 ~ 2687.5 (BW: 5M, 10M, 15M, 20M) LTE Band 66 : 1710.7 ~ 1779.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) WLAN : 2412 ~ 2484, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5720, 5745 ~ 5825 Bluetooth : 2402 ~ 2480
Uplink Modulations	WCDMA : QPSK CDMA : QPSK LTE : QPSK, 16QAM, 64QAM 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 4.6.1 of this report
Antenna Type	PIFA / 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.

List of Accessory:

Battery	Brand Name	GY
	Model Name	NA125S PL2983122
	Power Rating	7.6Vdc, 4200mAh
	Type	Li-ion

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 DASY6 System

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

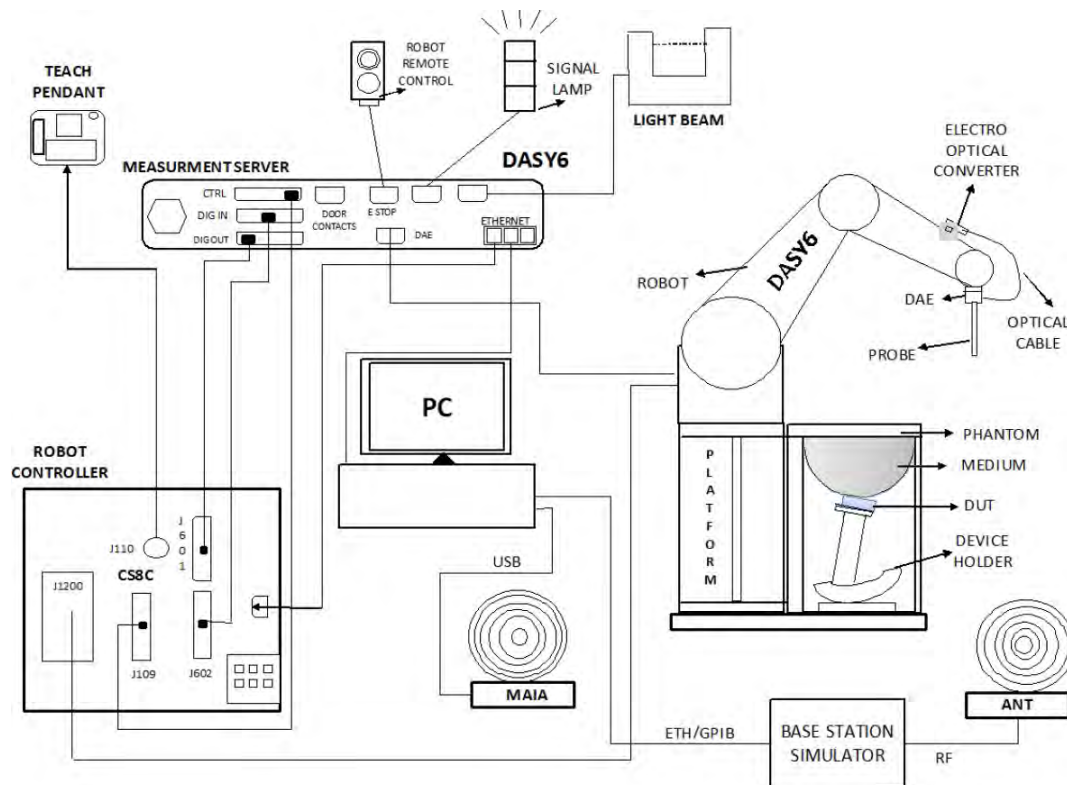


Fig-3.1 SPEAG DASY6 System Setup

3.2.1 Robot

The DASY6 systems use the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version of 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 SPEAG DASY6 System

FCC SAR Test Report

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	4 MHz to 10 GHz Linearity: ± 0.2 dB	
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (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	

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	

FCC SAR Test Report

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	

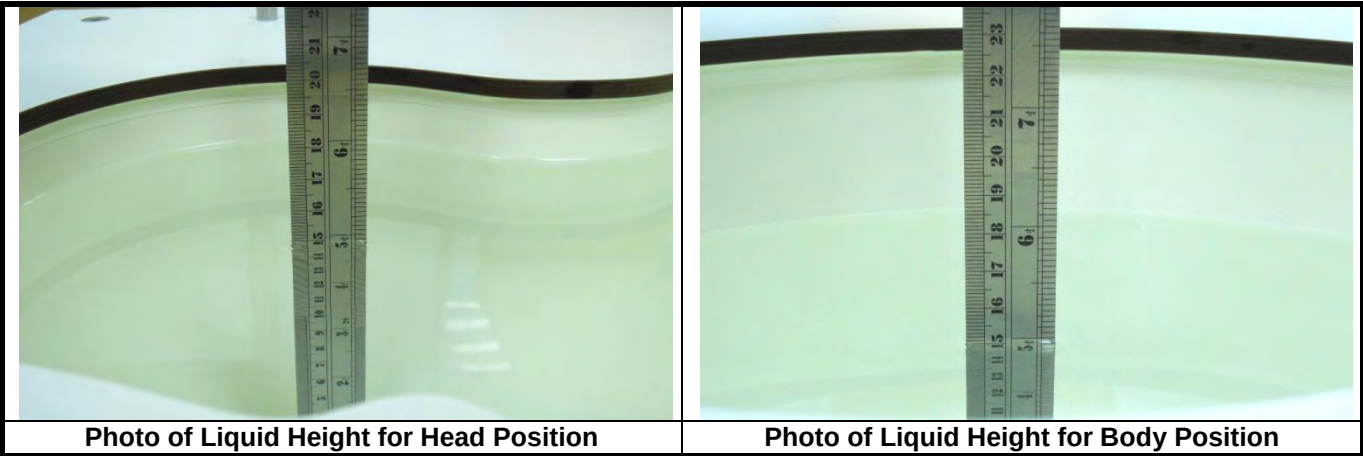
Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the 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 feedpoint 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 IEEE1528, 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.

FCC SAR Test Report

Table-3.1 Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of $\pm 5\%$	Target Conductivity	Range of $\pm 5\%$
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

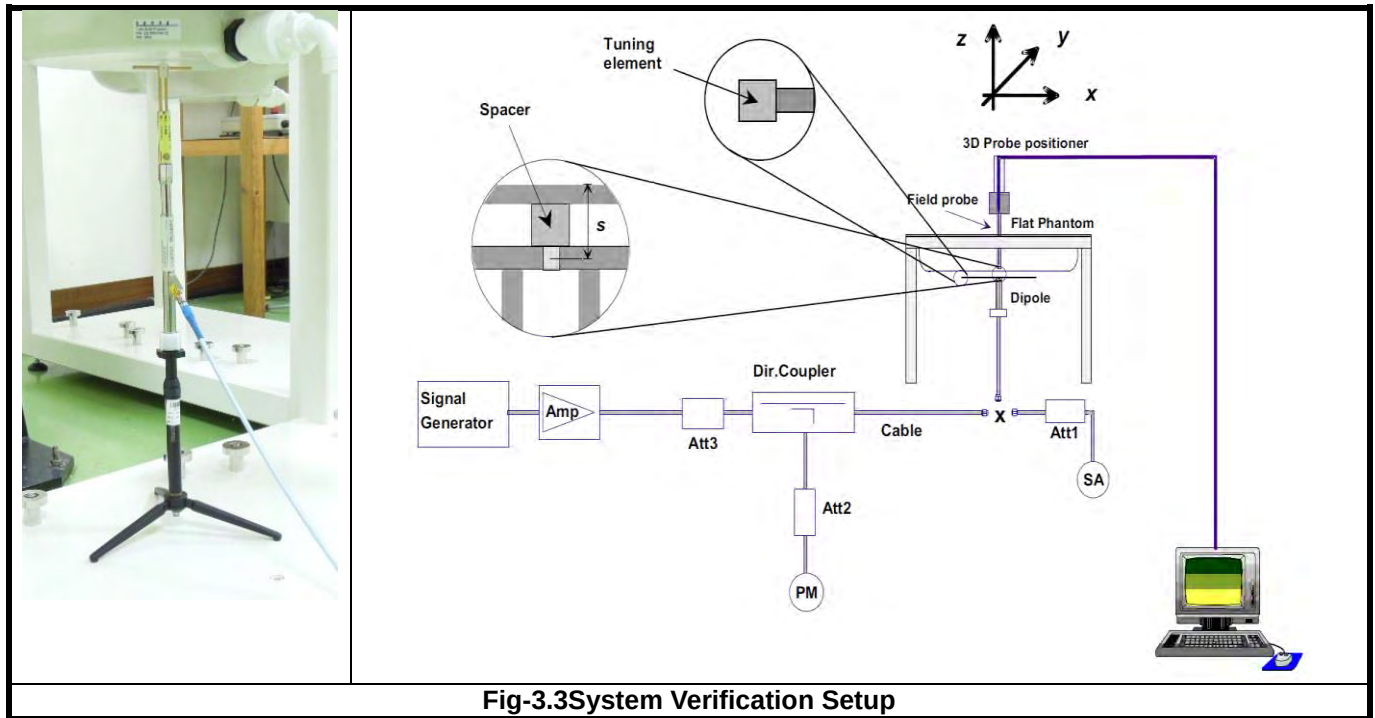
The following table gives the recipes for tissue simulating liquids.

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.



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 865664D01, 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 for 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

<Considerations Related to Proximity Sensor>

The device supports WWAN, WLAN, and Bluetooth capabilities. It is designed with a proximity sensor which can trigger/not trigger power reduction for WCDMA + LTE and WLAN on Bottom Side of EUT for SAR compliance. Others RF capability Bluetooth have no power reduction. The power levels for all wireless technologies and the power reduction please refer to section 4.6 of this report.

Proximity Sensor Triggering Distances (KDB 616217 D04 §6.2)

The proximity sensor triggering distance was determined per KDB 616217 for rear face and applicable edge. Summary for power verification per distance was tabulated in the below table.

Output Power Verification in dBm for EUT Bottom Edge											
Distance (mm)	14	15	16	17	18	19	20	21	22	23	24
WCDMA II	14.2	14.5	14.2	14.1	14.2	14.1	22.9	23.3	22.9	22.8	23.2
WCDMA V	19.7	19.5	19.7	19.4	19.3	19.5	23.0	23.2	22.9	23.4	22.9
LTE 2	15.0	15.0	14.8	15.1	14.7	15.0	22.4	22.7	22.7	22.7	22.7
LTE 4	12.7	12.3	12.6	12.5	12.3	12.5	22.2	22.2	22.0	22.1	22.0
LTE 5	20.3	20.5	20.5	20.4	20.8	20.6	22.8	22.9	22.5	22.8	22.9
LTE 7	11.3	11.5	11.5	11.6	11.7	11.4	22.4	21.9	22.1	21.9	22.0
LTE 38	14.7	14.7	14.4	14.4	14.8	14.6	22.0	22.2	22.4	22.0	22.2
LTE 41	14.3	14.3	14.5	14.5	14.5	14.2	22.3	22.0	21.8	22.3	22.1
LTE 66	12.8	12.6	12.5	12.4	12.4	12.5	22.6	22.6	22.4	22.7	22.6
WLAN 2.4G	12.8	12.6	12.5	12.6	12.8	13.0	18.4	18.7	18.7	18.9	18.8
WLAN 5.2G	8.0	8.5	8.3	8.1	8.1	8.3	15.5	15.9	15.7	15.7	15.9
WLAN 5.3G	6.5	6.6	6.6	6.5	6.6	6.9	15.9	15.7	15.6	15.9	15.8
WLAN 5.6G	9.0	9.5	9.2	9.4	9.1	9.5	15.7	15.9	15.5	16.0	15.6
WLAN 5.8G	7.6	8.0	7.7	7.7	8.0	7.6	15.7	15.9	15.6	15.5	15.5

Proximity Sensor Coverage (KDB 616217 D04 §6.3)

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

Summary for Proximity Sensor Triggering Test

According to the procedures noticed in KDB 616217 D04, the proximity sensor triggering distance is 19 mm for EUT 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 18 mm for EUT Bottom 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.

FCC SAR Test Report

<Connections between EUT and System Simulator>

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

<Considerations Related to WCDMA for Setup and Testing>

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	$\beta_{HS}^{(1/2)}$	CM ⁽³⁾ (dB)	MPR ⁽³⁾ (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	12/15 ⁽⁴⁾	24/15	1.0	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 $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.
Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.
Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
Note 4: 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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

FCC SAR Test Report

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_d/β_c	$\beta_{HS}^{(1)}$	β_{ec}	$\beta_{ed}^{(4)(5)}$	β_{ed} (SF)	β_{ed} (Codes)	CM ⁽²⁾ (dB)	MPR ⁽²⁾⁽⁶⁾ (dB)	AG ⁽⁵⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1309/225	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	β_{ed1} : 47/15 β_{ed2} : 47/15	4 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	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{HS} = 5/15 * \beta_c$.

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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

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.

FCC SAR Test Report

<Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, is category 3, supports both QPSK and QAM 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 and QAM 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
38			V	V	V	V
41			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
64QAM	<= 5	<= 4	<= 8	<= 12	<= 16	<= 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3

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

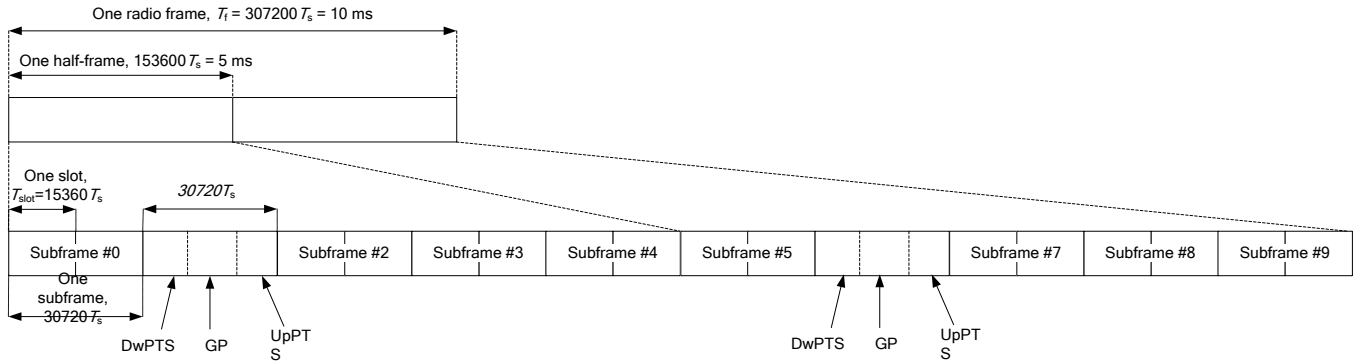
In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

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.

FCC SAR Test Report

TDD-LTE Setup Configurations

According to KDB 941225 D05, SAR testing for TDD-LTE device must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP TDD-LTE configurations. The TDD-LTE of this device supports frame structure type 2 defined in 3GPP TS 36.211 section 4.2, and the frame structure configuration can be referred to below.



3GPP TS 36.211 Figure 4.2-1: Frame Structure Type 2

Special Subframe Configuration	Normal Cyclic Prefix in Downlink			Extended Cyclic Prefix in Downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal Cyclic Prefix in Uplink	Extended Cyclic Prefix in Uplink		Normal Cyclic Prefix in Uplink	Extended Cyclic Prefix in Uplink
0	6592 • Ts	2192 • Ts	2560 • Ts	7680 • Ts	2192 • Ts	2560 • Ts
1	19760 • Ts			20480 • Ts		
2	21952 • Ts			23040 • Ts		
3	24144 • Ts			25600 • Ts		
4	26336 • Ts			7680 • Ts		
5	6592 • Ts	4384 • Ts	5120 • Ts	20480 • Ts	4384 • Ts	5120 • Ts
6	19760 • Ts			23040 • Ts		
7	21952 • Ts			12800 • Ts		
8	24144 • Ts			-	-	-
9	13168 • Ts			-	-	-

3GPP TS 36.211 Table 4.2-1: Configuration of Special Subframe

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-Point Periodicity	Subframe Number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

3GPP TS 36.211 Table 4.2-2: Uplink-Downlink Configurations

FCC SAR Test Report

The variety of different TD-LTE uplink-downlink configurations allows a network operator to allocate the network's capacity between uplink and downlink traffic to meet the needs of the network. The uplink duty cycle of these seven configurations can readily be computed and shown in below.

UL-DL Configuration	0	1	2	3	4	5	6
Highest Duty-Cycle	63.33%	43.33%	23.33%	31.67%	21.67%	11.67%	53.33%

<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.

FCC SAR Test Report

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.

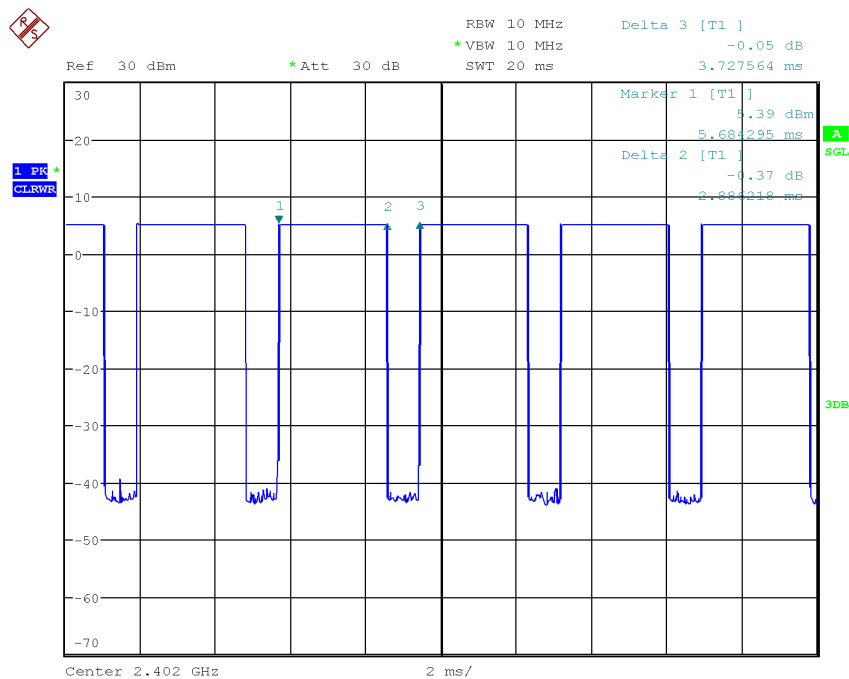
- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure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

FCC SAR Test Report

<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.

The Bluetooth call box has been used during SAR measurement and the EUT was set to DH5 mode at the maximum output power. Its duty factor was calculated as below and the measured SAR for Bluetooth would be scaled to the 100% transmission duty factor to determine compliance.



Date: 8.AUG.2019 19:01:56

Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has been calculated as following.

$$\text{Duty Factor} = \text{Pulse Width} / \text{Total Period} = 2.886218 / 3.727564 = 77.42 \%$$

4.2 EUT Testing Position

4.2.1 Body Exposure Conditions

For laptop PC, according to KDB 616217 D04, SAR evaluation is required for the bottom surface of the keyboard. This EUT was tested in the base of EUT directly against the flat phantom. The required minimum test separation distance for incorporating transmitters and antennas into laptop computer display is determined with the display screen opened at an angle of 90° to the keyboard compartment.

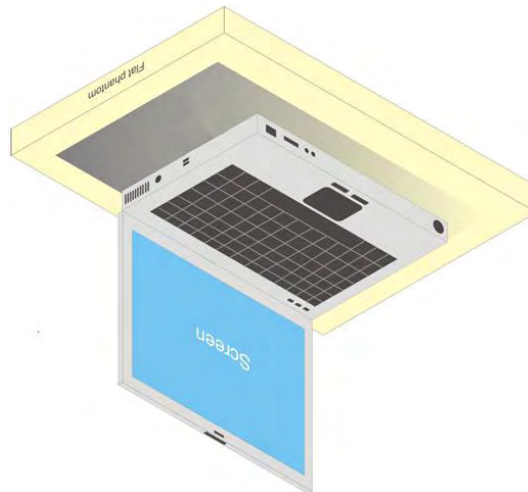


Fig-4.1 Illustration for Laptop Setup

FCC SAR Test Report

4.3 Tissue Verification

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

Test Date	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Aug. 14, 2019	835	23.3	0.945	43.009	0.9	41.5	5.00	3.64
Aug. 15, 2019	835	23.5	0.902	41.435	0.9	41.5	0.22	-0.16
Aug. 15, 2019	835	23.4	0.915	42.964	0.9	41.5	1.67	3.53
Aug. 16, 2019	835	23.3	0.904	41.897	0.9	41.5	0.44	0.96
Aug. 14, 2019	1750	23.3	1.325	40.158	1.37	40.1	-3.28	0.14
Aug. 15, 2019	1750	23.5	1.328	40.126	1.37	40.1	-3.07	0.06
Aug. 16, 2019	1750	23.2	1.335	38.831	1.37	40.1	-2.55	-3.16
Aug. 14, 2019	1900	23.3	1.454	39.615	1.4	40	3.86	-0.96
Aug. 15, 2019	1900	23.5	1.458	39.582	1.4	40	4.14	-1.05
Aug. 15, 2019	1900	23.4	1.446	38.887	1.4	40	3.29	-2.78
Aug. 16, 2019	1900	23.3	1.463	38.256	1.4	40	4.50	-4.36
Aug. 30, 2019	2450	23.3	1.829	38.581	1.8	39.2	1.61	-1.58
Aug. 14, 2019	2600	23.3	2.03	37.955	1.96	39	3.57	-2.68
Aug. 15, 2019	2600	23.5	2.056	37.297	1.96	39	4.90	-4.37
Aug. 16, 2019	2600	23.3	2.045	38.305	1.96	39	4.34	-1.78
Aug. 30, 2019	5250	23.3	4.735	36.962	4.71	35.9	0.53	2.96
Sep. 12, 2019	5250	23.2	4.788	35.102	4.71	35.9	1.66	-2.22
Aug. 30, 2019	5600	23.3	5.089	36.492	5.07	35.5	0.37	2.79
Aug. 30, 2019	5750	23.3	5.249	36.271	5.22	35.4	0.56	2.46

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 Validation

The SAR measurement system was validated according to procedures in KDB 865664 D01. The validation status in tabulated summary is as below.

Test Date	Probe S/N	Calibration Point	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
					Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Aug. 14, 2019	7537	835	0.945	43.009	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7537	835	0.902	41.435	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7375	835	0.915	42.964	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 16, 2019	7375	835	0.904	41.897	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 14, 2019	7537	1750	1.325	40.158	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7537	1750	1.328	40.126	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 16, 2019	7375	1750	1.335	38.831	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 14, 2019	7537	1900	1.454	39.615	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7537	1900	1.458	39.582	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7375	1900	1.446	38.887	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 16, 2019	7375	1900	1.463	38.256	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 30, 2019	7375	2450	1.829	38.581	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 14, 2019	7537	2600	2.03	37.955	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 15, 2019	7537	2600	2.056	37.297	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 16, 2019	7375	2600	2.045	38.305	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 30, 2019	7375	5250	4.735	36.962	Pass	Pass	Pass	OFDM	N/A	Pass
Sep. 12, 2019	3650	5250	4.788	35.102	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 30, 2019	7375	5600	5.089	36.492	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 30, 2019	7375	5750	5.249	36.271	Pass	Pass	Pass	OFDM	N/A	Pass

FCC SAR Test Report

4.5 System Verification

The measuring result for system verification is tabulated as below.

Test Date	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
Aug. 14, 2019	835	9.50	2.40	9.60	1.05	4d092	7537	1585
Aug. 15, 2019	835	9.50	2.34	9.36	-1.47	4d092	7537	1585
Aug. 15, 2019	835	9.50	2.39	9.56	0.63	4d092	7375	1277
Aug. 16, 2019	835	9.50	2.3	9.20	-3.16	4d092	7375	1277
Aug. 14, 2019	1750	36.10	8.79	35.16	-2.60	1023	7537	1585
Aug. 15, 2019	1750	36.10	8.98	35.92	-0.50	1023	7537	1585
Aug. 16, 2019	1750	36.10	9.08	36.32	0.61	1023	7375	1277
Aug. 14, 2019	1900	40.20	9.93	39.72	-1.19	5d036	7537	1585
Aug. 15, 2019	1900	40.20	10.2	40.80	1.49	5d036	7537	1585
Aug. 15, 2019	1900	40.20	10.1	40.40	0.50	5d036	7375	1277
Aug. 16, 2019	1900	40.20	10	40.00	-0.50	5d036	7375	1277
Aug. 30, 2019	2450	53.10	13.4	53.60	0.94	835	7375	1277
Aug. 14, 2019	2600	58.10	13.7	54.80	-5.68	1058	7537	1585
Aug. 15, 2019	2600	58.10	13.9	55.60	-4.30	1058	7537	1585
Aug. 16, 2019	2600	58.10	15.4	61.60	6.02	1058	7375	1277
Aug. 30, 2019	5250	80.70	7.86	78.60	-2.60	1019	7375	1277
Sep. 12, 2019	5250	80.70	8.69	86.90	7.68	1019	3650	861
Aug. 30, 2019	5600	85.80	8.41	84.10	-1.98	1019	7375	1277
Aug. 30, 2019	5750	81.50	7.57	75.70	-7.12	1019	7375	1277

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.

FCC SAR Test Report

4.6 Maximum Output Power

4.6.1 Maximum Target Conducted Power

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

Mode	WCDMA Band II Ant. 0 / Ant. 1 (without Power Reduction)	WCDMA Band II Ant. 0 (with Power Reduction)	Power Reduction (dB)
RMC 12.2K	23.0	15.0	8.0
HSDPA / HSUPA / DC-HSDPA	23.0	15.0	8.0

Mode	WCDMA Band V Ant. 0 / Ant. 1 (without Power Reduction)	WCDMA Band V Ant. 0 (with Power Reduction)	Power Reduction (dB)
RMC 12.2K	23.0	20.0	3.0
HSDPA / HSUPA / DC-HSDPA	23.0	20.0	3.0

Mode	LTE 2 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 2 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	16.0	7.0

Mode	LTE 4 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 4 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	14.0	9.0

Mode	LTE 5 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 5 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	24.0	22.0	2.0

Mode	LTE 7 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 7 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	13.0	10.0

Mode	LTE 38 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 38 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	16.0	7.0

FCC SAR Test Report

Mode	LTE 41 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 41 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	16.0	7.0

Mode	LTE 66 Ant. 0 / Ant. 1 (without Power Reduction)	LTE 66 Ant. 0 (with Power Reduction)	Power Reduction (dB)
Maximum Target Power	23.0	14.0	9.0

FCC SAR Test Report

<WLAN 2.4G>

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11b	1	2412	19.0	19.0	19.0
	6	2437	19.0	19.0	19.0
	11	2462	19.0	19.0	19.0
802.11g	1	2412	17.0	17.0	17.0
	6	2437	17.0	17.0	17.0
	11	2462	17.0	17.0	17.0
802.11n (HT20)	1	2412	15.0	15.0	15.0
	6	2437	15.0	15.0	15.0
	11	2462	15.0	15.0	15.0
802.11n (HT40)	3	2422	13.0	13.0	13.0
	6	2437	13.0	13.0	13.0
	9	2452	13.0	13.0	13.0
EUT with Power Reduction					
802.11b	1	2412	13.0	13.0	13.0
	6	2437	13.0	13.0	13.0
	11	2462	13.0	13.0	13.0
802.11g	1	2412	13.0	13.0	13.0
	6	2437	13.0	13.0	13.0
	11	2462	13.0	13.0	13.0
802.11n (HT20)	1	2412	13.0	13.0	13.0
	6	2437	13.0	13.0	13.0
	11	2462	13.0	13.0	13.0
802.11n (HT40)	3	2422	13.0	13.0	13.0
	6	2437	13.0	13.0	13.0
	9	2452	13.0	13.0	13.0

FCC SAR Test Report

<WLAN 5.2G>

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11a	36	5180	16.0	16.0	16.0
	40	5200	16.0	16.0	16.0
	44	5220	16.0	16.0	16.0
	48	5240	16.0	16.0	16.0
802.11n (HT20)	36	5180	16.0	16.0	16.0
	40	5200	16.0	16.0	16.0
	44	5220	16.0	16.0	16.0
	48	5240	16.0	16.0	16.0
802.11n (HT40)	38	5190	16.0	16.0	16.0
	46	5230	16.0	16.0	16.0
802.11ac (VHT20)	36	5180	16.0	16.0	16.0
	40	5200	16.0	16.0	16.0
	44	5220	16.0	16.0	16.0
	48	5240	16.0	16.0	16.0
802.11ac (VHT40)	38	5190	16.0	16.0	16.0
	46	5230	16.0	16.0	16.0
802.11ac (VHT80)	42	5210	16.0	16.0	16.0
EUT with Power Reduction					
802.11a	36	5180	8.5	8.5	8.5
	40	5200	8.5	8.5	8.5
	44	5220	8.5	8.5	8.5
	48	5240	8.5	8.5	8.5
802.11n (HT20)	36	5180	8.5	8.5	8.5
	40	5200	8.5	8.5	8.5
	44	5220	8.5	8.5	8.5
	48	5240	8.5	8.5	8.5
802.11n (HT40)	38	5190	8.5	8.5	8.5
	46	5230	8.5	8.5	8.5
802.11ac (VHT20)	36	5180	8.5	8.5	8.5
	40	5200	8.5	8.5	8.5
	44	5220	8.5	8.5	8.5
	48	5240	8.5	8.5	8.5
802.11ac (VHT40)	38	5190	8.5	8.5	8.5
	46	5230	8.5	8.5	8.5
802.11ac (VHT80)	42	5210	8.5	8.5	8.5

FCC SAR Test Report

<WLAN 5.3G>

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11a	52	5260	16.0	16.0	16.0
	56	5280	16.0	16.0	16.0
	60	5300	16.0	16.0	16.0
	64	5320	16.0	16.0	16.0
802.11n (HT20)	52	5260	16.0	16.0	16.0
	56	5280	16.0	16.0	16.0
	60	5300	16.0	16.0	16.0
	64	5320	16.0	16.0	16.0
802.11n (HT40)	54	5270	16.0	16.0	16.0
	62	5310	16.0	16.0	16.0
802.11ac (VHT20)	52	5260	16.0	16.0	16.0
	56	5280	16.0	16.0	16.0
	60	5300	16.0	16.0	16.0
	64	5320	16.0	16.0	16.0
802.11ac (VHT40)	54	5270	16.0	16.0	16.0
	62	5310	16.0	16.0	16.0
802.11ac (VHT80)	58	5290	16.0	16.0	16.0
EUT with Power Reduction					
802.11a	52	5260	7.0	7.0	7.0
	56	5280	7.0	7.0	7.0
	60	5300	7.0	7.0	7.0
	64	5320	7.0	7.0	7.0
802.11n (HT20)	52	5260	7.0	7.0	7.0
	56	5280	7.0	7.0	7.0
	60	5300	7.0	7.0	7.0
	64	5320	7.0	7.0	7.0
802.11n (HT40)	54	5270	7.0	7.0	7.0
	62	5310	7.0	7.0	7.0
802.11ac (VHT20)	52	5260	7.0	7.0	7.0
	56	5280	7.0	7.0	7.0
	60	5300	7.0	7.0	7.0
	64	5320	7.0	7.0	7.0
802.11ac (VHT40)	54	5270	7.0	7.0	7.0
	62	5310	7.0	7.0	7.0
802.11ac (VHT80)	58	5290	7.0	7.0	7.0

FCC SAR Test Report

<WLAN 5.6G>

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11a	100	5500	16.0	16.0	16.0
	116	5580	16.0	16.0	16.0
	120	5600	16.0	16.0	16.0
	124	5620	16.0	16.0	16.0
	132	5660	16.0	16.0	16.0
	140	5700	16.0	16.0	16.0
	144	5720	16.0	16.0	16.0
802.11n (HT20)	100	5500	16.0	16.0	16.0
	116	5580	16.0	16.0	16.0
	120	5600	16.0	16.0	16.0
	124	5620	16.0	16.0	16.0
	132	5660	16.0	16.0	16.0
	140	5700	16.0	16.0	16.0
	144	5720	16.0	16.0	16.0
802.11n (HT40)	102	5510	16.0	16.0	16.0
	110	5550	16.0	16.0	16.0
	118	5590	16.0	16.0	16.0
	126	5630	16.0	16.0	16.0
	134	5670	16.0	16.0	16.0
	142	5710	16.0	16.0	16.0
802.11ac (VHT20)	100	5500	16.0	16.0	16.0
	116	5580	16.0	16.0	16.0
	120	5600	16.0	16.0	16.0
	124	5620	16.0	16.0	16.0
	132	5660	16.0	16.0	16.0
	140	5700	16.0	16.0	16.0
	144	5720	16.0	16.0	16.0
802.11ac (VHT40)	102	5510	16.0	16.0	16.0
	110	5550	16.0	16.0	16.0
	118	5590	16.0	16.0	16.0
	126	5630	16.0	16.0	16.0
	134	5670	16.0	16.0	16.0
	142	5710	16.0	16.0	16.0
802.11ac (VHT80)	106	5530	16.0	16.0	16.0
	122	5610	16.0	16.0	16.0
	138	5690	16.0	16.0	16.0

FCC SAR Test Report

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT with Power Reduction					
802.11a	100	5500	9.5	9.5	9.5
	116	5580	9.5	9.5	9.5
	120	5600	9.5	9.5	9.5
	124	5620	9.5	9.5	9.5
	132	5660	9.5	9.5	9.5
	140	5700	9.5	9.5	9.5
	144	5720	9.5	9.5	9.5
802.11n (HT20)	100	5500	9.5	9.5	9.5
	116	5580	9.5	9.5	9.5
	120	5600	9.5	9.5	9.5
	124	5620	9.5	9.5	9.5
	132	5660	9.5	9.5	9.5
	140	5700	9.5	9.5	9.5
	144	5720	9.5	9.5	9.5
802.11n (HT40)	102	5510	9.5	9.5	9.5
	110	5550	9.5	9.5	9.5
	118	5590	9.5	9.5	9.5
	126	5630	9.5	9.5	9.5
	134	5670	9.5	9.5	9.5
	142	5710	9.5	9.5	9.5
802.11ac (VHT20)	100	5500	9.5	9.5	9.5
	116	5580	9.5	9.5	9.5
	120	5600	9.5	9.5	9.5
	124	5620	9.5	9.5	9.5
	132	5660	9.5	9.5	9.5
	140	5700	9.5	9.5	9.5
	144	5720	9.5	9.5	9.5
802.11ac (VHT40)	102	5510	9.5	9.5	9.5
	110	5550	9.5	9.5	9.5
	118	5590	9.5	9.5	9.5
	126	5630	9.5	9.5	9.5
	134	5670	9.5	9.5	9.5
	142	5710	9.5	9.5	9.5
802.11ac (VHT80)	106	5530	9.5	9.5	9.5
	122	5610	9.5	9.5	9.5
	138	5690	9.5	9.5	9.5

FCC SAR Test Report

<WLAN 5.8G>

Mode	Channel	Frequency (MHz)	Tune up Power (Ant-0)	Tune up Power (Ant-1)	Tune up Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11a	149	5745	16.0	16.0	16.0
	153	5765	16.0	16.0	16.0
	157	5785	16.0	16.0	16.0
	161	5805	16.0	16.0	16.0
	165	5825	16.0	16.0	16.0
802.11n (HT20)	149	5745	16.0	16.0	16.0
	153	5765	16.0	16.0	16.0
	157	5785	16.0	16.0	16.0
	161	5805	16.0	16.0	16.0
	165	5825	16.0	16.0	16.0
802.11n (HT40)	151	5755	16.0	16.0	16.0
	159	5795	16.0	16.0	16.0
802.11ac (VHT20)	149	5745	16.0	16.0	16.0
	153	5765	16.0	16.0	16.0
	157	5785	16.0	16.0	16.0
	161	5805	16.0	16.0	16.0
	165	5825	16.0	16.0	16.0
802.11ac (VHT40)	151	5755	16.0	16.0	16.0
	159	5795	16.0	16.0	16.0
802.11ac (VHT80)	155	5775	16.0	16.0	16.0
EUT with Power Reduction					
802.11a	149	5745	8.0	8.0	8.0
	153	5765	8.0	8.0	8.0
	157	5785	8.0	8.0	8.0
	161	5805	8.0	8.0	8.0
	165	5825	8.0	8.0	8.0
802.11n (HT20)	149	5745	8.0	8.0	8.0
	153	5765	8.0	8.0	8.0
	157	5785	8.0	8.0	8.0
	161	5805	8.0	8.0	8.0
	165	5825	8.0	8.0	8.0
802.11n (HT40)	151	5755	8.0	8.0	8.0
	159	5795	8.0	8.0	8.0
802.11ac (VHT20)	149	5745	8.0	8.0	8.0
	153	5765	8.0	8.0	8.0
	157	5785	8.0	8.0	8.0
	161	5805	8.0	8.0	8.0
	165	5825	8.0	8.0	8.0
802.11ac (VHT40)	151	5755	8.0	8.0	8.0
	159	5795	8.0	8.0	8.0
802.11ac (VHT80)	155	5775	8.0	8.0	8.0

<Bluetooth>

Mode	Channel	Frequency (MHz)	Tune up Power
Bluetooth EDR	0	2402	6.5
	39	2441	6.5
	78	2480	6.5
Bluetooth LE	0	2402	6.5
	19	2440	6.5
	39	2480	6.5

FCC SAR Test Report

4.6.2 Measured Conducted Power Result

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

Band	WCDMA Band II			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	826.4	836.4	846.6	
Ant. 0 / Ant. 1							
EUT without Power Reduction (P-Sensor NOT Triggered)							
RMC 12.2K	22.04	22.32	22.18	22.08	22.37	22.31	-
HSDPA Subtest-1	21.11	21.39	21.25	21.07	21.36	21.30	0
HSDPA Subtest-2	21.08	21.33	21.19	21.05	21.34	21.28	0
HSDPA Subtest-3	20.60	20.88	20.74	20.58	20.87	20.81	0.5
HSDPA Subtest-4	20.59	20.87	20.73	20.57	20.86	20.80	0.5
DC-HSDPA Subtest-1	21.03	21.31	21.17	21.02	21.30	21.24	0
DC-HSDPA Subtest-2	21.01	21.25	21.11	21.01	21.28	21.20	0
DC-HSDPA Subtest-3	20.52	20.80	20.66	20.52	20.81	20.75	0.5
DC-HSDPA Subtest-4	20.52	20.80	20.66	20.51	20.80	20.74	0.5
HSUPA Subtest-1	21.01	21.29	21.15	21.08	21.37	21.31	0
HSUPA Subtest-2	19.10	19.38	19.24	19.08	19.37	19.31	2
HSUPA Subtest-3	20.02	20.30	20.16	20.02	20.29	20.23	1
HSUPA Subtest-4	19.07	19.35	19.21	19.01	19.30	19.24	2
HSUPA Subtest-5	21.02	21.30	21.16	21.11	21.40	21.34	0
Ant. 0							
EUT with Power Reduction (P-Sensor Triggered)							
RMC 12.2K	14.12	14.54	14.43	19.22	19.65	19.43	-
HSDPA Subtest-1	13.09	13.51	13.40	18.31	18.74	18.52	-
HSDPA Subtest-2	13.01	13.43	13.32	18.29	18.72	18.50	-
HSDPA Subtest-3	12.60	13.02	12.91	17.84	18.27	18.05	-
HSDPA Subtest-4	12.59	13.01	12.90	17.83	18.26	18.04	-
DC-HSDPA Subtest-1	13.02	13.44	13.33	18.23	18.66	18.44	-
DC-HSDPA Subtest-2	13.01	13.36	13.25	18.21	18.64	18.42	-
DC-HSDPA Subtest-3	12.53	12.95	12.84	17.76	18.19	17.97	-
DC-HSDPA Subtest-4	12.52	12.94	12.83	17.75	18.18	17.96	-
HSUPA Subtest-1	13.19	13.61	13.50	18.32	18.75	18.53	-
HSUPA Subtest-2	11.04	11.46	11.35	16.37	16.80	16.58	-
HSUPA Subtest-3	12.56	12.98	12.87	17.31	17.74	17.52	-
HSUPA Subtest-4	11.01	11.43	11.32	16.32	16.75	16.53	-
HSUPA Subtest-5	13.10	13.52	13.41	18.30	18.73	18.51	-

FCC SAR Test Report

LTE Band 2															
Ant. 0 / Ant. 1 EUT without Power Reduction (P-Sensor NOT Triggered)															
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)		1860.0	1880.0	1900.0				Frequency (MHz)		1857.5	1880.0	1902.5	
20M	QPSK	1	0	22.24	22.63	22.89	0	15M	QPSK	1	0	22.16	22.61	22.81	0
		1	50	21.98	22.37	22.63	0			1	37	21.95	22.35	22.61	0
		1	99	22.02	22.41	22.67	0			1	74	21.92	22.34	22.58	0
		50	0	21.31	21.70	21.96	1			36	0	21.28	21.67	21.94	1
		50	25	21.19	21.58	21.84	1			36	19	21.19	21.57	21.80	1
		50	50	21.21	21.60	21.86	1			36	39	21.21	21.58	21.81	1
		100	0	21.26	21.65	21.91	1			75	0	21.16	21.65	21.84	1
	16QAM	1	0	21.33	21.72	21.98	1		16QAM	1	0	21.28	21.63	21.92	1
		1	50	20.98	21.37	21.63	1			1	37	20.88	21.31	21.54	1
		1	99	21.28	21.67	21.93	1			1	74	21.27	21.61	21.83	1
		50	0	20.32	20.71	20.97	2			36	0	20.24	20.71	20.93	2
		50	25	20.20	20.59	20.85	2			36	19	20.18	20.51	20.79	2
		50	50	20.28	20.67	20.93	2			36	39	20.23	20.61	20.92	2
	64QAM	100	0	20.17	20.56	20.82	2		75	0	20.17	20.54	20.81	2	
		1	0	20.31	20.70	20.96	2		64QAM	1	0	20.30	20.63	20.95	2
		1	50	20.07	20.46	20.72	2			1	37	19.97	20.37	20.72	2
		1	99	20.29	20.68	20.94	2			1	74	20.29	20.62	20.88	2
		50	0	19.33	19.72	19.98	3			36	0	19.30	19.70	19.92	3
		50	25	19.25	19.64	19.90	3			36	19	19.22	19.60	19.82	3
		50	50	19.27	19.66	19.92	3			36	39	19.27	19.66	19.85	3
	100	0	19.24	19.63	19.89	3	75			0	19.15	19.55	19.86	3	
	Ant. 0 EUT with Power Reduction (P-Sensor Triggered)														
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)		1860.0	1880.0	1900.0				Frequency (MHz)		1857.5	1880.0	1902.5	
20M	QPSK	1	0	15.11	15.15	15.17	0	15M	QPSK	1	0	15.11	15.15	15.07	0
		1	50	15.02	15.06	15.08	0			1	37	15.01	15.02	15.07	0
		1	99	14.86	14.90	14.92	0			1	74	14.80	14.87	14.88	0
		50	0	13.72	13.76	13.78	1			36	0	13.63	13.71	13.73	1
		50	25	13.68	13.72	13.74	1			36	19	13.65	13.72	13.66	1
		50	50	13.65	13.69	13.71	1			36	39	13.56	13.59	13.69	1
		100	0	13.69	13.73	13.75	1			75	0	13.62	13.69	13.74	1
	16QAM	1	0	14.02	14.15	14.07	1		16QAM	1	0	14.05	14.06	14.00	1
		1	50	13.96	14.05	14.07	1			1	37	13.88	13.94	14.01	1
		1	99	13.82	13.83	13.84	1			1	74	13.81	13.77	13.89	1
		50	0	12.72	12.67	12.68	2			36	0	12.63	12.70	12.69	2
		50	25	12.63	12.65	12.74	2			36	19	12.60	12.68	12.61	2
		50	50	12.63	12.65	12.69	2			36	39	12.55	12.64	12.65	2
	64QAM	100	0	12.66	12.66	12.69	2		75	0	12.54	12.54	12.63	2	
		1	0	13.08	13.15	13.10	2		64QAM	1	0	13.05	13.04	13.06	2
		1	50	12.95	13.03	12.99	2			1	37	12.94	12.94	12.96	2
		1	99	12.76	12.83	12.83	2			1	74	12.76	12.89	12.87	2
		50	0	11.64	11.70	11.75	3			36	0	11.61	11.66	11.66	3
		50	25	11.58	11.71	11.72	3			36	19	11.59	11.60	11.61	3
		50	50	11.58	11.68	11.63	3			36	39	11.56	11.55	11.54	3
	100	0	11.60	11.65	11.73	3	75			0	11.57	11.61	11.65	3	

FCC SAR Test Report

LTE Band 2																	
Ant. 0 / Ant. 1																	
EUT without Power Reduction (P-Sensor NOT Triggered)																	
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		18650	18900	19150				Channel		18625	18900	19175			
		Frequency (MHz)		1855.0	1880.0	1905.0				Frequency (MHz)		1852.5	1880.0	1907.5			
10M	QPSK	1	0	22.03	22.54	22.73	0	5M	QPSK	1	0	22.02	22.57	22.57	0		
		1	24	21.83	22.32	22.52	0			1	12	21.90	22.18	22.43	0		
		1	49	21.84	22.22	22.43	0			1	24	21.93	22.38	22.54	0		
		25	0	21.28	21.58	21.78	1			12	0	21.30	21.47	21.62	1		
		25	12	21.10	21.43	21.81	1			12	6	21.07	21.34	21.55	1		
		25	25	21.03	21.54	21.74	1			12	13	21.12	21.39	21.64	1		
		50	0	21.21	21.46	21.84	1			25	0	21.04	21.54	21.75	1		
		16QAM	1	0	21.21	21.59	21.88			1	16QAM	1	0	21.22	21.61	21.78	1
	1		24	20.85	21.18	21.56	1		1	12		20.79	21.35	21.46	1		
	1		49	21.15	21.51	21.92	1		1	24		21.21	21.52	21.85	1		
	25		0	20.19	20.47	20.83	2		12	0		20.18	20.54	20.81	2		
	25		12	20.10	20.37	20.71	2		12	6		20.10	20.43	20.78	2		
	25		25	20.21	20.59	20.80	2		12	13		20.24	20.43	20.74	2		
	50		0	20.09	20.44	20.66	2		25	0		20.10	20.48	20.81	2		
	64QAM		1	0	20.13	20.55	20.89		2	64QAM		1	0	20.19	20.51	20.85	2
		1	24	19.90	20.32	20.53	2		1		12	19.87	20.31	20.51	2		
		1	49	20.11	20.59	20.78	2		1		24	20.17	20.55	20.76	2		
		25	0	19.23	19.54	19.84	3		12		0	19.15	19.64	19.85	3		
		25	12	19.12	19.54	19.84	3		12		6	19.12	19.55	19.76	3		
		25	25	19.17	19.53	19.76	3		12		13	19.16	19.53	19.86	3		
		50	0	19.06	19.42	19.74	3		25		0	19.01	19.60	19.80	3		
		Ant. 0															
	EUT with Power Reduction (P-Sensor Triggered)																
	10M	QPSK	1	0	14.94	14.95	15.11		0	5M	QPSK	1	0	15.06	15.03	14.98	0
1			24	14.92	14.97	14.85	0	1	12			14.95	14.92	14.99	0		
1			49	14.77	14.76	14.72	0	1	24			14.66	14.86	14.75	0		
25			0	13.62	13.65	13.72	1	12	0			13.63	13.52	13.56	1		
25			12	13.51	13.69	13.55	1	12	6			13.60	13.59	13.62	1		
25			25	13.54	13.56	13.55	1	12	13			13.51	13.51	13.62	1		
50			0	13.60	13.51	13.65	1	25	0			13.47	13.71	13.50	1		
16QAM			1	0	13.91	13.97	14.14	1	16QAM			1	0	13.96	14.07	14.12	1
		1	24	13.84	13.79	13.87	1	1			12	13.86	13.97	14.00	1		
		1	49	13.55	13.77	13.72	1	1			24	13.71	13.81	13.83	1		
		25	0	12.62	12.65	12.56	2	12			0	12.55	12.62	12.58	2		
		25	12	12.58	12.54	12.63	2	12			6	12.52	12.50	12.58	2		
		25	25	12.45	12.61	12.67	2	12			13	12.52	12.47	12.53	2		
		50	0	12.53	12.51	12.55	2	25			0	12.57	12.50	12.49	2		
		64QAM	1	0	13.03	12.96	13.03	2			64QAM	1	0	12.97	13.05	12.99	2
1			24	12.86	12.89	12.90	2	1	12			12.92	12.91	13.03	2		
1			49	12.77	12.74	12.79	2	1	24			12.61	12.68	12.68	2		
25			0	11.57	11.62	11.54	3	12	0			11.50	11.61	11.65	3		
25			12	11.53	11.52	11.48	3	12	6			11.56	11.53	11.62	3		
25			25	11.45	11.41	11.54	3	12	13			11.48	11.41	11.46	3		
50			0	11.50	11.59	11.68	3	25	0			11.46	11.56	11.64	3		

FCC SAR Test Report

LTE Band 2															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		18615	18900	19185				Channel		18607	18900	19193	
		Frequency (MHz)		1851.5	1880.0	1908.5				Frequency (MHz)		1850.7	1880.0	1909.3	
3M	QPSK	1	0	22.12	22.38	22.78	0	1.4M	QPSK	1	0	22.10	22.47	22.81	0
		1	7	21.92	22.24	22.45	0			1	2	21.90	22.26	22.60	0
		1	14	21.79	22.31	22.56	0			1	5	21.89	22.23	22.52	0
		8	0	21.17	21.54	21.77	1			3	0	22.13	22.58	22.83	0
		8	3	21.06	21.41	21.67	1			3	1	22.03	22.46	22.75	0
		8	7	21.12	21.53	21.73	1			3	3	21.97	22.45	22.82	0
		15	0	21.16	21.58	21.90	1			6	0	21.11	21.46	21.74	1
	16QAM	1	0	21.13	21.64	21.89	1		16QAM	1	0	21.14	21.58	21.86	1
		1	7	20.80	21.19	21.53	1			1	2	20.84	21.30	21.50	1
		1	14	21.24	21.53	21.83	1			1	5	21.17	21.55	21.71	1
		8	0	20.19	20.58	20.75	2			3	0	21.17	21.65	21.78	1
		8	3	20.03	20.45	20.69	2			3	1	21.03	21.49	21.73	1
		8	7	20.11	20.63	20.86	2			3	3	21.14	21.54	21.87	1
		15	0	20.07	20.37	20.66	2			6	0	20.05	20.31	20.64	2
	64QAM	1	0	20.16	20.57	20.93	2		64QAM	1	0	20.08	20.53	20.81	2
		1	7	19.96	20.34	20.61	2			1	2	19.92	20.40	20.67	2
		1	14	20.11	20.60	20.83	2			1	5	20.11	20.56	20.80	2
		8	0	19.24	19.57	19.85	3			3	0	20.17	20.63	20.75	2
		8	3	19.17	19.44	19.68	3			3	1	20.13	20.42	20.86	2
		8	7	19.12	19.49	19.77	3			3	3	20.13	20.49	20.81	2
		15	0	19.07	19.51	19.68	3			6	0	19.05	19.55	19.74	3
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		18615	18900	19185				Channel		18607	18900	19193	
		Frequency (MHz)		1851.5	1880.0	1908.5				Frequency (MHz)		1850.7	1880.0	1909.3	
3M	QPSK	1	0	14.95	15.00	15.06	0	1.4M	QPSK	1	0	14.96	14.94	15.01	0
		1	7	14.93	14.96	14.93	0			1	2	14.97	14.99	15.04	0
		1	14	14.66	14.78	14.85	0			1	5	14.70	14.74	14.84	0
		8	0	13.64	13.64	13.73	1			3	0	14.57	14.60	14.71	0
		8	3	13.52	13.67	13.67	1			3	1	14.63	14.51	14.60	0
		8	7	13.48	13.54	13.52	1			3	3	14.46	14.55	14.60	0
		15	0	13.52	13.56	13.72	1			6	0	13.65	13.50	13.66	1
	16QAM	1	0	13.95	13.99	13.95	1		16QAM	1	0	13.93	14.04	14.02	1
		1	7	13.94	13.86	13.93	1			1	2	13.93	13.83	13.88	1
		1	14	13.64	13.82	13.70	1			1	5	13.69	13.68	13.74	1
		8	0	12.66	12.48	12.65	2			3	0	13.52	13.60	13.62	1
		8	3	12.55	12.63	12.67	2			3	1	13.55	13.55	13.58	1
		8	7	12.57	12.51	12.51	2			3	3	13.42	13.52	13.62	1
		15	0	12.50	12.54	12.52	2			6	0	12.36	12.57	12.60	2
	64QAM	1	0	12.93	13.00	13.00	2		64QAM	1	0	12.88	12.95	13.02	2
		1	7	12.77	12.78	12.97	2			1	2	12.93	12.85	12.87	2
		1	14	12.73	12.70	12.77	2			1	5	12.82	12.68	12.68	2
		8	0	11.58	11.62	11.57	3			3	0	12.48	12.56	12.55	2
		8	3	11.43	11.51	11.64	3			3	1	12.57	12.56	12.58	2
		8	7	11.54	11.51	11.48	3			3	3	12.50	12.40	12.52	2
		15	0	11.56	11.55	11.54	3			6	0	11.65	11.49	11.55	3

FCC SAR Test Report

LTE Band 4															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	21.98	22.23	22.39	0	15M	QPSK	1	0	21.95	22.13	22.36	0
		1	50	21.80	22.05	22.21	0			1	37	21.78	22.01	22.13	0
		1	99	21.65	21.90	22.06	0			1	74	21.63	21.86	22.05	0
		50	0	20.85	21.10	21.26	1			36	0	20.85	21.02	21.23	1
		50	25	20.66	20.91	21.07	1			36	19	20.59	20.85	21.03	1
		50	50	21.02	21.27	21.43	1			36	39	21.01	21.24	21.33	1
		100	0	20.74	20.99	21.15	1			75	0	20.64	20.94	21.08	1
	16QAM	1	0	20.93	21.18	21.34	1		16QAM	1	0	20.91	21.11	21.30	1
		1	50	20.90	21.15	21.31	1			1	37	20.88	21.07	21.30	1
		1	99	20.82	21.07	21.23	1			1	74	20.79	20.98	21.15	1
		50	0	19.88	20.13	20.29	2			36	0	19.82	20.05	20.28	2
		50	25	19.67	19.92	20.08	2			36	19	19.66	19.88	20.02	2
		50	50	20.11	20.36	20.52	2			36	39	20.08	20.28	20.42	2
	64QAM	100	0	19.71	19.96	20.12	2		75	0	19.63	19.87	20.07	2	
		1	0	20.01	20.26	20.42	2		64QAM	1	0	19.92	20.19	20.41	2
		1	50	19.87	20.12	20.28	2			1	37	19.80	20.07	20.23	2
		1	99	19.84	20.09	20.25	2			1	74	19.80	20.09	20.17	2
		50	0	18.91	19.16	19.32	3			36	0	18.85	19.06	19.29	3
		50	25	18.72	18.97	19.13	3			36	19	18.69	18.89	19.10	3
		50	50	19.07	19.32	19.48	3			36	39	19.03	19.28	19.45	3
	100	0	18.82	19.07	19.23	3	75			0	18.73	18.98	19.17	3	
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	12.72	12.75	12.79	0	15M	QPSK	1	0	12.68	12.67	12.70	0
		1	50	12.68	12.71	12.75	0			1	37	12.68	12.65	12.68	0
		1	99	12.64	12.67	12.71	0			1	74	12.57	12.58	12.63	0
		50	0	11.75	11.78	11.82	1			36	0	11.71	11.72	11.80	1
		50	25	11.72	11.75	11.79	1			36	19	11.66	11.65	11.77	1
		50	50	11.65	11.68	11.72	1			36	39	11.58	11.65	11.71	1
		100	0	11.76	11.79	11.83	1			75	0	11.73	11.78	11.78	1
	16QAM	1	0	11.69	11.74	11.73	1		16QAM	1	0	11.62	11.64	11.61	1
		1	50	11.60	11.67	11.74	1			1	37	11.54	11.67	11.63	1
		1	99	11.59	11.62	11.65	1			1	74	11.55	11.53	11.60	1
		50	0	10.69	10.73	10.75	2			36	0	10.66	10.65	10.73	2
		50	25	10.65	10.73	10.71	2			36	19	10.60	10.63	10.70	2
		50	50	10.57	10.61	10.67	2			36	39	10.65	10.56	10.54	2
	64QAM	100	0	10.70	10.71	10.82	2		75	0	10.61	10.74	10.83	2	
		1	0	10.68	10.71	10.71	2		64QAM	1	0	10.61	10.65	10.67	2
		1	50	10.63	10.65	10.69	2			1	37	10.57	10.69	10.67	2
		1	99	10.60	10.59	10.71	2			1	74	10.55	10.65	10.66	2
		50	0	9.75	9.76	9.77	3			36	0	9.63	9.62	9.69	3
		50	25	9.65	9.73	9.71	3			36	19	9.70	9.67	9.64	3
		50	50	9.60	9.65	9.69	3			36	39	9.47	9.60	9.71	3
	100	0	9.73	9.76	9.75	3	75			0	9.74	9.72	9.79	3	

FCC SAR Test Report

LTE Band 4															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	21.87	22.05	22.28	0	5M	QPSK	1	0	21.86	22.15	22.23	0
		1	24	21.66	21.91	22.08	0			1	12	21.74	21.97	21.96	0
		1	49	21.45	21.76	21.96	0			1	24	21.56	21.78	21.93	0
		25	0	20.69	20.88	21.16	1			12	0	20.64	21.03	20.96	1
		25	12	20.49	20.83	20.82	1			12	6	20.45	20.82	20.83	1
		25	25	20.87	21.17	21.22	1			12	13	20.93	21.26	21.27	1
		50	0	20.53	20.85	20.98	1			25	0	20.69	20.90	20.86	1
	16QAM	1	0	20.76	21.15	21.09	1		16QAM	1	0	20.78	21.12	21.20	1
		1	24	20.84	21.06	21.12	1			1	12	20.80	21.02	21.18	1
		1	49	20.75	21.01	21.15	1			1	24	20.67	20.99	21.06	1
		25	0	19.81	20.01	20.16	2			12	0	19.64	20.03	20.26	2
		25	12	19.61	19.82	20.04	2			12	6	19.53	19.74	19.93	2
		25	25	20.11	20.23	20.49	2			12	13	20.00	20.28	20.42	2
	64QAM	50	0	19.63	19.90	19.90	2		64QAM	25	0	19.59	19.81	20.02	2
		1	0	19.91	20.16	20.32	2			1	0	19.80	20.18	20.28	2
		1	24	19.71	20.02	20.21	2			1	12	19.75	20.01	20.26	2
		1	49	19.68	19.94	20.16	2			1	24	19.70	19.92	20.13	2
		25	0	18.75	19.02	19.17	3			12	0	18.75	18.95	19.16	3
		25	12	18.59	18.79	18.94	3			12	6	18.58	18.86	19.06	3
		25	25	18.95	19.13	19.38	3			12	13	18.91	19.16	19.42	3
	50	0	18.66	18.92	19.15	3	25		0	18.63	18.90	19.06	3		
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	12.70	12.61	12.68	0	5M	QPSK	1	0	12.55	12.52	12.58	0
		1	24	12.59	12.65	12.59	0			1	12	12.66	12.60	12.50	0
		1	49	12.50	12.55	12.55	0			1	24	12.57	12.56	12.56	0
		25	0	11.63	11.71	11.65	1			12	0	11.57	11.77	11.60	1
		25	12	11.62	11.57	11.59	1			12	6	11.66	11.67	11.63	1
		25	25	11.51	11.60	11.69	1			12	13	11.45	11.61	11.47	1
		50	0	11.59	11.63	11.70	1			25	0	11.63	11.64	11.58	1
	16QAM	1	0	11.53	11.45	11.64	1		16QAM	1	0	11.44	11.53	11.69	1
		1	24	11.50	11.52	11.57	1			1	12	11.54	11.51	11.52	1
		1	49	11.38	11.42	11.60	1			1	24	11.50	11.50	11.59	1
		25	0	10.53	10.56	10.66	2			12	0	10.57	10.61	10.50	2
		25	12	10.60	10.55	10.54	2			12	6	10.44	10.57	10.64	2
		25	25	10.53	10.51	10.69	2			12	13	10.52	10.49	10.54	2
	64QAM	50	0	10.47	10.53	10.71	2		64QAM	25	0	10.54	10.56	10.67	2
		1	0	10.51	10.52	10.54	2			1	0	10.55	10.55	10.67	2
		1	24	10.51	10.61	10.48	2			1	12	10.47	10.61	10.58	2
		1	49	10.55	10.41	10.52	2			1	24	10.47	10.44	10.45	2
		25	0	9.63	9.66	9.70	3			12	0	9.48	9.70	9.60	3
		25	12	9.45	9.54	9.56	3			12	6	9.56	9.60	9.47	3
		25	25	9.46	9.47	9.51	3			12	13	9.43	9.46	9.49	3
	50	0	9.70	9.67	9.59	3	25		0	9.54	9.52	9.68	3		

FCC SAR Test Report

LTE Band 4															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	21.80	22.12	22.23	0	1.4M	QPSK	1	0	21.90	22.10	22.28	0
		1	7	21.67	21.84	22.13	0			1	2	21.72	21.92	22.08	0
		1	14	21.54	21.86	21.97	0			1	5	21.51	21.71	21.90	0
		8	0	20.76	20.94	21.13	1			3	0	21.78	21.93	22.16	0
		8	3	20.57	20.82	20.90	1			3	1	21.52	21.76	21.94	0
		8	7	20.91	21.05	21.34	1			3	3	21.85	22.11	22.33	0
		15	0	20.67	20.91	20.94	1			6	0	20.61	20.89	20.93	1
	16QAM	1	0	20.75	21.09	21.18	1		16QAM	1	0	20.71	20.98	21.25	1
		1	7	20.80	20.94	21.25	1			1	2	20.78	21.04	21.18	1
		1	14	20.66	21.00	21.14	1			1	5	20.63	20.99	21.09	1
		8	0	19.80	20.12	20.14	2			3	0	20.66	21.04	21.06	1
		8	3	19.61	19.80	19.91	2			3	1	20.59	20.74	20.89	1
		8	7	19.89	20.19	20.31	2			3	3	21.04	21.20	21.35	1
	64QAM	15	0	19.68	19.87	20.06	2		64QAM	6	0	19.60	19.82	19.93	2
		1	0	19.95	20.07	20.35	2			1	0	19.90	20.10	20.31	2
		1	7	19.73	20.08	20.03	2			1	2	19.64	20.08	20.07	2
		1	14	19.70	19.95	20.05	2			1	5	19.77	19.92	20.09	2
		8	0	18.77	19.00	19.11	3			3	0	19.73	19.92	20.19	2
		8	3	18.59	18.78	18.99	3			3	1	19.71	19.86	20.00	2
		8	7	18.98	19.14	19.26	3			3	3	20.01	20.15	20.36	2
	15	0	18.65	18.96	19.02	3	6		0	18.64	18.89	19.15	3		
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	12.65	12.74	12.63	0	1.4M	QPSK	1	0	12.53	12.53	12.66	0
		1	7	12.62	12.63	12.59	0			1	2	12.65	12.56	12.67	0
		1	14	12.47	12.56	12.48	0			1	5	12.47	12.66	12.55	0
		8	0	11.66	11.64	11.70	1			3	0	12.65	12.78	12.69	0
		8	3	11.64	11.71	11.61	1			3	1	12.59	12.58	12.65	0
		8	7	11.49	11.48	11.57	1			3	3	12.62	12.56	12.52	0
		15	0	11.65	11.72	11.72	1			6	0	11.66	11.63	11.71	1
	16QAM	1	0	11.63	11.63	11.52	1		16QAM	1	0	11.49	11.64	11.60	1
		1	7	11.56	11.48	11.60	1			1	2	11.47	11.58	11.51	1
		1	14	11.46	11.52	11.50	1			1	5	11.38	11.49	11.53	1
		8	0	10.58	10.58	10.57	2			3	0	11.54	11.54	11.67	1
		8	3	10.47	10.66	10.60	2			3	1	11.55	11.52	11.62	1
		8	7	10.35	10.47	10.41	2			3	3	11.49	11.58	11.50	1
	64QAM	15	0	10.57	10.67	10.68	2		64QAM	6	0	10.54	10.56	10.63	2
		1	0	10.58	10.62	10.58	2			1	0	10.45	10.48	10.68	2
		1	7	10.54	10.55	10.57	2			1	2	10.48	10.63	10.66	2
		1	14	10.47	10.45	10.50	2			1	5	10.55	10.38	10.54	2
		8	0	9.64	9.62	9.70	3			3	0	10.73	10.65	10.59	2
		8	3	9.48	9.62	9.57	3			3	1	10.44	10.58	10.59	2
		8	7	9.52	9.42	9.57	3			3	3	10.44	10.56	10.50	2
	15	0	9.63	9.60	9.60	3	6		0	9.60	9.70	9.62	3		

FCC SAR Test Report

LTE Band 5															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	22.52	22.73	22.94	0	5M	QPSK	1	0	22.42	22.71	22.88	0
		1	24	22.39	22.60	22.81	0			1	12	22.36	22.55	22.72	0
		1	49	22.44	22.65	22.86	0			1	24	22.40	22.59	22.85	0
		25	0	21.45	21.66	21.87	1			12	0	21.36	21.58	21.83	1
		25	12	21.40	21.61	21.82	1			12	6	21.34	21.55	21.76	1
		25	25	21.36	21.57	21.78	1			12	13	21.27	21.50	21.70	1
	16QAM	50	0	21.41	21.62	21.83	1		25	0	21.36	21.57	21.83	1	
		1	0	21.89	22.10	22.31	1		16QAM	1	0	21.86	22.00	22.24	1
		1	24	21.71	21.92	22.13	1			1	12	21.65	21.85	22.13	1
		1	49	21.79	22.00	22.21	1			1	24	21.70	22.00	22.21	1
		25	0	20.56	20.77	20.98	2			12	0	20.50	20.69	20.95	2
		25	12	20.54	20.75	20.96	2			12	6	20.48	20.70	20.94	2
	64QAM	25	25	20.49	20.70	20.91	2			12	13	20.39	20.65	20.82	2
		50	0	20.54	20.75	20.96	2		25	0	20.45	20.71	20.95	2	
		1	0	20.86	21.07	21.28	2		64QAM	1	0	20.77	21.04	21.25	2
		1	24	20.72	20.93	21.14	2			1	12	20.68	20.93	21.08	2
		1	49	20.79	21.00	21.21	2			1	24	20.69	20.95	21.19	2
		25	0	19.55	19.76	19.97	3			12	0	19.46	19.71	19.90	3
	25	12	19.51	19.72	19.93	3	12			6	19.51	19.62	19.93	3	
	25	25	19.48	19.69	19.90	3	12			13	19.41	19.68	19.87	3	
	50	0	19.64	19.85	20.06	3	25		0	19.58	19.81	20.02	3		
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	20.71	20.77	20.81	0	5M	QPSK	1	0	20.55	20.63	20.69	0
		1	24	20.60	20.69	20.73	0			1	12	20.55	20.52	20.50	0
		1	49	20.58	20.67	20.71	0			1	24	20.57	20.57	20.41	0
		25	0	19.50	19.59	19.63	1			12	0	19.30	19.52	19.48	1
		25	12	19.39	19.48	19.52	1			12	6	19.29	19.42	19.30	1
		25	25	19.30	19.39	19.43	1			12	13	19.17	19.29	19.19	1
	16QAM	50	0	19.35	19.44	19.48	1		25	0	19.17	19.34	19.30	1	
		1	0	19.65	19.70	19.80	1		16QAM	1	0	19.49	19.62	19.63	1
		1	24	19.56	19.60	19.69	1			1	12	19.47	19.43	19.60	1
		1	49	19.53	19.60	19.61	1			1	24	19.36	19.51	19.50	1
		25	0	18.49	18.54	18.56	2			12	0	18.27	18.49	18.50	2
		25	12	18.33	18.43	18.51	2			12	6	18.17	18.20	18.39	2
	64QAM	25	25	18.30	18.35	18.34	2			12	13	18.18	18.14	18.22	2
		50	0	18.35	18.42	18.44	2		25	0	18.23	18.35	18.25	2	
		1	0	18.70	18.74	18.72	2		64QAM	1	0	18.49	18.58	18.75	2
		1	24	18.55	18.61	18.69	2			1	12	18.47	18.48	18.54	2
		1	49	18.56	18.59	18.67	2			1	24	18.31	18.57	18.55	2
		25	0	17.41	17.59	17.54	3			12	0	17.41	17.44	17.50	3
	25	12	17.39	17.48	17.46	3	12			6	17.24	17.21	17.26	3	
	25	25	17.28	17.37	17.33	3	12			13	17.20	17.22	17.29	3	
	50	0	17.35	17.44	17.47	3	25		0	17.22	17.34	17.32	3		

FCC SAR Test Report

LTE Band 5															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	22.40	22.60	22.90	0	1.4M	QPSK	1	0	22.40	22.57	22.78	0
		1	7	22.28	22.44	22.72	0			1	2	22.18	22.45	22.60	0
		1	14	22.29	22.52	22.83	0			1	5	22.31	22.43	22.72	0
		8	0	21.40	21.62	21.75	1			3	0	22.36	22.49	22.68	0
		8	3	21.32	21.43	21.74	1			3	1	22.37	22.43	22.61	0
		8	7	21.21	21.42	21.71	1			3	3	22.16	22.52	22.67	0
		15	0	21.25	21.46	21.66	1			6	0	21.25	21.44	21.72	1
	16QAM	1	0	21.69	22.01	22.10	1		16QAM	1	0	21.73	21.91	22.21	1
		1	7	21.56	21.73	21.94	1			1	2	21.66	21.80	21.91	1
		1	14	21.56	21.84	22.16	1			1	5	21.68	21.91	22.16	1
		8	0	20.56	20.64	20.94	2			3	0	21.54	21.65	21.91	1
		8	3	20.31	20.66	20.92	2			3	1	21.38	21.60	21.89	1
		8	7	20.35	20.46	20.66	2			3	3	21.47	21.61	21.86	1
	64QAM	15	0	20.44	20.64	20.71	2		64QAM	6	0	20.38	20.51	20.82	2
		1	0	20.76	20.94	21.20	2			1	0	20.80	21.04	21.12	2
		1	7	20.60	20.82	20.97	2			1	2	20.58	20.74	21.06	2
		1	14	20.67	20.87	21.01	2			1	5	20.70	20.92	21.02	2
		8	0	19.47	19.57	19.82	3			3	0	20.38	20.53	20.78	2
		8	3	19.33	19.64	19.73	3			3	1	20.36	20.68	20.75	2
		8	7	19.33	19.56	19.82	3			3	3	20.42	20.58	20.84	2
	15	0	19.57	19.67	19.95	3	6		0	19.42	19.72	19.97	3		
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	20.67	20.61	20.61	0	1.4M	QPSK	1	0	20.54	20.59	20.56	0
		1	7	20.43	20.60	20.56	0			1	2	20.44	20.58	20.61	0
		1	14	20.45	20.51	20.68	0			1	5	20.44	20.63	20.66	0
		8	0	19.35	19.49	19.47	1			3	0	20.49	20.51	20.42	0
		8	3	19.26	19.30	19.49	1			3	1	20.26	20.42	20.40	0
		8	7	19.14	19.21	19.32	1			3	3	20.16	20.24	20.24	0
		15	0	19.21	19.37	19.32	1			6	0	19.22	19.30	19.25	1
	16QAM	1	0	19.48	19.57	19.60	1		16QAM	1	0	19.55	19.69	19.64	1
		1	7	19.39	19.35	19.62	1			1	2	19.31	19.43	19.59	1
		1	14	19.48	19.53	19.57	1			1	5	19.31	19.49	19.58	1
		8	0	18.33	18.28	18.39	2			3	0	19.33	19.54	19.39	1
		8	3	18.27	18.31	18.28	2			3	1	19.23	19.28	19.26	1
		8	7	18.12	18.19	18.24	2			3	3	19.13	19.29	19.21	1
	64QAM	15	0	18.20	18.22	18.30	2		64QAM	6	0	18.12	18.14	18.38	2
		1	0	18.47	18.60	18.58	2			1	0	18.49	18.61	18.62	2
		1	7	18.53	18.54	18.52	2			1	2	18.55	18.41	18.68	2
		1	14	18.47	18.44	18.51	2			1	5	18.34	18.41	18.49	2
		8	0	17.25	17.29	17.45	3			3	0	18.36	18.48	18.45	2
		8	3	17.10	17.40	17.36	3			3	1	18.10	18.35	18.35	2
		8	7	17.14	17.23	17.28	3			3	3	18.14	18.26	18.22	2
	15	0	17.06	17.21	17.32	3	6		0	17.16	17.21	17.29	3		

FCC SAR Test Report

LTE Band 7															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	22.23	22.42	22.38	0	15M	QPSK	1	0	22.19	22.40	22.30	0
		1	50	22.21	22.40	22.36	0			1	37	22.17	22.31	22.26	0
		1	99	21.30	21.49	21.45	0			1	74	21.27	21.44	21.42	0
		50	0	21.43	21.62	21.58	1			36	0	21.41	21.57	21.58	1
		50	25	21.39	21.58	21.54	1			36	19	21.29	21.58	21.51	1
		50	50	21.32	21.51	21.47	1			36	39	21.32	21.43	21.44	1
		100	0	21.41	21.60	21.56	1			75	0	21.40	21.56	21.51	1
	16QAM	1	0	20.74	20.93	20.89	1		16QAM	1	0	20.71	20.86	20.84	1
		1	50	21.47	21.66	21.62	1			1	37	21.44	21.59	21.52	1
		1	99	20.77	20.96	20.92	1			1	74	20.77	20.92	20.86	1
		50	0	20.43	20.62	20.58	2			36	0	20.42	20.61	20.48	2
		50	25	20.46	20.65	20.61	2			36	19	20.44	20.60	20.60	2
		50	50	20.40	20.59	20.55	2			36	39	20.34	20.59	20.50	2
	64QAM	100	0	20.34	20.53	20.49	2		75	0	20.25	20.46	20.41	2	
		1	0	20.22	20.41	20.37	2		64QAM	1	0	20.21	20.40	20.31	2
		1	50	20.47	20.66	20.62	2			1	37	20.42	20.61	20.60	2
		1	99	20.31	20.50	20.46	2			1	74	20.28	20.50	20.45	2
		50	0	19.39	19.58	19.54	3			36	0	19.33	19.54	19.44	3
		50	25	19.48	19.67	19.63	3			36	19	19.44	19.59	19.58	3
		50	50	19.41	19.60	19.56	3			36	39	19.39	19.51	19.48	3
	100	0	19.44	19.63	19.59	3	75			0	19.41	19.55	19.56	3	
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	11.76	11.83	11.79	0	15M	QPSK	1	0	11.73	11.73	11.78	0
		1	50	11.74	11.81	11.77	0			1	37	11.64	11.80	11.67	0
		1	99	11.71	11.78	11.74	0			1	74	11.71	11.78	11.70	0
		50	0	10.52	10.59	10.55	1			36	0	10.45	10.54	10.50	1
		50	25	10.49	10.56	10.52	1			36	19	10.47	10.52	10.52	1
		50	50	10.42	10.49	10.45	1			36	39	10.36	10.41	10.37	1
		100	0	10.47	10.54	10.50	1			75	0	10.43	10.49	10.45	1
	16QAM	1	0	10.67	10.73	10.72	1		16QAM	1	0	10.64	10.79	10.68	1
		1	50	10.65	10.80	10.73	1			1	37	10.62	10.71	10.59	1
		1	99	10.61	10.71	10.71	1			1	74	10.62	10.66	10.73	1
		50	0	9.45	9.56	9.53	2			36	0	9.45	9.59	9.45	2
		50	25	9.43	9.49	9.49	2			36	19	9.47	9.40	9.44	2
		50	50	9.42	9.49	9.38	2			36	39	9.41	9.41	9.36	2
	64QAM	100	0	9.44	9.45	9.42	2		75	0	9.39	9.35	9.40	2	
		1	0	9.76	9.77	9.73	2		64QAM	1	0	9.59	9.67	9.69	2
		1	50	9.65	9.75	9.69	2			1	37	9.60	9.71	9.74	2
		1	99	9.68	9.78	9.64	2			1	74	9.59	9.64	9.67	2
		50	0	8.50	8.50	8.54	3			36	0	8.40	8.54	8.46	3
		50	25	8.39	8.51	8.46	3			36	19	8.43	8.50	8.43	3
		50	50	8.41	8.49	8.37	3			36	39	8.37	8.43	8.36	3
	100	0	8.37	8.54	8.42	3	75			0	8.38	8.52	8.37	3	

FCC SAR Test Report

LTE Band 7															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	22.03	22.23	22.19	0	5M	QPSK	1	0	22.21	22.25	22.17	0
		1	24	22.09	22.32	22.26	0			1	12	22.02	22.29	22.03	0
		1	49	21.14	21.32	21.29	0			1	24	21.13	21.43	21.34	0
		25	0	21.32	21.56	21.37	1			12	0	21.25	21.39	21.46	1
		25	12	21.21	21.48	21.50	1			12	6	21.37	21.47	21.39	1
		25	25	21.22	21.35	21.31	1			12	13	21.11	21.45	21.24	1
		50	0	21.35	21.43	21.32	1			25	0	21.31	21.57	21.23	1
	16QAM	1	0	20.68	20.91	20.86	1		16QAM	1	0	20.64	20.75	20.75	1
		1	24	21.37	21.53	21.50	1			1	12	21.39	21.49	21.53	1
		1	49	20.58	20.82	20.69	1			1	24	20.65	20.87	20.77	1
		25	0	20.42	20.53	20.48	2			12	0	20.34	20.42	20.45	2
		25	12	20.27	20.51	20.45	2			12	6	20.38	20.50	20.55	2
		25	25	20.30	20.47	20.34	2			12	13	20.23	20.43	20.47	2
		50	0	20.25	20.38	20.28	2			25	0	20.23	20.43	20.28	2
	64QAM	1	0	20.20	20.27	20.24	2		64QAM	1	0	20.22	20.30	20.29	2
		1	24	20.33	20.46	20.48	2			1	12	20.30	20.51	20.50	2
		1	49	20.23	20.36	20.33	2			1	24	20.18	20.36	20.34	2
		25	0	19.31	19.36	19.49	3			12	0	19.16	19.36	19.48	3
		25	12	19.36	19.57	19.38	3			12	6	19.32	19.60	19.51	3
		25	25	19.31	19.42	19.45	3			12	13	19.24	19.42	19.37	3
		50	0	19.41	19.52	19.39	3			25	0	19.28	19.43	19.58	3
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	11.66	11.67	11.70	0	5M	QPSK	1	0	11.62	11.67	11.64	0
		1	24	11.59	11.69	11.62	0			1	12	11.66	11.69	11.50	0
		1	49	11.59	11.69	11.55	0			1	24	11.62	11.58	11.51	0
		25	0	10.39	10.46	10.39	1			12	0	10.34	10.49	10.30	1
		25	12	10.31	10.46	10.33	1			12	6	10.36	10.44	10.34	1
		25	25	10.20	10.40	10.36	1			12	13	10.24	10.38	10.33	1
		50	0	10.38	10.46	10.36	1			25	0	10.31	10.35	10.26	1
	16QAM	1	0	10.60	10.75	10.57	1		16QAM	1	0	10.56	10.76	10.57	1
		1	24	10.56	10.59	10.57	1			1	12	10.54	10.72	10.47	1
		1	49	10.57	10.51	10.55	1			1	24	10.51	10.59	10.61	1
		25	0	9.31	9.37	9.42	2			12	0	9.43	9.51	9.34	2
		25	12	9.34	9.41	9.28	2			12	6	9.37	9.34	9.31	2
		25	25	9.20	9.28	9.40	2			12	13	9.32	9.36	9.40	2
		50	0	9.28	9.39	9.28	2			25	0	9.27	9.39	9.43	2
	64QAM	1	0	9.55	9.77	9.69	2		64QAM	1	0	9.69	9.61	9.75	2
		1	24	9.44	9.55	9.48	2			1	12	9.63	9.60	9.56	2
		1	49	9.50	9.69	9.70	2			1	24	9.51	9.52	9.62	2
		25	0	8.33	8.45	8.34	3			12	0	8.38	8.32	8.45	3
		25	12	8.26	8.26	8.39	3			12	6	8.34	8.39	8.40	3
		25	25	8.31	8.35	8.24	3			12	13	8.26	8.34	8.26	3
		50	0	8.24	8.29	8.30	3			25	0	8.34	8.32	8.30	3

FCC SAR Test Report

LTE Band 38															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		37850	38000	38150				Channel		37825	38000	38175	
		Frequency (MHz)		2580	2595	2610				Frequency (MHz)		2577.5	2595	2612.5	
20M	QPSK	1	0	22.38	22.43	22.34	0	15M	QPSK	1	0	22.29	22.38	22.32	0
		1	50	22.06	22.11	22.02	0			1	37	21.99	22.07	21.95	0
		1	99	22.01	22.06	21.97	0			1	74	21.96	21.99	21.88	0
		50	0	21.20	21.25	21.16	1			36	0	21.14	21.24	21.08	1
		50	25	21.11	21.16	21.07	1			36	19	21.09	21.14	21.05	1
		50	50	21.03	21.08	20.99	1			36	39	20.97	21.05	20.92	1
		100	0	21.13	21.18	21.09	1			75	0	21.05	21.18	21.02	1
	16QAM	1	0	21.48	21.53	21.44	1		16QAM	1	0	21.43	21.49	21.36	1
		1	50	21.19	21.24	21.15	1			1	37	21.16	21.22	21.09	1
		1	99	21.16	21.21	21.12	1			1	74	21.15	21.13	21.10	1
		50	0	20.34	20.39	20.30	2			36	0	20.24	20.30	20.30	2
		50	25	20.23	20.28	20.19	2			36	19	20.23	20.22	20.14	2
		50	50	20.15	20.20	20.11	2			36	39	20.14	20.16	20.07	2
		100	0	20.18	20.23	20.14	2			75	0	20.10	20.16	20.05	2
	64QAM	1	0	20.08	20.13	20.04	2		64QAM	1	0	20.00	20.06	19.94	2
		1	50	19.81	19.86	19.77	2			1	37	19.80	19.79	19.77	2
		1	99	19.76	19.81	19.72	2			1	74	19.68	19.75	19.72	2
		50	0	19.34	19.39	19.30	3			36	0	19.29	19.29	19.20	3
		50	25	19.22	19.27	19.18	3			36	19	19.15	19.19	19.13	3
		50	50	19.12	19.17	19.08	3			36	39	19.03	19.16	19.05	3
		100	0	19.23	19.28	19.19	3			75	0	19.22	19.27	19.09	3
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		37850	38000	38150				Channel		37825	38000	38175	
		Frequency (MHz)		2580	2595	2610				Frequency (MHz)		2577.5	2595	2612.5	
20M	QPSK	1	0	14.72	14.75	14.69	0	15M	QPSK	1	0	14.65	14.70	14.67	0
		1	50	14.61	14.64	14.58	0			1	37	14.57	14.58	14.54	0
		1	99	14.58	14.61	14.55	0			1	74	14.58	14.60	14.48	0
		50	0	13.66	13.69	13.63	1			36	0	13.61	13.64	13.55	1
		50	25	13.60	13.63	13.57	1			36	19	13.51	13.54	13.53	1
		50	50	13.58	13.61	13.55	1			36	39	13.51	13.56	13.46	1
		100	0	13.62	13.65	13.59	1			75	0	13.59	13.57	13.54	1
	16QAM	1	0	13.67	13.65	13.61	1		16QAM	1	0	13.61	13.64	13.50	1
		1	50	13.51	13.63	13.51	1			1	37	13.44	13.57	13.48	1
		1	99	13.51	13.61	13.49	1			1	74	13.55	13.47	13.44	1
		50	0	12.58	12.63	12.58	2			36	0	12.57	12.60	12.49	2
		50	25	12.52	12.60	12.49	2			36	19	12.51	12.54	12.53	2
		50	50	12.55	12.59	12.48	2			36	39	12.41	12.50	12.47	2
		100	0	12.59	12.55	12.59	2			75	0	12.50	12.61	12.46	2
	64QAM	1	0	12.69	12.72	12.69	2		64QAM	1	0	12.65	12.65	12.54	2
		1	50	12.58	12.61	12.57	2			1	37	12.44	12.57	12.53	2
		1	99	12.50	12.59	12.47	2			1	74	12.50	12.52	12.40	2
		50	0	11.57	11.59	11.62	3			36	0	11.59	11.59	11.60	3
		50	25	11.53	11.61	11.55	3			36	19	11.56	11.58	11.42	3
		50	50	11.57	11.54	11.48	3			36	39	11.55	11.58	11.44	3
		100	0	11.57	11.65	11.54	3			75	0	11.53	11.58	11.54	3

FCC SAR Test Report

LTE Band 38															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		37800	38000	38200				Channel		37775	38000	38225	
		Frequency (MHz)		2575	2595	2615				Frequency (MHz)		2572.5	2595	2617.5	
10M	QPSK	1	0	22.27	22.36	22.17	0	5M	QPSK	1	0	22.21	22.35	22.10	0
		1	24	21.98	21.93	21.83	0			1	12	21.96	22.11	21.84	0
		1	49	21.96	21.97	21.79	0			1	24	21.80	22.04	21.77	0
		25	0	21.08	21.09	21.02	1			12	0	21.18	21.02	21.10	1
		25	12	20.90	21.10	20.85	1			12	6	20.93	21.05	20.89	1
		25	25	20.92	21.06	20.82	1			12	13	20.89	20.99	20.78	1
		50	0	20.95	21.08	20.87	1			25	0	21.09	21.01	20.78	1
	16QAM	1	0	21.37	21.34	21.39	1		16QAM	1	0	21.43	21.44	21.35	1
		1	24	21.12	21.07	20.99	1			1	12	21.13	21.13	21.01	1
		1	49	21.03	21.08	20.95	1			1	24	21.12	21.03	21.03	1
		25	0	20.30	20.23	20.12	2			12	0	20.18	20.24	20.18	2
		25	12	20.14	20.13	20.18	2			12	6	20.07	20.17	20.03	2
		25	25	20.07	20.13	19.98	2			12	13	19.96	19.96	19.91	2
	64QAM	50	0	20.07	20.13	20.10	2		25	0	20.03	20.10	20.10	2	
		1	0	20.04	20.08	19.90	2		64QAM	1	0	19.96	20.00	19.81	2
		1	24	19.63	19.78	19.73	2			1	12	19.77	19.80	19.64	2
		1	49	19.69	19.70	19.70	2			1	24	19.66	19.65	19.71	2
		25	0	19.22	19.31	19.30	3			12	0	19.18	19.23	19.17	3
		25	12	19.07	19.17	19.09	3			12	6	19.00	19.15	19.07	3
		25	25	18.96	18.94	18.90	3			12	13	18.93	19.02	19.01	3
	50	0	19.04	19.23	19.10	3	25			0	19.14	19.15	19.01	3	
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		37800	38000	38200				Channel		37775	38000	38225	
		Frequency (MHz)		2575	2595	2615				Frequency (MHz)		2572.5	2595	2617.5	
10M	QPSK	1	0	14.58	14.69	14.54	0	5M	QPSK	1	0	14.65	14.69	14.49	0
		1	24	14.43	14.49	14.46	0			1	12	14.54	14.56	14.33	0
		1	49	14.47	14.48	14.45	0			1	24	14.45	14.47	14.32	0
		25	0	13.50	13.56	13.59	1			12	0	13.48	13.66	13.46	1
		25	12	13.44	13.44	13.46	1			12	6	13.40	13.52	13.38	1
		25	25	13.51	13.51	13.34	1			12	13	13.53	13.55	13.26	1
		50	0	13.62	13.58	13.44	1			25	0	13.53	13.58	13.43	1
	16QAM	1	0	13.67	13.65	13.50	1		16QAM	1	0	13.57	13.66	13.47	1
		1	24	13.42	13.41	13.42	1			1	12	13.48	13.50	13.45	1
		1	49	13.42	13.43	13.43	1			1	24	13.45	13.40	13.41	1
		25	0	12.46	12.55	12.46	2			12	0	12.40	12.45	12.43	2
		25	12	12.39	12.49	12.39	2			12	6	12.46	12.36	12.33	2
		25	25	12.34	12.51	12.44	2			12	13	12.31	12.35	12.42	2
	64QAM	50	0	12.45	12.47	12.51	2		25	0	12.45	12.48	12.44	2	
		1	0	12.62	12.62	12.56	2		64QAM	1	0	12.51	12.57	12.44	2
		1	24	12.50	12.48	12.44	2			1	12	12.41	12.46	12.35	2
		1	49	12.39	12.39	12.39	2			1	24	12.42	12.56	12.48	2
		25	0	11.44	11.49	11.43	3			12	0	11.57	11.57	11.42	3
		25	12	11.36	11.38	11.30	3			12	6	11.51	11.54	11.51	3
		25	25	11.57	11.46	11.37	3			12	13	11.43	11.50	11.47	3
	50	0	11.53	11.59	11.40	3	25			0	11.50	11.37	11.49	3	

FCC SAR Test Report

LTE Band 41																				
Ant. 0 / Ant. 1																				
EUT without Power Reduction (P-Sensor NOT Triggered)																				
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	
		Channel		39750	40185	40620	41055	41490				Channel		39725	40173	40620	41068	41515		
		Frequency (MHz)		2506.0	2549.5	2593.0	2636.5	2680.0				Frequency (MHz)		2503.5	2548.3	2593.0	2637.8	2682.5		
20M	QPSK	1	0	22.28	22.12	22.29	22.19	21.69	0	15M	QPSK	1	0	22.21	22.06	22.24	22.11	21.59	0	
		1	50	21.99	21.84	22.01	21.90	21.42	0			1	37	21.91	21.77	21.96	21.90	21.37	0	
		1	99	21.93	21.78	21.95	21.84	21.36	0			1	74	21.84	21.68	21.91	21.82	21.32	0	
		50	0	21.16	21.01	21.18	21.07	20.59	1			36	0	21.09	20.98	21.17	21.00	20.56	1	
		50	25	21.01	20.86	21.03	20.92	20.44	1			36	19	20.97	20.76	21.03	20.82	20.42	1	
		50	50	20.89	20.74	20.91	20.80	20.32	1			36	39	20.85	20.69	20.89	20.77	20.23	1	
		100	0	21.03	20.88	21.05	20.94	20.46	1			75	0	21.02	20.83	21.01	20.86	20.46	1	
		16QAM	1	0	21.40	21.25	21.42	21.31	20.83			1	16QAM	1	0	21.21	21.06	21.27	21.12	20.66
	1		50	21.13	20.98	21.15	21.04	20.56	1		1	37		20.99	20.83	20.99	20.86	20.35	1	
	1		99	21.04	20.89	21.06	20.95	20.47	1		1	74		20.87	20.71	20.89	20.76	20.33	1	
	50		0	20.23	20.08	20.25	20.14	19.66	2		36	0		20.15	19.91	20.15	20.00	19.54	2	
	50		25	20.09	19.94	20.11	20.00	19.52	2		36	19		19.98	19.76	20.03	19.83	19.37	2	
	50		50	19.99	19.84	20.01	19.90	19.42	2		36	39		19.81	19.70	19.87	19.72	19.30	2	
	100		0	20.11	19.96	20.13	20.02	19.54	2		75	0		19.98	19.81	19.96	19.90	19.41	2	
	64QAM		1	0	19.97	19.82	19.99	19.88	19.40		2	64QAM		1	0	20.22	20.06	20.19	20.09	19.67
		1	50	19.70	19.55	19.72	19.61	19.13	2		1		37	19.96	19.80	19.94	19.89	19.42	2	
		1	99	19.62	19.47	19.64	19.53	19.05	2		1		74	19.91	19.69	19.94	19.74	19.31	2	
		50	0	19.20	19.05	19.22	19.11	18.63	3		36		0	19.14	18.92	19.16	18.98	18.59	3	
		50	25	19.12	18.97	19.14	19.03	18.55	3		36		19	19.00	18.86	18.96	18.85	18.42	3	
		50	50	19.02	18.87	19.04	18.93	18.45	3		36		39	18.85	18.73	18.88	18.80	18.23	3	
		100	0	19.08	18.93	19.10	18.99	18.51	3		75		0	19.01	18.86	18.99	18.93	18.38	3	
		Ant. 0																		
	EUT with Power Reduction (P-Sensor Triggered)																			
	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High
Channel			39750	40185	40620	41055	41490	Channel		39725				40173	40620	41068	41515			
Frequency (MHz)			2506.0	2549.5	2593.0	2636.5	2680.0	Frequency (MHz)		2503.5				2548.3	2593.0	2637.8	2682.5			
20M	QPSK	1	0	14.53	14.57	14.72	14.52	14.67	0	15M	QPSK	1	0	14.50	14.57	14.66	14.46	14.66	0	
		1	50	14.45	14.49	14.64	14.44	14.59	0			1	37	14.36	14.43	14.57	14.43	14.59	0	
		1	99	14.42	14.46	14.61	14.41	14.56	0			1	74	14.38	14.44	14.52	14.39	14.56	0	
		50	0	13.56	13.60	13.75	13.55	13.70	1			36	0	13.49	13.54	13.71	13.53	13.69	1	
		50	25	13.53	13.57	13.72	13.52	13.67	1			36	19	13.53	13.51	13.62	13.43	13.59	1	
		50	50	13.50	13.54	13.69	13.49	13.64	1			36	39	13.40	13.45	13.63	13.45	13.55	1	
		100	0	13.54	13.58	13.73	13.53	13.68	1			75	0	13.49	13.53	13.64	13.51	13.59	1	
		16QAM	1	0	13.47	13.57	13.72	13.47	13.66			1	16QAM	1	0	13.43	13.56	13.72	13.44	13.66
	1		50	13.41	13.46	13.63	13.37	13.55	1		1	37		13.36	13.42	13.55	13.41	13.54	1	
	1		99	13.39	13.41	13.51	13.33	13.52	1		1	74		13.39	13.44	13.56	13.34	13.53	1	
	50		0	12.50	12.55	12.72	12.53	12.63	2		36	0		12.53	12.58	12.74	12.47	12.60	2	
	50		25	12.49	12.47	12.71	12.51	12.58	2		36	19		12.48	12.56	12.64	12.46	12.59	2	
	50		50	12.46	12.52	12.61	12.49	12.59	2		36	39		12.47	12.48	12.60	12.42	12.62	2	
	100		0	12.48	12.51	12.72	12.49	12.59	2		75	0		12.51	12.55	12.65	12.50	12.61	2	
	64QAM		1	0	12.46	12.51	12.72	12.46	12.66		2	64QAM		1	0	12.50	12.50	12.69	12.44	12.67
		1	50	12.37	12.40	12.56	12.39	12.51	2		1		37	12.36	12.45	12.61	12.38	12.59	2	
		1	99	12.32	12.39	12.61	12.35	12.47	2		1		74	12.36	12.36	12.57	12.40	12.56	2	
		50	0	11.53	11.59	11.66	11.55	11.60	3		36		0	11.54	11.59	11.71	11.52	11.60	3	
		50	25	11.48	11.49	11.67	11.46	11.67	3		36		19	11.52	11.57	11.63	11.43	11.60	3	
		50	50	11.41	11.47	11.69	11.49	11.62	3		36		39	11.50	11.44	11.61	11.48	11.64	3	
		100	0	11.53	11.53	11.72	11.48	11.63	3		75		0	11.44	11.52	11.72	11.52	11.60	3	

FCC SAR Test Report

LTE Band 41																			
Ant. 0 / Ant. 1																			
EUT without Power Reduction (P-Sensor NOT Triggered)																			
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel	39700	40160	40620	41080	41540	Channel				39675	40148	40620	41093	41565			
		Frequency (MHz)	2501.0	2547.0	2593.0	2639.0	2685.0	Frequency (MHz)				2498.5	2545.8	2593.0	2640.3	2687.5			
10M	QPSK	1	0	22.21	22.03	22.22	22.12	21.59	0	5M	QPSK	1	0	22.22	22.08	22.13	22.09	21.60	0
		1	24	21.96	21.78	21.93	21.78	21.33	0			1	12	21.96	21.79	21.94	21.85	21.32	0
		1	49	21.77	21.66	21.88	21.66	21.29	0			1	24	21.86	21.64	21.90	21.66	21.31	0
		25	0	21.04	20.97	21.04	20.93	20.42	1			12	0	21.03	20.88	21.01	21.05	20.56	1
		25	12	20.87	20.74	20.94	20.81	20.35	1			12	6	20.94	20.73	20.94	20.80	20.32	1
		25	25	20.78	20.61	20.89	20.67	20.16	1			12	13	20.79	20.70	20.80	20.75	20.24	1
		50	0	20.92	20.79	21.01	20.87	20.34	1			25	0	20.92	20.79	20.89	20.83	20.32	1
	16QAM	1	0	21.17	20.95	21.21	21.06	20.67	1		16QAM	1	0	21.21	21.06	21.09	21.10	20.60	1
		1	24	20.87	20.78	20.88	20.75	20.30	1			1	12	20.94	20.78	20.94	20.78	20.29	1
		1	49	20.76	20.70	20.89	20.71	20.26	1			1	24	20.86	20.62	20.84	20.69	20.27	1
		25	0	20.05	19.94	20.07	19.95	19.50	2			12	0	20.10	19.87	20.09	20.02	19.50	2
		25	12	19.96	19.74	20.01	19.83	19.40	2			12	6	19.92	19.77	19.89	19.88	19.34	2
		25	25	19.80	19.64	19.88	19.70	19.19	2			12	13	19.82	19.64	19.77	19.71	19.22	2
		50	0	19.91	19.73	19.97	19.80	19.36	2			25	0	19.88	19.84	19.87	19.86	19.34	2
	64QAM	1	0	20.14	19.97	20.17	20.06	19.58	2		64QAM	1	0	20.22	19.98	20.12	20.09	19.55	2
		1	24	19.93	19.70	19.84	19.78	19.33	2			1	12	19.92	19.76	19.90	19.77	19.34	2
		1	49	19.82	19.64	19.81	19.70	19.31	2			1	24	19.84	19.68	19.85	19.70	19.29	2
		25	0	19.07	18.97	19.05	18.98	18.51	3			12	0	19.05	18.88	19.05	19.00	18.48	3
		25	12	18.94	18.73	18.96	18.83	18.40	3			12	6	18.95	18.71	18.90	18.86	18.34	3
		25	25	18.85	18.54	18.79	18.68	18.23	3			12	13	18.85	18.74	18.80	18.71	18.21	3
		50	0	18.92	18.79	18.96	18.87	18.29	3			25	0	18.84	18.81	18.88	18.81	18.37	3
Ant. 0																			
EUT with Power Reduction (P-Sensor Triggered)																			
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel	39700	40160	40620	41080	41540	Channel				39675	40148	40620	41093	41565			
		Frequency (MHz)	2501.0	2547.0	2593.0	2639.0	2685.0	Frequency (MHz)				2498.5	2545.8	2593.0	2640.3	2687.5			
10M	QPSK	1	0	14.39	14.44	14.57	14.42	14.62	0	5M	QPSK	1	0	14.38	14.50	14.62	14.44	14.62	0
		1	24	14.28	14.40	14.54	14.35	14.49	0			1	12	14.37	14.38	14.52	14.36	14.42	0
		1	49	14.34	14.33	14.51	14.25	14.47	0			1	24	14.32	14.37	14.49	14.26	14.44	0
		25	0	13.41	13.46	13.68	13.39	13.65	1			12	0	13.43	13.44	13.62	13.54	13.65	1
		25	12	13.36	13.47	13.63	13.48	13.52	1			12	6	13.44	13.51	13.62	13.40	13.48	1
		25	25	13.40	13.47	13.56	13.46	13.50	1			12	13	13.40	13.42	13.57	13.39	13.59	1
		50	0	13.40	13.54	13.59	13.42	13.62	1			25	0	13.51	13.46	13.68	13.37	13.56	1
	16QAM	1	0	13.38	13.51	13.57	13.42	13.61	1		16QAM	1	0	13.43	13.49	13.65	13.48	13.56	1
		1	24	13.30	13.39	13.53	13.36	13.53	1			1	12	13.35	13.34	13.53	13.30	13.44	1
		1	49	13.29	13.29	13.46	13.31	13.45	1			1	24	13.29	13.38	13.47	13.32	13.43	1
		25	0	12.48	12.54	12.70	12.39	12.68	2			12	0	12.42	12.42	12.64	12.52	12.65	2
		25	12	12.41	12.47	12.68	12.45	12.53	2			12	6	12.40	12.51	12.55	12.40	12.52	2
		25	25	12.38	12.44	12.64	12.48	12.57	2			12	13	12.42	12.49	12.52	12.34	12.54	2
		50	0	12.45	12.53	12.63	12.34	12.61	2			25	0	12.50	12.55	12.60	12.36	12.53	2
	64QAM	1	0	12.39	12.52	12.60	12.45	12.62	2		64QAM	1	0	12.35	12.55	12.69	12.44	12.57	2
		1	24	12.33	12.37	12.58	12.36	12.58	2			1	12	12.32	12.32	12.52	12.36	12.43	2
		1	49	12.29	12.34	12.48	12.32	12.50	2			1	24	12.39	12.44	12.45	12.32	12.51	2
		25	0	11.43	11.47	11.66	11.39	11.60	3			12	0	11.42	11.46	11.62	11.53	11.59	3
		25	12	11.41	11.51	11.61	11.45	11.52	3			12	6	11.34	11.45	11.60	11.40	11.49	3
		25	25	11.42	11.48	11.63	11.47	11.50	3			12	13	11.39	11.46	11.56	11.41	11.64	3
		50	0	11.38	11.46	11.60	11.34	11.60	3			25	0	11.52	11.46	11.68	11.40	11.52	3

FCC SAR Test Report

LTE Band 66															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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)		1720.0	1745.0	1770.0				Frequency (MHz)		1717.5	1745.0	1772.5	
20M	QPSK	1	0	22.48	22.67	22.54	0	15M	QPSK	1	0	22.40	22.62	22.48	0
		1	50	22.29	22.48	22.35	0			1	37	22.19	22.44	22.30	0
		1	99	22.24	22.43	22.30	0			1	74	22.15	22.43	22.29	0
		50	0	21.50	21.69	21.56	1			36	0	21.44	21.67	21.48	1
		50	25	21.43	21.62	21.49	1			36	19	21.37	21.55	21.44	1
		50	50	21.39	21.58	21.45	1			36	39	21.38	21.58	21.44	1
		100	0	21.42	21.61	21.48	1			75	0	21.32	21.53	21.43	1
	16QAM	1	0	21.53	21.72	21.59	1		16QAM	1	0	21.43	21.68	21.50	1
		1	50	21.65	21.84	21.71	1			1	37	21.56	21.79	21.63	1
		1	99	21.57	21.76	21.63	1			1	74	21.47	21.66	21.59	1
		50	0	20.62	20.81	20.68	2			36	0	20.60	20.71	20.64	2
		50	25	20.59	20.78	20.65	2			36	19	20.51	20.71	20.63	2
		50	50	20.58	20.77	20.64	2			36	39	20.57	20.68	20.61	2
	64QAM	100	0	20.54	20.73	20.60	2		75	0	20.53	20.65	20.52	2	
		1	0	20.59	20.78	20.65	2		64QAM	1	0	20.53	20.71	20.55	2
		1	50	20.64	20.83	20.70	2			1	37	20.64	20.73	20.62	2
		1	99	20.57	20.76	20.63	2			1	74	20.56	20.66	20.56	2
		50	0	19.63	19.82	19.69	3			36	0	19.57	19.80	19.69	3
		50	25	19.59	19.78	19.65	3			36	19	19.57	19.71	19.56	3
		50	50	19.62	19.81	19.68	3			36	39	19.55	19.77	19.59	3
	100	0	19.56	19.75	19.62	3	75			0	19.51	19.68	19.57	3	
Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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)		1720.0	1745.0	1770.0				Frequency (MHz)		1717.5	1745.0	1772.5	
20M	QPSK	1	0	12.75	12.82	12.79	0	15M	QPSK	1	0	12.71	12.80	12.72	0
		1	50	12.66	12.73	12.70	0			1	37	12.63	12.72	12.61	0
		1	99	12.64	12.71	12.68	0			1	74	12.63	12.64	12.59	0
		50	0	11.74	11.81	11.78	1			36	0	11.69	11.77	11.78	1
		50	25	11.69	11.76	11.73	1			36	19	11.61	11.67	11.71	1
		50	50	11.65	11.72	11.69	1			36	39	11.57	11.72	11.64	1
		100	0	11.70	11.77	11.74	1			75	0	11.65	11.70	11.67	1
	16QAM	1	0	11.65	11.73	11.69	1		16QAM	1	0	11.69	11.75	11.70	1
		1	50	11.58	11.64	11.61	1			1	37	11.60	11.56	11.58	1
		1	99	11.55	11.69	11.61	1			1	74	11.61	11.62	11.68	1
		50	0	10.72	10.72	10.77	2			36	0	10.72	10.78	10.63	2
		50	25	10.59	10.76	10.66	2			36	19	10.58	10.62	10.60	2
		50	50	10.58	10.66	10.65	2			36	39	10.56	10.67	10.66	2
	64QAM	100	0	10.66	10.72	10.68	2		75	0	10.53	10.71	10.67	2	
		1	0	10.72	10.75	10.74	2		64QAM	1	0	10.61	10.68	10.67	2
		1	50	10.63	10.73	10.65	2			1	37	10.58	10.58	10.59	2
		1	99	10.60	10.61	10.65	2			1	74	10.53	10.68	10.50	2
		50	0	9.73	9.81	9.77	3			36	0	9.62	9.66	9.65	3
		50	25	9.65	9.70	9.70	3			36	19	9.58	9.67	9.57	3
		50	50	9.64	9.68	9.66	3			36	39	9.60	9.53	9.53	3
	100	0	9.61	9.77	9.74	3	75			0	9.52	9.69	9.63	3	

FCC SAR Test Report

LTE Band 66															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		132022	132322	132622				Channel		131997	132322	132647	
		Frequency (MHz)		1715.0	1745.0	1775.0				Frequency (MHz)		1712.5	1745.0	1777.5	
10M	QPSK	1	0	22.34	22.53	22.43	0	5M	QPSK	1	0	22.29	22.53	22.30	0
		1	24	22.17	22.44	22.26	0			1	12	22.10	22.42	22.13	0
		1	49	22.07	22.33	22.17	0			1	24	22.20	22.35	22.02	0
		25	0	21.42	21.60	21.50	1			12	0	21.34	21.55	21.35	1
		25	12	21.27	21.55	21.45	1			12	6	21.38	21.45	21.21	1
		25	25	21.34	21.37	21.29	1			12	13	21.18	21.43	21.32	1
		50	0	21.27	21.57	21.36	1			25	0	21.25	21.51	21.17	1
		16QAM	1	0	21.35	21.64	21.50			1	16QAM	1	0	21.35	21.55
	1		24	21.58	21.80	21.58	1		1	12		21.46	21.71	21.53	1
	1		49	21.42	21.67	21.41	1		1	24		21.50	21.62	21.61	1
	25		0	20.42	20.71	20.56	2		12	0		20.46	20.70	20.54	2
	25		12	20.46	20.67	20.41	2		12	6		20.42	20.65	20.49	2
	25		25	20.40	20.68	20.40	2		12	13		20.43	20.69	20.47	2
	64QAM	50	0	20.30	20.63	20.55	2		25	0	20.44	20.55	20.44	2	
		1	0	20.51	20.59	20.55	2		64QAM	1	0	20.47	20.68	20.64	2
		1	24	20.58	20.68	20.56	2			1	12	20.44	20.60	20.58	2
		1	49	20.46	20.62	20.48	2			1	24	20.52	20.62	20.44	2
		25	0	19.54	19.67	19.56	3			12	0	19.53	19.65	19.56	3
		25	12	19.36	19.69	19.54	3			12	6	19.51	19.73	19.40	3
		25	25	19.43	19.77	19.60	3			12	13	19.57	19.69	19.52	3
		50	0	19.48	19.69	19.48	3			25	0	19.47	19.62	19.56	3

Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		132022	132322	132622				Channel		131997	132322	132647	
		Frequency (MHz)		1715.0	1745.0	1775.0				Frequency (MHz)		1712.5	1745.0	1777.5	
10M	QPSK	1	0	12.52	12.72	12.75	0	5M	QPSK	1	0	12.62	12.79	12.47	0
		1	24	12.53	12.58	12.63	0			1	12	12.56	12.63	12.49	0
		1	49	12.44	12.62	12.66	0			1	24	12.52	12.59	12.41	0
		25	0	11.60	11.69	11.73	1			12	0	11.57	11.64	11.67	1
		25	12	11.54	11.52	11.59	1			12	6	11.50	11.61	11.50	1
		25	25	11.47	11.61	11.59	1			12	13	11.43	11.71	11.41	1
		50	0	11.52	11.58	11.56	1			25	0	11.56	11.64	11.51	1
		16QAM	1	0	11.70	11.71	11.63			1	16QAM	1	0	11.59	11.63
	1		24	11.48	11.54	11.48	1		1	12		11.45	11.53	11.49	1
	1		49	11.56	11.66	11.51	1		1	24		11.51	11.53	11.58	1
	25		0	10.44	10.70	10.51	2		12	0		10.65	10.64	10.55	2
	25		12	10.54	10.54	10.45	2		12	6		10.52	10.59	10.51	2
	25		25	10.54	10.59	10.50	2		12	13		10.55	10.47	10.51	2
	64QAM	50	0	10.42	10.64	10.52	2		25	0	10.51	10.54	10.54	2	
		1	0	10.55	10.63	10.65	2		64QAM	1	0	10.45	10.59	10.68	2
		1	24	10.42	10.59	10.55	2			1	12	10.54	10.56	10.46	2
		1	49	10.40	10.58	10.50	2			1	24	10.41	10.52	10.42	2
		25	0	9.63	9.63	9.50	3			12	0	9.61	9.68	9.67	3
		25	12	9.54	9.69	9.64	3			12	6	9.50	9.69	9.61	3
		25	25	9.34	9.48	9.60	3			12	13	9.54	9.66	9.46	3
		50	0	9.36	9.71	9.53	3			25	0	9.55	9.45	9.62	3

FCC SAR Test Report

LTE Band 66															
Ant. 0 / Ant. 1															
EUT without Power Reduction (P-Sensor NOT Triggered)															
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		131987	132322	132657				Channel		131979	132322	132665	
		Frequency (MHz)		1711.5	1745.5	1778.5				Frequency (MHz)		1710.7	1745.0	1779.3	
3M	QPSK	1	0	22.33	22.63	22.32	0	1.4M	QPSK	1	0	22.28	22.60	22.47	0
		1	7	22.27	22.32	22.17	0			1	2	22.18	22.26	22.16	0
		1	14	22.03	22.35	22.23	0			1	5	22.13	22.38	22.29	0
		8	0	21.29	21.49	21.44	1			3	0	22.32	22.60	22.42	0
		8	3	21.27	21.53	21.45	1			3	1	22.29	22.53	22.42	0
		8	7	21.21	21.44	21.37	1			3	3	22.33	22.46	22.26	0
		15	0	21.27	21.52	21.36	1			6	0	21.36	21.53	21.33	1
	16QAM	1	0	21.42	21.65	21.46	1		16QAM	1	0	21.39	21.62	21.49	1
		1	7	21.48	21.76	21.51	1			1	2	21.52	21.75	21.57	1
		1	14	21.46	21.60	21.45	1			1	5	21.37	21.64	21.47	1
		8	0	20.41	20.62	20.58	2			3	0	21.41	21.57	21.61	1
		8	3	20.40	20.69	20.56	2			3	1	21.38	21.61	21.59	1
		8	7	20.47	20.70	20.48	2			3	3	21.48	21.65	21.61	1
		15	0	20.52	20.66	20.42	2			6	0	20.38	20.59	20.42	2
	64QAM	1	0	20.49	20.65	20.55	2		64QAM	1	0	20.56	20.73	20.51	2
		1	7	20.51	20.74	20.54	2			1	2	20.62	20.69	20.68	2
		1	14	20.51	20.57	20.56	2			1	5	20.45	20.64	20.52	2
		8	0	19.48	19.78	19.51	3			3	0	20.58	20.75	20.67	2
		8	3	19.54	19.71	19.59	3			3	1	20.44	20.69	20.48	2
		8	7	19.62	19.67	19.65	3			3	3	20.62	20.68	20.43	2
		15	0	19.41	19.69	19.49	3			6	0	19.40	19.64	19.49	3

Ant. 0															
EUT with Power Reduction (P-Sensor Triggered)															
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		131987	132322	132657				Channel		131979	132322	132665	
		Frequency (MHz)		1711.5	1745.5	1778.5				Frequency (MHz)		1710.7	1745.0	1779.3	
3M	QPSK	1	0	12.69	12.73	12.58	0	1.4M	QPSK	1	0	12.62	12.70	12.72	0
		1	7	12.64	12.61	12.60	0			1	2	12.56	12.54	12.63	0
		1	14	12.50	12.55	12.61	0			1	5	12.54	12.50	12.63	0
		8	0	11.61	11.64	11.62	1			3	0	12.65	12.67	12.67	0
		8	3	11.59	11.66	11.58	1			3	1	12.54	12.74	12.60	0
		8	7	11.51	11.56	11.51	1			3	3	12.61	12.59	12.47	0
		15	0	11.52	11.63	11.67	1			6	0	11.51	11.61	11.58	1
	16QAM	1	0	11.54	11.71	11.64	1		16QAM	1	0	11.52	11.57	11.54	1
		1	7	11.45	11.53	11.45	1			1	2	11.46	11.65	11.65	1
		1	14	11.46	11.60	11.51	1			1	5	11.44	11.46	11.60	1
		8	0	10.53	10.62	10.74	2			3	0	11.56	11.67	11.58	1
		8	3	10.47	10.60	10.64	2			3	1	11.54	11.67	11.66	1
		8	7	10.52	10.60	10.51	2			3	3	11.45	11.62	11.53	1
		15	0	10.49	10.58	10.64	2			6	0	10.50	10.52	10.44	2
	64QAM	1	0	10.68	10.57	10.59	2		64QAM	1	0	10.55	10.64	10.53	2
		1	7	10.46	10.52	10.50	2			1	2	10.43	10.61	10.45	2
		1	14	10.58	10.55	10.59	2			1	5	10.44	10.52	10.44	2
		8	0	9.52	9.64	9.64	3			3	0	10.52	10.61	10.68	2
		8	3	9.55	9.60	9.55	3			3	1	10.49	10.65	10.62	2
		8	7	9.47	9.50	9.43	3			3	3	10.36	10.60	10.52	2
		15	0	9.52	9.61	9.49	3			6	0	9.48	9.53	9.60	3

<WLAN 2.4G>					
Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11b	1	2412	17.86	18.70	18.84
	6	2437	17.82	18.82	18.71
	11	2462	17.90	18.81	18.91
EUT with Power Reduction					
802.11b	1	2412	12.85	12.78	12.96
	6	2437	12.81	12.78	12.98
	11	2462	12.72	12.67	12.93

<WLAN 2.4G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11b	1	2412	17.86	18.70	18.84
	6	2437	17.82	18.82	18.71
	11	2462	17.90	18.81	18.91
EUT with Power Reduction					
802.11b	1	2412	12.85	12.78	12.96
	6	2437	12.81	12.78	12.98
	11	2462	12.72	12.67	12.93

FCC SAR Test Report

<WLAN 5.2G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11ac (VHT80)	42	5210	14.52	14.79	15.90
EUT with Power Reduction					
802.11ac (VHT80)	42	5210	8.32	8.16	8.14

<WLAN 5.3G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11ac (VHT80)	58	5290	14.53	14.72	15.90
EUT with Power Reduction					
802.11ac (VHT80)	58	5290	6.71	6.50	6.87

<WLAN 5.6G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11ac (VHT80)	106	5530	14.52	14.88	15.95
	122	5610	14.55	14.81	15.80
	138	5690	14.55	14.76	15.91
EUT with Power Reduction					
802.11ac (VHT80)	106	5530	9.12	9.06	9.46
	122	5610	9.04	9.08	9.45
	138	5690	9.05	9.10	9.17

<WLAN 5.8G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
EUT without Power Reduction					
802.11ac (VHT80)	155	5775	14.53	14.82	15.70
EUT with Power Reduction					
802.11ac (VHT80)	155	5775	7.82	7.76	7.89

<Bluetooth>

Mode	Channel	Frequency (MHz)	Average Power
Bluetooth EDR	0	2402	6.45
	39	2441	6.34
	78	2480	6.39
Bluetooth LE	0	2402	6.29
	19	2440	5.77
	39	2480	6.23

4.7 SAR Testing Results

4.7.1 SAR Test Reduction Considerations

<KDB 447498 D01, 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

When SAR is not measured at the maximum power level allowed for production units, the measured SAR will be scaled to the maximum tune-up tolerance limit to determine compliance. The scaling factor for the tune-up power is defined as maximum tune-up limit (mW) / measured conducted power (mW). The reported SAR would be calculated by measured SAR x tune-up power scaling factor.

The SAR has been measured with highest transmission duty factor supported by the test mode tools for WLAN and/or Bluetooth. When the transmission duty factor could not achieve 100%, the reported SAR will be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up power. The scaling factor for the duty factor is defined as 100% / transmission duty cycle (%). The reported SAR would be calculated by measured SAR x tune-up power scaling factor x duty cycle scaling factor.

<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.

FCC SAR Test Report

(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 5GHz, 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.

FCC SAR Test Report

4.7.2 SAR Results for Body Exposure Condition

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	Power Reduction	Ant Status	P-Sensor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
01	WCDMA II	RMC12.2K	Bottom	0	9400	w/	Ant 0	w/	15.0	14.54	1.11	-0.01	0.616	0.68
	WCDMA II	RMC12.2K	Bottom	18	9400	w/o	Ant 0	w/o	23.0	22.32	1.17	0.07	0.514	0.60
	WCDMA II	RMC12.2K	Bottom	0	9400	w/o	Ant 1	w/o	23.0	22.32	1.17	0.06	0.018	0.02
	WCDMA II	RMC12.2K	Bottom	0	9262	w/	Ant 0	w/	15.0	14.12	1.22	-0.01	0.594	0.72
	WCDMA II	RMC12.2K	Bottom	0	9538	w/	Ant 0	w/	15.0	14.43	1.14	0.06	0.640	0.73
	WCDMA V	RMC12.2K	Bottom	0	4182	w/	Ant 0	w/	20.0	19.65	1.08	-0.04	0.495	0.53
	WCDMA V	RMC12.2K	Bottom	18	4182	w/o	Ant 0	w/o	23.0	22.37	1.16	0.06	0.151	0.18
	WCDMA V	RMC12.2K	Bottom	0	4182	w/o	Ant 1	w/o	23.0	22.37	1.16	-0.05	0.000833	0.00
02	WCDMA V	RMC12.2K	Bottom	0	4132	w/	Ant 0	w/	20.0	19.22	1.20	-0.18	0.460	0.55
	WCDMA V	RMC12.2K	Bottom	0	4233	w/	Ant 0	w/	20.0	19.43	1.14	-0.17	0.444	0.51

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	RB#	RB Offset	Power Reduction	Ant Status	P-Sensor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
03	LTE 2	QPSK20M	Bottom	0	19100	1	0	w/	Ant 0	w/	16.0	15.17	1.21	0.01	0.804	0.97
	LTE 2	QPSK20M	Bottom	0	19100	50	0	w/	Ant 0	w/	15.0	13.78	1.32	0.07	0.654	0.86
	LTE 2	QPSK20M	Bottom	18	19100	1	0	w/o	Ant 0	w/o	23.0	22.89	1.03	0.09	0.546	0.56
	LTE 2	QPSK20M	Bottom	18	19100	50	0	w/o	Ant 0	w/o	22.0	21.96	1.01	-0.03	0.431	0.44
	LTE 2	QPSK20M	Bottom	0	19100	1	0	w/o	Ant 1	w/o	23.0	22.89	1.03	0.03	0.024	0.02
	LTE 2	QPSK20M	Bottom	0	19100	50	0	w/o	Ant 1	w/o	22.0	21.96	1.01	-0.09	0.011	0.01
	LTE 2	QPSK20M	Bottom	0	18700	1	0	w/	Ant 0	w/	16.0	15.11	1.23	0.05	0.763	0.94
	LTE 2	QPSK20M	Bottom	0	18900	1	0	w/	Ant 0	w/	16.0	15.15	1.22	0.1	0.794	0.97
	LTE 2	QPSK20M	Bottom	0	18700	50	0	w/	Ant 0	w/	15.0	13.72	1.34	0.08	0.632	0.85
	LTE 2	QPSK20M	Bottom	0	18900	50	0	w/	Ant 0	w/	15.0	13.76	1.33	-0.16	0.617	0.82
	LTE 2	QPSK20M	Bottom	0	19100	100	0	w/	Ant 0	w/	15.0	13.75	1.33	0.17	0.62	0.82
	LTE 2	QPSK20M	Bottom	0	19100	1	0	w/	Ant 0	w/	16.0	15.17	1.21	-0.05	0.791	0.96
04	LTE 5	QPSK10M	Bottom	0	20600	1	0	w/	Ant 0	w/	22.0	20.81	1.32	-0.02	0.665	0.88
	LTE 5	QPSK10M	Bottom	0	20600	25	0	w/	Ant 0	w/	21.0	19.63	1.37	-0.02	0.528	0.72
	LTE 5	QPSK10M	Bottom	18	20600	1	0	w/o	Ant 0	w/o	24.0	22.94	1.28	0.06	0.168	0.22
	LTE 5	QPSK10M	Bottom	18	20600	25	0	w/o	Ant 0	w/o	23.0	21.87	1.30	-0.16	0.131	0.17
	LTE 5	QPSK10M	Bottom	0	20600	1	0	w/o	Ant 1	w/o	24.0	22.94	1.28	-0.04	0.00107	0.00
	LTE 5	QPSK10M	Bottom	0	20600	25	0	w/o	Ant 1	w/o	23.0	21.87	1.30	-0.01	0.000884	0.00
	LTE 5	QPSK10M	Bottom	0	20450	1	0	w/	Ant 0	w/	22.0	20.71	1.35	-0.17	0.611	0.82
	LTE 5	QPSK10M	Bottom	0	20525	1	0	w/	Ant 0	w/	22.0	20.77	1.33	-0.03	0.652	0.87
	LTE 5	QPSK10M	Bottom	0	20600	50	0	w/	Ant 0	w/	21.0	19.48	1.42	-0.02	0.437	0.62
	LTE 7	QPSK20M	Bottom	0	21100	1	0	w/	Ant 0	w/	13.0	11.83	1.31	-0.08	0.665	0.87
	LTE 7	QPSK20M	Bottom	0	21100	50	0	w/	Ant 0	w/	12.0	10.59	1.38	-0.12	0.507	0.70
	LTE 7	QPSK20M	Bottom	18	21100	1	0	w/o	Ant 0	w/o	23.0	22.42	1.14	0.17	0.562	0.64
	LTE 7	QPSK20M	Bottom	18	21100	50	0	w/o	Ant 0	w/o	22.0	21.62	1.09	-0.05	0.471	0.51
	LTE 7	QPSK20M	Bottom	0	21100	1	0	w/o	Ant 1	w/o	23.0	22.42	1.14	0.17	0.048	0.05
05	LTE 7	QPSK20M	Bottom	0	21100	50	0	w/o	Ant 1	w/o	22.0	21.62	1.09	0.01	0.027	0.03
	LTE 7	QPSK20M	Bottom	0	20850	1	0	w/	Ant 0	w/	13.0	11.76	1.33	-0.19	0.559	0.74
	LTE 7	QPSK20M	Bottom	0	21350	1	0	w/	Ant 0	w/	13.0	11.79	1.32	-0.06	0.676	0.89
	LTE 7	QPSK20M	Bottom	0	21100	100	0	w/	Ant 0	w/	12.0	10.54	1.40	0.05	0.498	0.70

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	RB#	RB Offset	Power Reduction	Ant Status	P-Sensor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
06	LTE 41	QPSK20M	Bottom	0	40620	1	0	w/	Ant 0	w/	16.0	14.72	1.34	0.06	0.690	0.92
	LTE 41	QPSK20M	Bottom	0	40620	50	0	w/	Ant 0	w/	15.0	13.75	1.33	-0.05	0.538	0.72
	LTE 41	QPSK20M	Bottom	18	40620	1	0	w/o	Ant 0	w/o	23.0	22.29	1.18	0.09	0.383	0.45
	LTE 41	QPSK20M	Bottom	18	40620	50	0	w/o	Ant 0	w/o	22.0	21.18	1.21	-0.16	0.301	0.36
	LTE 41	QPSK20M	Bottom	0	40620	1	0	w/o	Ant 1	w/o	23.0	22.29	1.18	0.13	0.075	0.09
	LTE 41	QPSK20M	Bottom	0	40620	50	0	w/o	Ant 1	w/o	22.0	21.18	1.21	0.05	0.047	0.06
	LTE 41	QPSK20M	Bottom	0	39750	1	0	w/	Ant 0	w/	16.0	14.53	1.40	-0.03	0.649	0.91
	LTE 41	QPSK20M	Bottom	0	40185	1	0	w/	Ant 0	w/	16.0	14.57	1.39	0.02	0.626	0.87
	LTE 41	QPSK20M	Bottom	0	41055	1	0	w/	Ant 0	w/	16.0	14.52	1.41	-0.05	0.579	0.82
	LTE 41	QPSK20M	Bottom	0	41490	1	0	w/	Ant 0	w/	16.0	14.67	1.36	0.08	0.432	0.59
	LTE 41	QPSK20M	Bottom	0	40620	100	0	w/	Ant 0	w/	15.0	13.73	1.34	-0.11	0.533	0.71
07	LTE 66	QPSK20M	Bottom	0	132322	1	0	w/	Ant 0	w/	14.0	12.82	1.31	0.12	0.465	0.61
	LTE 66	QPSK20M	Bottom	0	132322	50	0	w/	Ant 0	w/	13.0	11.81	1.32	0.06	0.359	0.47
	LTE 66	QPSK20M	Bottom	18	132322	1	0	w/o	Ant 0	w/o	23.0	22.67	1.08	0.09	0.449	0.48
	LTE 66	QPSK20M	Bottom	18	132322	50	0	w/o	Ant 0	w/o	22.0	21.69	1.07	-0.14	0.344	0.37
	LTE 66	QPSK20M	Bottom	0	132322	1	0	w/o	Ant 1	w/o	23.0	22.67	1.08	0.07	0.00574	0.01
	LTE 66	QPSK20M	Bottom	0	132322	50	0	w/o	Ant 1	w/o	22.0	21.69	1.07	-0.02	0.00438	0.00
	LTE 66	QPSK20M	Bottom	0	132072	1	0	w/	Ant 0	w/	14.0	12.75	1.33	0.01	0.430	0.57
	LTE 66	QPSK20M	Bottom	0	132572	1	0	w/	Ant 0	w/	14.0	12.79	1.32	0.05	0.395	0.52

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	Power Reduction	Ant Status	P-Sensor	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN2.4G	802.11b	Bottom	0	1	w/	Ant 0	w/	99.03	1.01	13.0	12.85	1.04	0.15	0.385	0.40
	WLAN2.4G	802.11b	Bottom	18	11	w/o	Ant 0	w/o	99.03	1.01	19.0	17.90	1.29	-0.14	0.253	0.33
	WLAN2.4G	802.11b	Bottom	0	6	w/	Ant 1	w/	99.03	1.01	13.0	12.78	1.05	0.07	0.590	0.63
	WLAN2.4G	802.11b	Bottom	18	6	w/o	Ant 1	w/o	99.03	1.01	19.0	17.82	1.31	0.11	0.142	0.19
	WLAN2.4G	802.11b	Bottom	0	6	w/	Ant 0+1	w/	99.03	1.01	13.0	12.98	1.00	0.08	0.221	0.22
	WLAN2.4G	802.11b	Bottom	18	11	w/o	Ant 0+1	w/o	99.03	1.01	19.0	18.91	1.02	-0.1	0.157	0.16
	WLAN2.4G	802.11b	Bottom	0	1	w/	Ant 1	w/	99.03	1.01	13.0	12.78	1.05	0.02	0.599	0.64
08	WLAN2.4G	802.11b	Bottom	0	11	w/	Ant 1	w/	99.03	1.01	13.0	12.67	1.08	-0.01	0.665	0.73
	WLAN5.2G	802.11ac VHT80	Bottom	0	42	w/	Ant 0	w/	89.54	1.12	8.5	8.32	1.04	0.08	0.200	0.23
09	WLAN5.2G	802.11ac VHT80	Bottom	18	42	w/o	Ant 0	w/o	89.54	1.12	16.0	14.52	1.41	-0.18	0.339	0.54
	WLAN5.2G	802.11ac VHT80	Bottom	0	42	w/	Ant 1	w/	89.54	1.12	8.5	8.16	1.08	0.01	0.155	0.19
	WLAN5.2G	802.11ac VHT80	Bottom	18	42	w/o	Ant 1	w/o	89.54	1.12	16.0	14.79	1.32	0.06	0.144	0.21
	WLAN5.2G	802.11ac VHT80	Bottom	0	42	w/	Ant 0+1	w/	89.54	1.12	8.5	8.14	1.09	-0.11	0.128	0.16
	WLAN5.2G	802.11ac VHT80	Bottom	18	42	w/o	Ant 0+1	w/o	89.54	1.12	16.0	15.90	1.02	-0.15	0.227	0.26
	WLAN5.3G	802.11ac VHT80	Bottom	0	58	w/	Ant 0	w/	89.54	1.12	7.0	6.71	1.07	0.07	0.275	0.33
10	WLAN5.3G	802.11ac VHT80	Bottom	18	58	w/o	Ant 0	w/o	89.54	1.12	16.0	14.53	1.40	-0.03	0.519	0.81
	WLAN5.3G	802.11ac VHT80	Bottom	0	58	w/	Ant 1	w/	89.54	1.12	7.0	6.50	1.12	0	<0.001	0.00
	WLAN5.3G	802.11ac VHT80	Bottom	18	58	w/o	Ant 1	w/o	89.54	1.12	16.0	14.72	1.34	-0.04	0.326	0.49
	WLAN5.3G	802.11ac VHT80	Bottom	0	58	w/	Ant 0+1	w/	89.54	1.12	7.0	6.87	1.03	-0.09	0.130	0.15
	WLAN5.3G	802.11ac VHT80	Bottom	18	58	w/o	Ant 0+1	w/o	89.54	1.12	16.0	15.90	1.02	0.15	0.332	0.38
	WLAN5.6G	802.11ac VHT80	Bottom	0	106	w/	Ant 0	w/	89.54	1.12	9.5	9.12	1.09	0.01	0.239	0.29
11	WLAN5.6G	802.11ac VHT80	Bottom	18	138	w/o	Ant 0	w/o	89.54	1.12	16.0	14.55	1.40	0.03	0.446	0.70
	WLAN5.6G	802.11ac VHT80	Bottom	0	138	w/	Ant 1	w/	89.54	1.12	9.5	9.10	1.10	-0.08	0.113	0.14
	WLAN5.6G	802.11ac VHT80	Bottom	18	106	w/o	Ant 1	w/o	89.54	1.12	16.0	14.88	1.29	0.07	0.207	0.30
	WLAN5.6G	802.11ac VHT80	Bottom	0	106	w/	Ant 0+1	w/	89.54	1.12	9.5	9.46	1.01	0.02	0.116	0.13
	WLAN5.6G	802.11ac VHT80	Bottom	18	106	w/o	Ant 0+1	w/o	89.54	1.12	16.0	15.95	1.01	-0.09	0.272	0.31
	WLAN5.6G	802.11ac VHT80	Bottom	18	106	w/o	Ant 0	w/o	89.54	1.12	16.0	14.52	1.41	0.01	0.421	0.66
	WLAN5.6G	802.11ac VHT80	Bottom	18	122	w/o	Ant 0	w/o	89.54	1.12	16.0	14.55	1.40	0.05	0.436	0.68
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	w/	Ant 0	w/	89.54	1.12	8.0	7.82	1.04	-0.09	0.28	0.33
12	WLAN5.8G	802.11ac VHT80	Bottom	18	155	w/o	Ant 0	w/o	89.54	1.12	16.0	14.53	1.40	-0.07	0.590	0.93
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	w/	Ant 1	w/	89.54	1.12	8.0	7.76	1.06	0.05	0.121	0.14
	WLAN5.8G	802.11ac VHT80	Bottom	18	155	w/o	Ant 1	w/o	89.54	1.12	16.0	14.82	1.31	-0.13	0.247	0.36
	WLAN5.8G	802.11ac VHT80	Bottom	0	155	w/	Ant 0+1	w/	89.54	1.12	8.0	7.89	1.03	0.08	0.113	0.13
	WLAN5.8G	802.11ac VHT80	Bottom	18	155	w/o	Ant 0+1	w/o	89.54	1.12	16.0	15.70	1.07	0.01	0.338	0.41
	BT	BR / EDR	Bottom	0	0	w/o	Ant 0	w/o	77.42	1.29	6.5	6.45	1.01	0.16	0.110	0.14
	BT	BR / EDR	Bottom	0	39	w/o	Ant 0	w/o	77.42	1.29	6.5	6.34	1.04	0.11	0.106	0.14
13	BT	BR / EDR	Bottom	0	78	w/o	Ant 0	w/o	77.42	1.29	6.5	6.39	1.03	-0.08	0.169	0.22

FCC SAR Test Report

4.7.3 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	Mode	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
LTE 2	QPSK20M	Bottom	19100	0.804	0.791	1.02	N/A	N/A	N/A	N/A

FCC SAR Test Report

4.7.4 Simultaneous Multi-band Transmission Evaluation

<Possibilities of Simultaneous Transmission>

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

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
1	WWAN + WLAN(2.4G)	Yes
2	WWAN + WLAN(5G)	Yes
3	WWAN + BT (Ant 0)	Yes
4	WLAN(2.4G) + BT (Ant 0)	Yes
5	WLAN(5G) + BT (Ant 0)	Yes
6	WWAN + WLAN(2.4G) + BT (Ant 0)	Yes
7	WWAN + WLAN(5G) + BT (Ant 0)	Yes

Note:

1. The WLAN 2.4G and WLAN 5G cannot transmit simultaneously.
2. Condition 1, 3 and 4 are covered by condition 6
3. Condition 2, 3 and 5 is covered by condition 7

FCC SAR Test Report

<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.

Band	Position	A	B	C	1	D	A+B+1	A+C+1
		Max WWAN	Max WLAN 2.4GHz	Max WLAN 5GHz	BT Ant 0	Max WLAN	Summing result 1g SAR W/kg	Summing result 1g SAR W/kg
		1g SAR W/kg	1g SAR W/kg	1g SAR W/kg	1g SAR W/kg	1g SAR W/kg		
WCDMA II	Bottom	0.73	0.73	0.93	0.22	0.93	1.68	1.88
WCDMA V	Bottom	0.55	0.73	0.93	0.22	0.93	1.50	1.70
LTE 2	Bottom	0.97	0.73	0.93	0.22	0.93	1.92	2.12
LTE 5	Bottom	0.88	0.73	0.93	0.22	0.93	1.83	2.03
LTE 7	Bottom	0.89	0.73	0.93	0.22	0.93	1.84	2.04
LTE 41	Bottom	0.92	0.73	0.93	0.22	0.93	1.87	2.07
LTE 66	Bottom	0.61	0.73	0.93	0.22	0.93	1.56	1.76

<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.

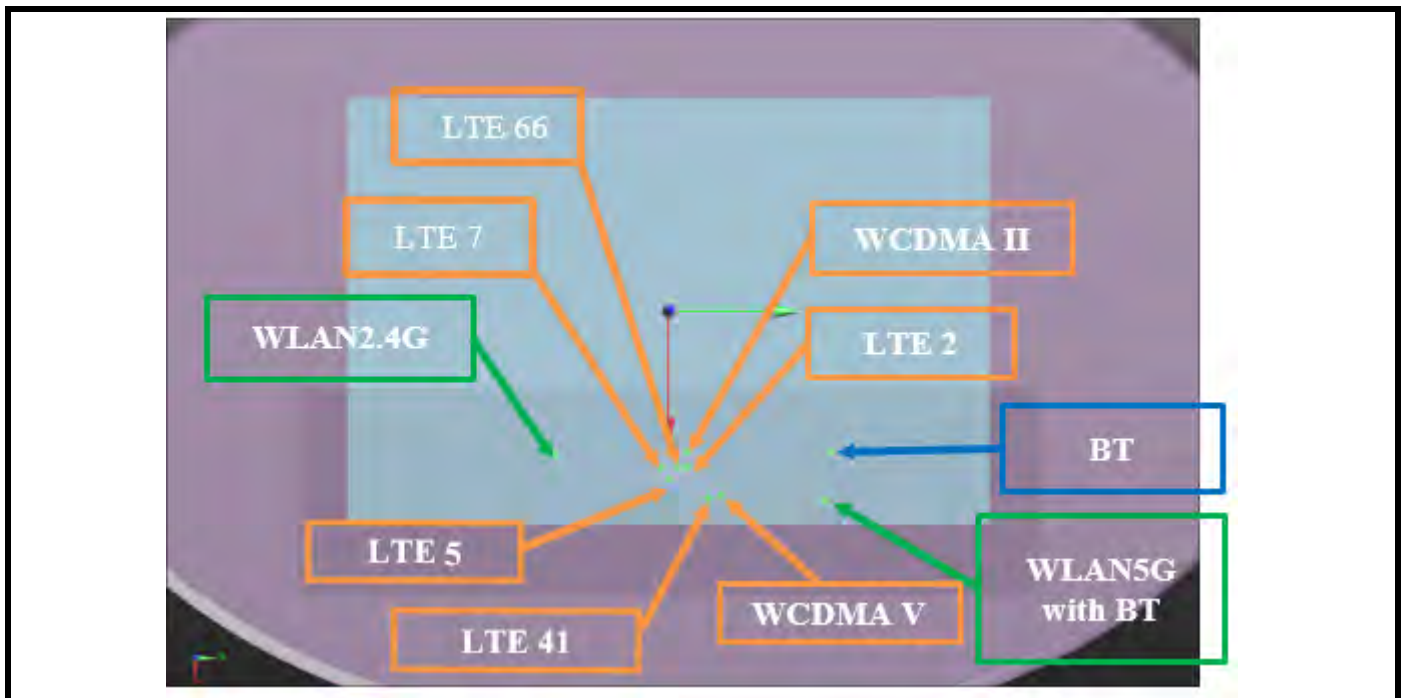
The SPLSR is determined by the following formula.

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

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.

FCC SAR Test Report



Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA II RMC12.2K_Ch9538	Body	Bottom	0.73	68.8	3.2	2.24	56.8	0.03	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
WCDMA II RMC12.2K_Ch9538	Body	Bottom	0.73	68.8	3.2	2.24	66.1	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WLAN2.4G_802.11b_Ch11	Body	Bottom	0.73	69.2	-53.6	2.53	122.8	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			

FCC SAR Test Report

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 2 QPSK20M_Ch19100	Body	Bottom	0.97	71	1.6	3.61	55.2	0.04	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
LTE 2 QPSK20M_Ch19100	Body	Bottom	0.97	71	1.6	3.61	67.6	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WLAN2.4G_802.11b_Ch11	Body	Bottom	0.73	69.2	-53.6	2.53	122.8	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 5 QPSK10M_Ch20600	Body	Bottom	0.88	83.4	16	1.69	71.0	0.03	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
LTE 5 QPSK10M_Ch20600	Body	Bottom	0.88	83.4	16	1.69	54.4	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WLAN2.4G_802.11b_Ch11	Body	Bottom	0.73	69.2	-53.6	2.53	122.8	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 7 QPSK20M_Ch21350	Body	Bottom	0.89	77.4	-2.4	2.22	51.9	0.04	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
LTE 7 QPSK20M_Ch21350	Body	Bottom	0.89	77.4	-2.4	2.22	71.8	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WLAN2.4G_802.11b_Ch11	Body	Bottom	0.73	69.2	-53.6	2.53	122.8	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			

FCC SAR Test Report

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	57.8	0.04	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	68.4	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WLAN2.4G_802.11b_Ch11	Body	Bottom	0.73	69.2	-53.6	2.53	122.8	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WCDMA II RMC12.2K_Ch9538	Body	Bottom	0.73	68.8	3.2	2.24	70.6	0.03	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
WCDMA II RMC12.2K_Ch9538	Body	Bottom	0.73	68.8	3.2	2.24	66.1	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
WCDMA V RMC12.2K_Ch4132_Cube0	Body	Bottom	0.55	82.4	30.4	2.45	41.3	0.04	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
WCDMA V RMC12.2K_Ch4132_Cube0	Body	Bottom	0.55	82.4	30.4	2.45	40.2	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 2 QPSK20M_Ch19100	Body	Bottom	0.97	71	1.6	3.61	71.6	0.04	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
LTE 2 QPSK20M_Ch19100	Body	Bottom	0.97	71	1.6	3.61	67.6	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 5 _QPSK10M_Ch20600	Body	Bottom	0.88	83.4	16	1.69	55.6	0.04	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
LTE 5 _QPSK10M_Ch20600	Body	Bottom	0.88	83.4	16	1.69	54.4	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			

FCC SAR Test Report

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	57.8	0.04	SPLSR ≤ 0.04, Not required
WLAN2.4G_802.11b_Ch11			0.73	69.2	-53.6	2.53			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	68.4	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 7_QPSK20M_Ch21350	Body	Bottom	0.89	77.4	-2.4	2.22	74.5	0.03	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
LTE 7 QPSK20M_Ch21350	Body	Bottom	0.89	77.4	-2.4	2.22	71.8	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	69.5	0.04	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
LTE 41 QPSK20M_Ch40620	Body	Bottom	0.92	85	2	3.25	68.4	0.02	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			
LTE 66_QPSK20M_Ch132322	Body	Bottom	0.61	74.2	0.8	2.17	71.8	0.03	SPLSR ≤ 0.04, Not required
WLAN5.8G_802.11ac VHT80_Ch155(With BT)			0.93	86.5	71.5	2.22			
LTE 66_QPSK20M_Ch132322	Body	Bottom	0.61	74.2	0.8	2.17	68.4	0.01	SPLSR ≤ 0.04, Not required
BT_BDR_Ch78			0.22	72	69.2	2.6			

Test Engineer : Willy Chang, and Matt Cheng

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D835V2	4d092	Jun. 20, 2019	1 Year
System Validation Dipole	SPEAG	D1750V2	1023	Jun. 20, 2019	1 Year
System Validation Dipole	SPEAG	D1900V2	5d036	Jan. 25, 2019	1 Year
System Validation Dipole	SPEAG	D2300V2	1004	Jan. 28, 2019	1 Year
System Validation Dipole	SPEAG	D2450V2	835	Jun. 27, 2019	1 Year
System Validation Dipole	SPEAG	D2600V2	1058	Jun. 27, 2019	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1019	Mar. 21, 2019	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7375	Dec. 13, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7537	Jun. 18, 2019	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	May. 20, 2019	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1277	Jan. 24, 2019	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1585	Jun. 07, 2019	1 Year
Data Acquisition Electronics	SPEAG	DAE4	861	May. 08, 2019	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201502978	Jun. 13, 2019	1 Year
Universal Radio Communication Tester	R&S	CMW500	152443	Aug. 20, 2018	1 Year
Spectrum Analyzer	R&S	FSL6	102006	Mar. 26, 2019	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214281	Jun. 17, 2019	1 Year
MXG Analog Signal Generator	Agilent	N5181A	MY50143868	Jun. 27, 2019	1 Year
Power Meter	Anritsu	ML2495A	1218009	Jun. 28, 2019	1 Year
Power Sensor	Anritsu	MA2411B	1207252	Jun. 28, 2019	1 Year
Thermometer	YFE	YF-160A	130504591	Mar. 22, 2019	1 Year

FCC SAR Test Report

6. Measurement Uncertainty

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	4.8	Rectangular	√3	1	1	2.8	2.8	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.02	Rectangular	√3	1	1	0.01	0.01	∞
Probe Positioning with Respect to Phantom	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	2.82 / 1.60	Normal	1	1	1	2.8	1.6	35
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	5.7	Rectangular	√3	1	1	3.3	3.3	∞
Liquid Conductivity (Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
Combined Standard Uncertainty						± 10.9 %	± 10.7 %	
Expanded Uncertainty (K=2)						± 21.8 %	± 21.4 %	

Head SAR Uncertainty Budget for Frequency Range of 300 MHz to 3 GHz

FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	4.8	Rectangular	√3	1	1	2.8	2.8	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.04	Rectangular	√3	1	1	0.02	0.02	∞
Probe Positioning with Respect to Phantom	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.82 / 1.60	Normal	1	1	1	2.8	1.6	35
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.2	Rectangular	√3	1	1	3.6	3.6	∞
Liquid Conductivity (Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
Combined Standard Uncertainty						± 11.6 %	± 11.3 %	
Expanded Uncertainty (K=2)						± 23.2 %	± 22.6 %	

Head SAR Uncertainty Budget for Frequency Range of 3 GHz to 6 GHz

FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	4.8	Rectangular	√3	1	1	2.8	2.8	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.02	Rectangular	√3	1	1	0.01	0.01	∞
Probe Positioning with Respect to Phantom	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	3.68 / 1.73	Normal	1	1	1	3.7	1.7	29
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Liquid Conductivity (Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
Combined Standard Uncertainty						± 11.5 %	± 11.0 %	
Expanded Uncertainty (K=2)						± 23.0 %	± 22.0 %	

Body SAR Uncertainty Budget for Frequency Range of 300 MHz to 3 GHz

FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	4.8	Rectangular	√3	1	1	2.8	2.8	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.04	Rectangular	√3	1	1	0.02	0.02	∞
Probe Positioning with Respect to Phantom	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	3.68 / 1.73	Normal	1	1	1	3.7	1.7	29
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.6	Rectangular	√3	1	1	4.4	4.4	∞
Liquid Conductivity (Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
Combined Standard Uncertainty						± 12.1 %	± 11.6 %	
Expanded Uncertainty (K=2)						± 24.2 %	± 23.2 %	

Body SAR Uncertainty Budget for Frequency Range of 3 GHz to 6 GHz

FCC SAR Test Report

7. Information of the Testing Laboratories

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

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

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

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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_H835_190816

DUT: Dipole 835 MHz; Type: D835V2; SN: 4d121

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

Medium: H07T10N1_0816 Medium parameters used: $f = 835$ MHz; $\sigma = 0.904$ S/m; $\epsilon_r = 41.897$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(10.13, 10.13, 10.13); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.50 W/kg

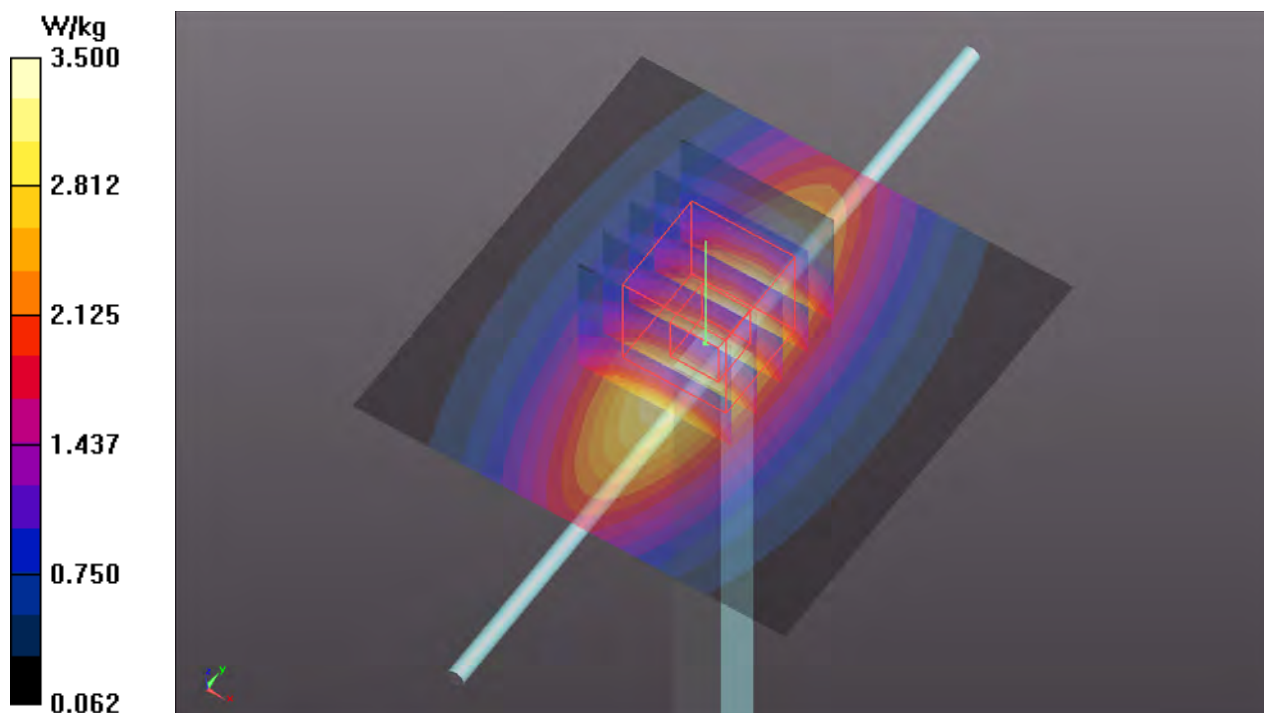
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 65.11 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.98 W/kg

SAR(1 g) = 2.3 W/kg; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (measured) = 3.51 W/kg



System Check_H1750_190814

DUT: Dipole 1750 MHz; Type: D1750V2; SN: 1023

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

Medium: H16T20N1_0814 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.325$ S/m; $\epsilon_r = 40.158$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7537; ConvF(8.44, 8.44, 8.44); Calibrated: 2019/06/18
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1585; Calibrated: 2019/06/07
- Phantom: ELI Phantom_2105; Type: QD OVA 004 Ax; Serial: 2105
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.0 W/kg

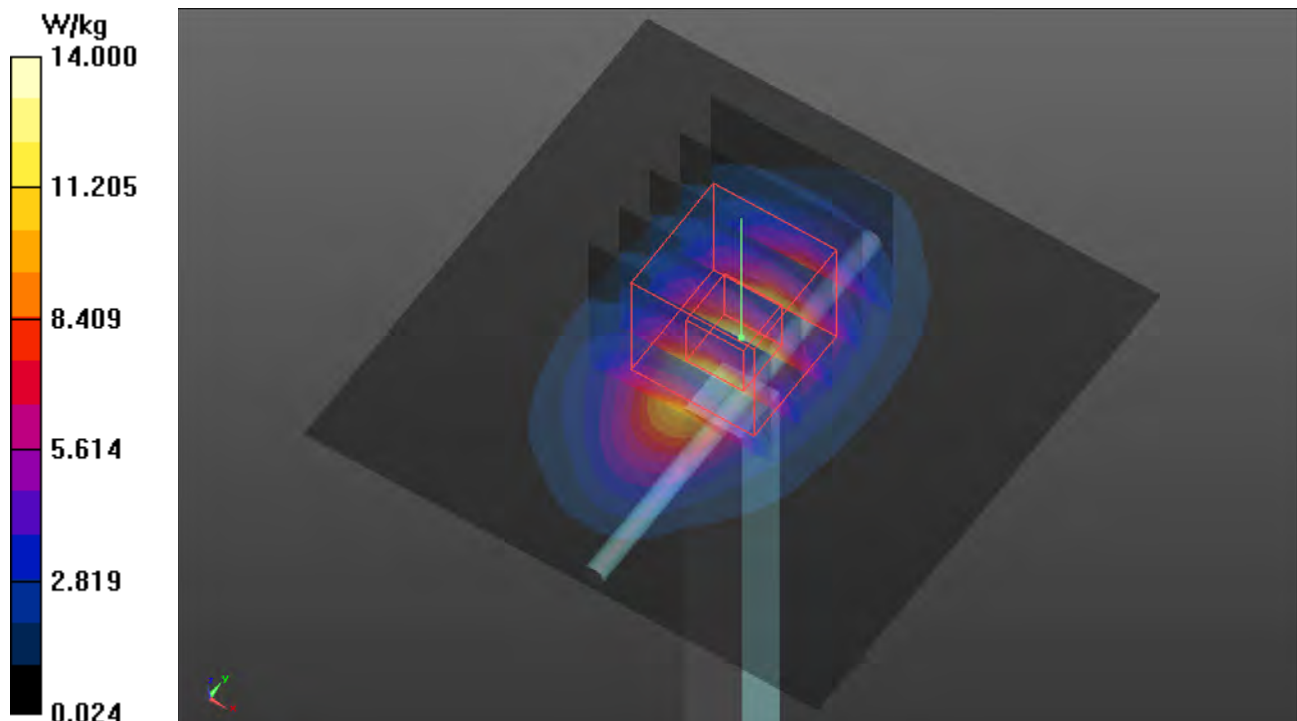
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 101.7 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 8.79 W/kg; SAR(10 g) = 4.64 W/kg

Maximum value of SAR (measured) = 13.9 W/kg



System Check_H1900_190815

DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036

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

Medium: H16T20N1_0815 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 39.582$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.8 °C ; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7537; ConvF(8.13, 8.13, 8.13); Calibrated: 2019/06/18
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1585; Calibrated: 2019/06/07
- Phantom: ELI Phantom_2105; Type: QD OVA 004 Ax; Serial: 2105
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 16.1 W/kg

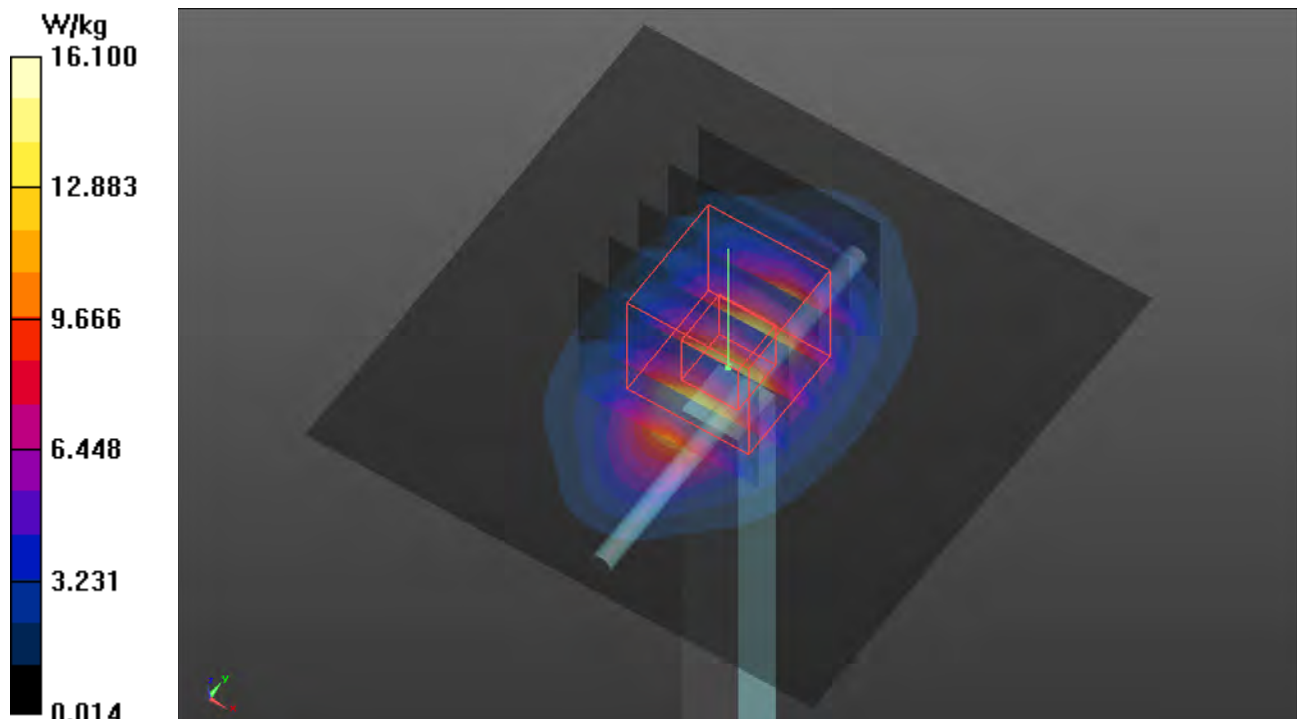
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 108.0 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.29 W/kg

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



System Check_H2450_190830

DUT: Dipole 2450 MHz; Type: D2450V2; SN: 835

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

Medium: H19T27N1_0830 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.829$ S/m; $\epsilon_r = 38.581$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(7.64, 7.64, 7.64); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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

Maximum value of SAR (interpolated) = 22.5 W/kg

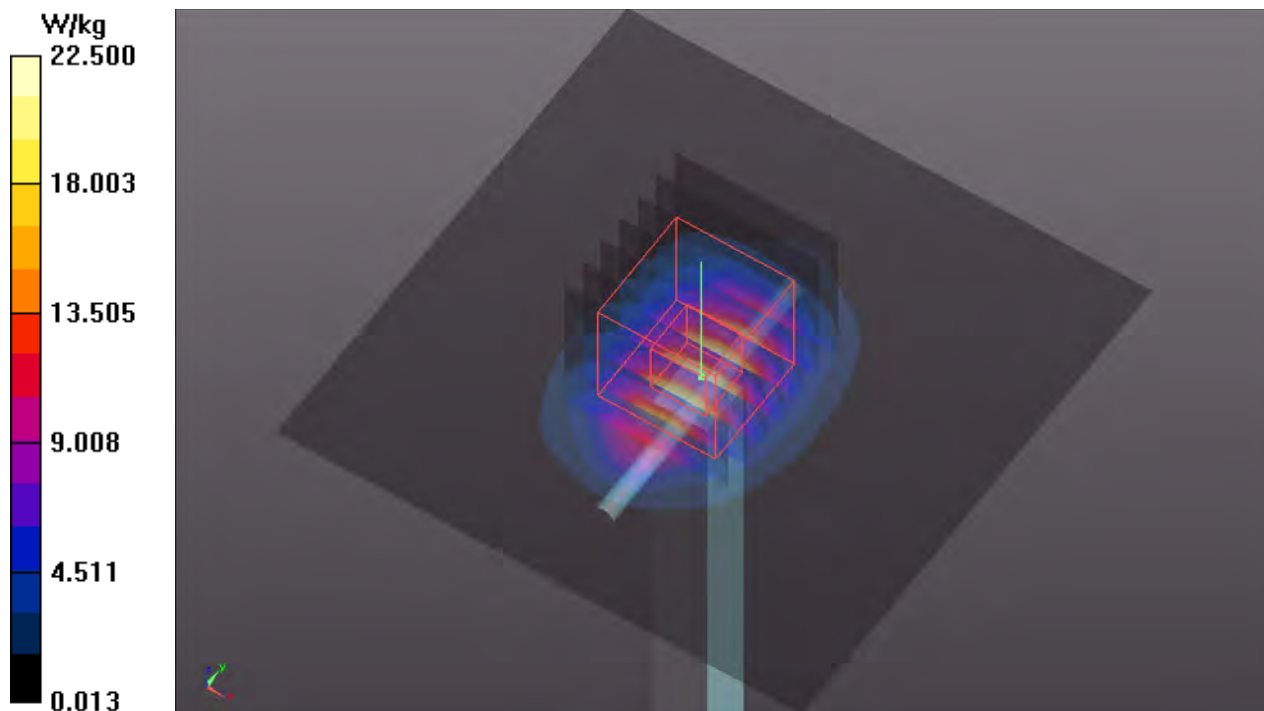
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 112.5 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.23 W/kg

Maximum value of SAR (measured) = 22.3 W/kg



System Check_H2600_190816

DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1058

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

Medium: H19T27N1_0816 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.045$ S/m; $\epsilon_r = 38.305$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(7.42, 7.42, 7.42); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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

Maximum value of SAR (interpolated) = 28.7 W/kg

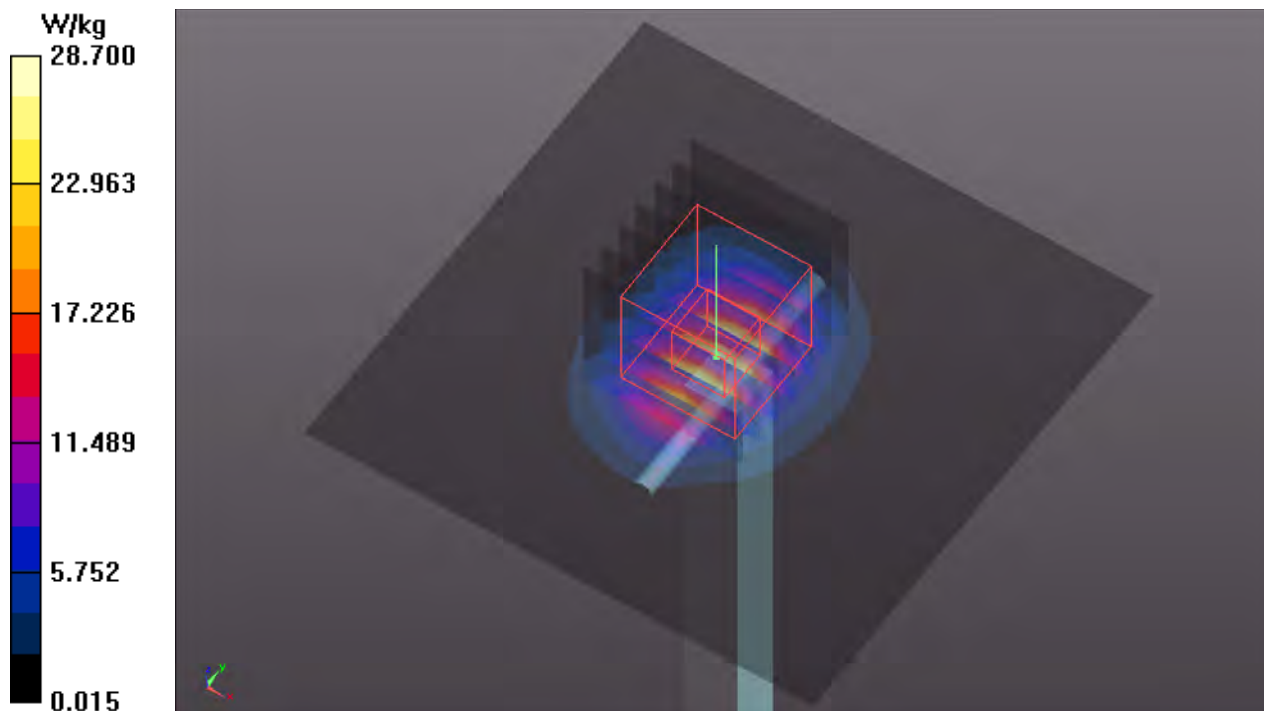
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 111.7 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 36.5 W/kg

SAR(1 g) = 15.4 W/kg; SAR(10 g) = 6.92 W/kg

Maximum value of SAR (measured) = 29.1 W/kg



System Check_H5250_190912

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

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

Medium: H34T60N1_0912 Medium parameters used: $f = 5250$ MHz; $\sigma = 4.788$ S/m; $\epsilon_r = 35.102$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(5.4, 5.4, 5.4); Calibrated: 2019/05/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2019/05/08
- Phantom: ELI Phantom_1206; Type: QDOVA002AA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

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

Maximum value of SAR (interpolated) = 20.3 W/kg

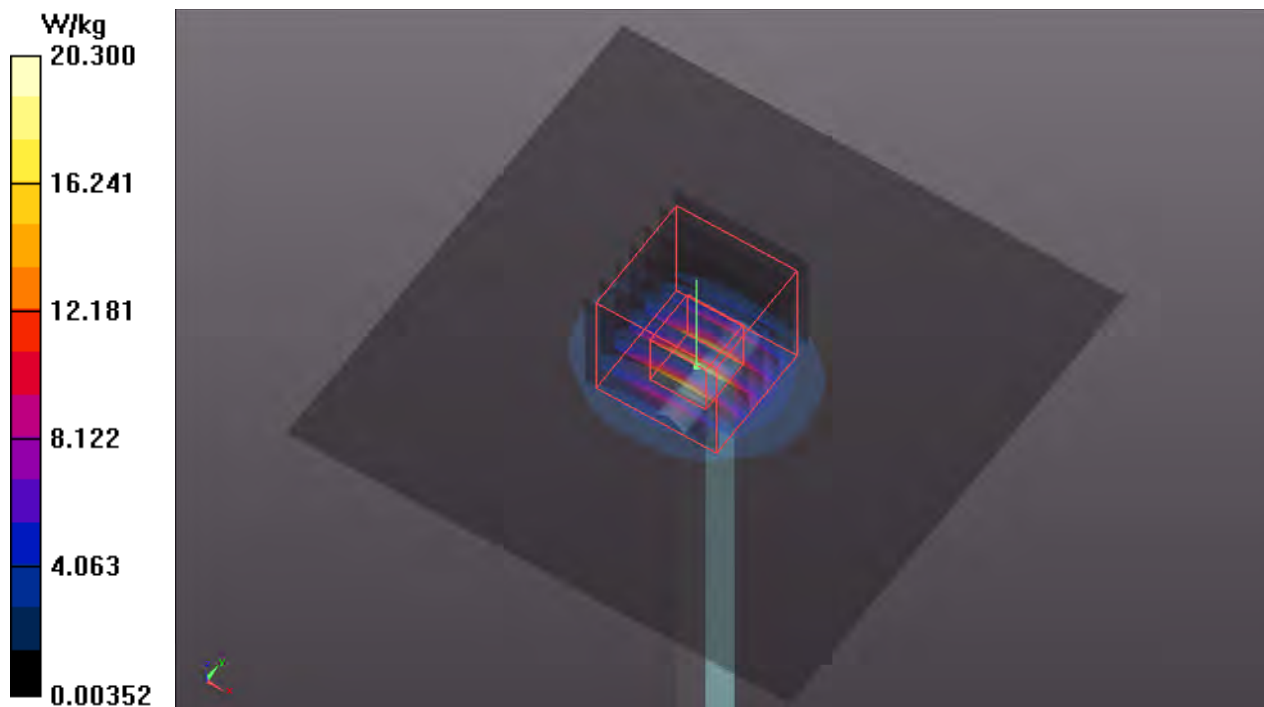
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 73.44 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 37.3 W/kg

SAR(1 g) = 8.69 W/kg; SAR(10 g) = 2.49 W/kg

Maximum value of SAR (measured) = 22.0 W/kg



System Check_H5600_190830

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

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

Medium: H34T60N1_0830 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.089$ S/m; $\epsilon_r = 36.492$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(4.69, 4.69, 4.69); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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

Maximum value of SAR (interpolated) = 20.4 W/kg

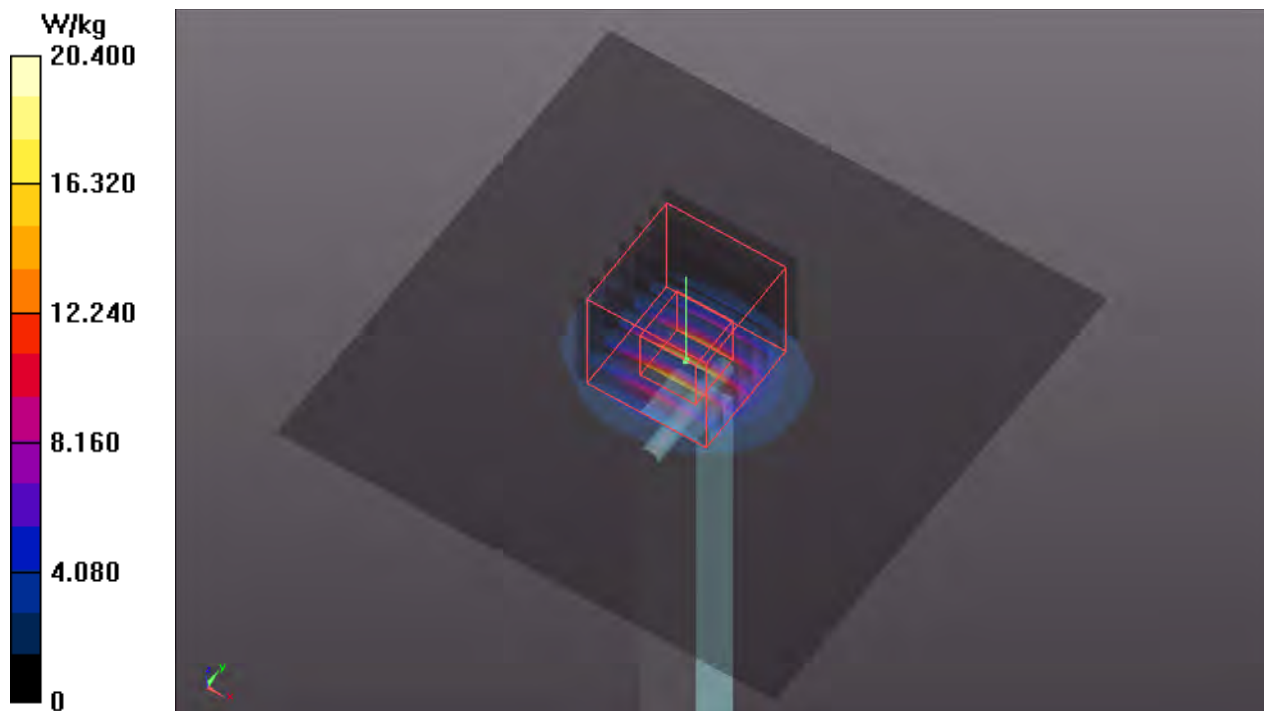
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.27 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 36.6 W/kg

SAR(1 g) = 8.41 W/kg; SAR(10 g) = 2.39 W/kg

Maximum value of SAR (measured) = 21.9 W/kg



System Check_H5750_190830

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

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

Medium: H34T60N1_0830 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.249$ S/m; $\epsilon_r = 36.271$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(4.85, 4.85, 4.85); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

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

Maximum value of SAR (interpolated) = 18.7 W/kg

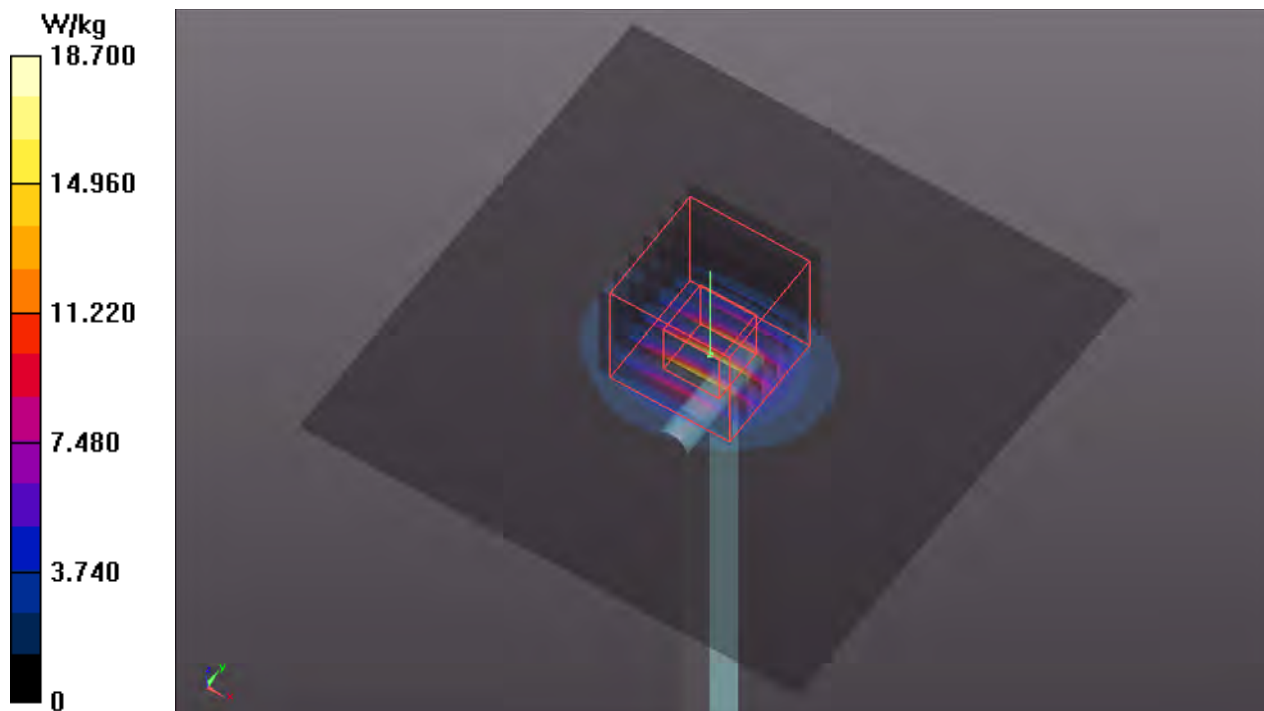
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 68.07 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 34.1 W/kg

SAR(1 g) = 7.57 W/kg; SAR(10 g) = 2.16 W/kg

Maximum value of SAR (measured) = 19.8 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 WCDMA II_RMC12.2K_Bottom_0mm_Ch9538_Power State_Reduction_Ant0

DUT: 190417C27

Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0815 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.453$ S/m; $\epsilon_r = 38.867$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(8.26, 8.26, 8.26); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (61x231x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 1.07 W/kg

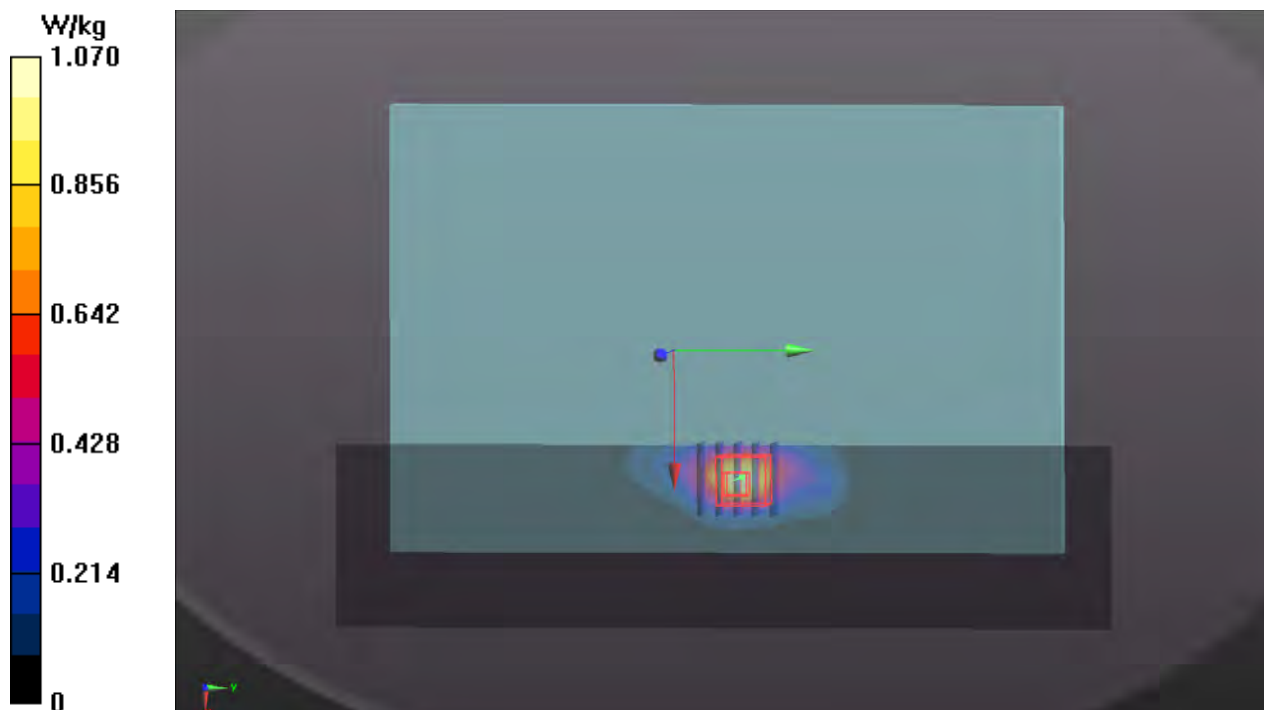
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 25.83 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.640 W/kg; SAR(10 g) = 0.344 W/kg

Maximum value of SAR (measured) = 0.921 W/kg



P02 WCDMA V_RMC12.2K_Bottom_0mm_Ch4132_Power State_Reduction_Ant0

DUT: 190417C27

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

Medium: H07T10N1_0815 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.907$ S/m; $\epsilon_r = 43.075$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

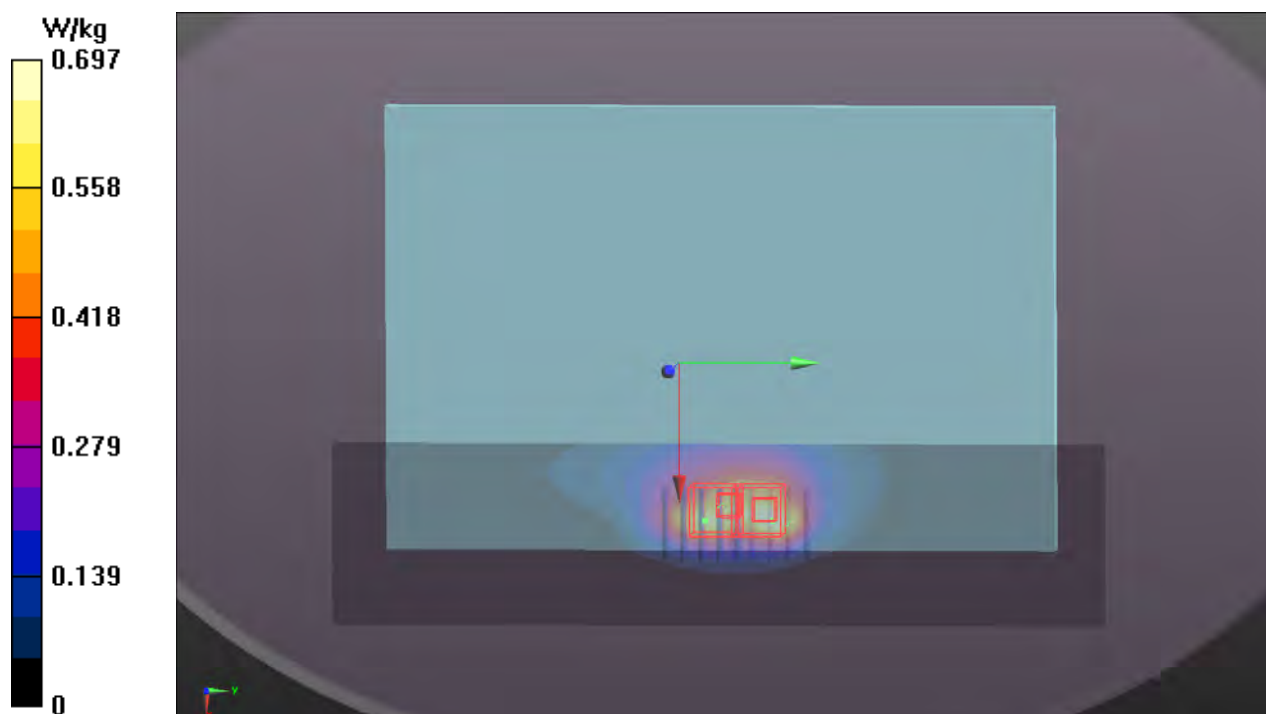
DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(10.13, 10.13, 10.13); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (61x231x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.697 W/kg

- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.69 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.282 W/kg
Maximum value of SAR (measured) = 0.827 W/kg

- **Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.69 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.721 W/kg
SAR(1 g) = 0.419 W/kg; SAR(10 g) = 0.254 W/kg
Maximum value of SAR (measured) = 0.579 W/kg



P03 LTE 2_QPSK20M_Bottom_0mm_Ch19100_1RB_OS0_Power State_Reduction_Ant0

DUT: 190417C27

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

Medium: H16T20N1_0814 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.454$ S/m; $\epsilon_r = 39.615$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7537; ConvF(8.13, 8.13, 8.13); Calibrated: 2019/06/18
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1585; Calibrated: 2019/06/07
- Phantom: ELI Phantom_2105; Type: QD OVA 004 Ax; Serial: 2105
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

- **Area Scan (61x231x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.44 W/kg

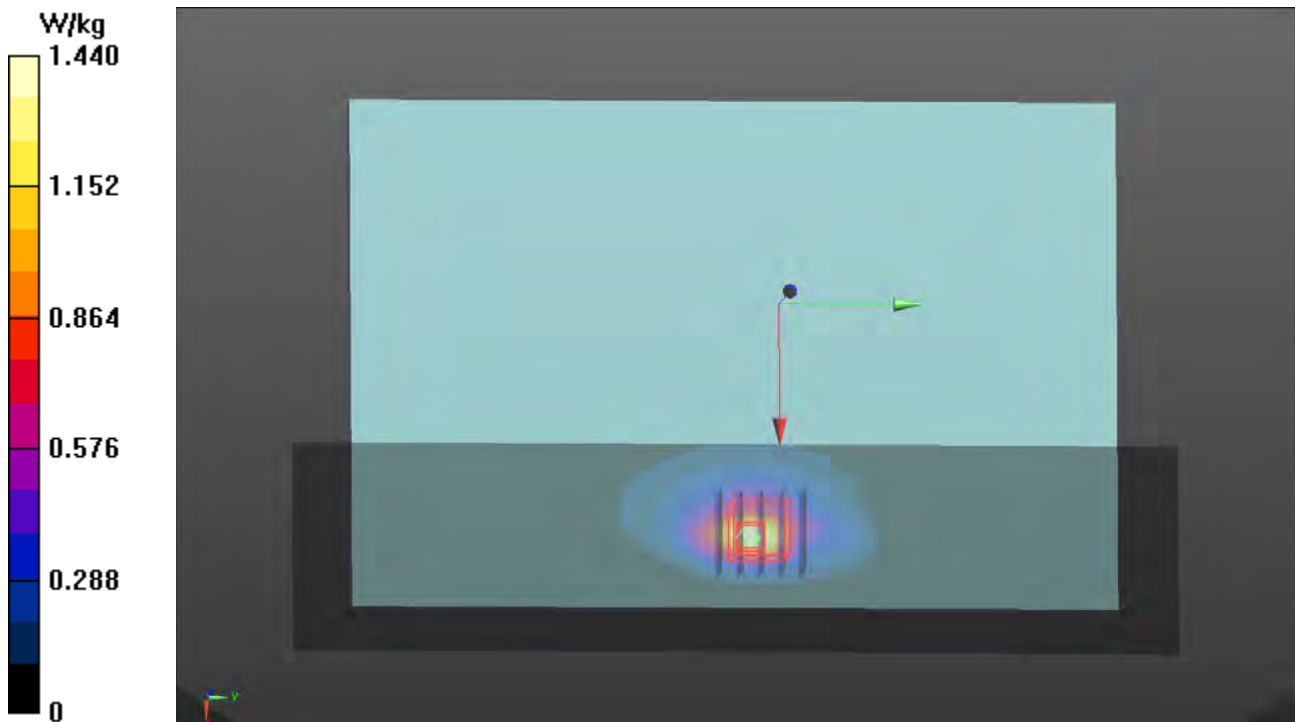
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 26.79 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.804 W/kg; SAR(10 g) = 0.400 W/kg

Maximum value of SAR (measured) = 1.38 W/kg



P04 LTE 5_QPSK10M_Bottom_0mm_Ch20600_1RB_OS0_Power State_Reduction_Ant0

DUT: 190417C27

Communication System: LTE; Frequency: 844 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0816 Medium parameters used: $f = 844$ MHz; $\sigma = 0.912$ S/m; $\epsilon_r = 41.79$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(10.13, 10.13, 10.13); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (61x231x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 1.19 W/kg

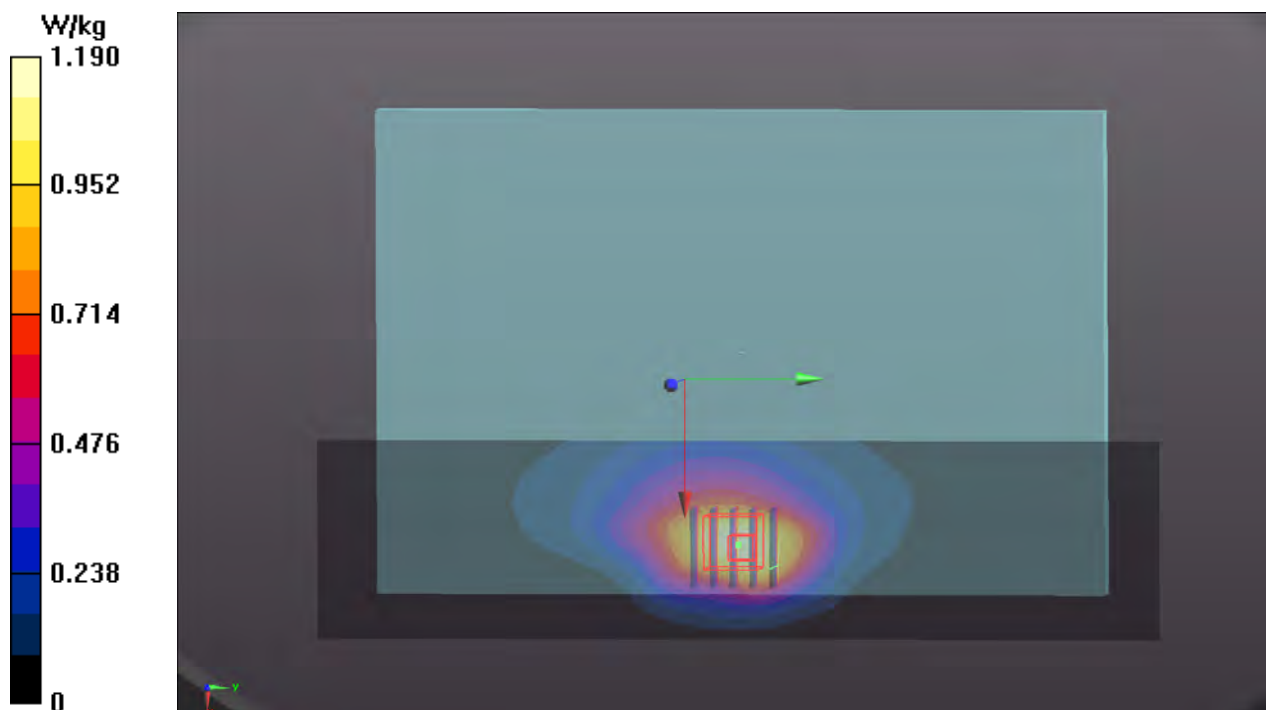
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 30.34 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.402 W/kg

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



P05 LTE 7_QPSK20M_Bottom_0mm_Ch21350_1RB_OS0_Power State_Reduction_Ant0

DUT: 190417C27

Communication System: LTE; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0816 Medium parameters used: $f = 2560$ MHz; $\sigma = 2$ S/m; $\epsilon_r = 38.452$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(7.42, 7.42, 7.42); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x291x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm
Maximum value of SAR (interpolated) = 1.32 W/kg

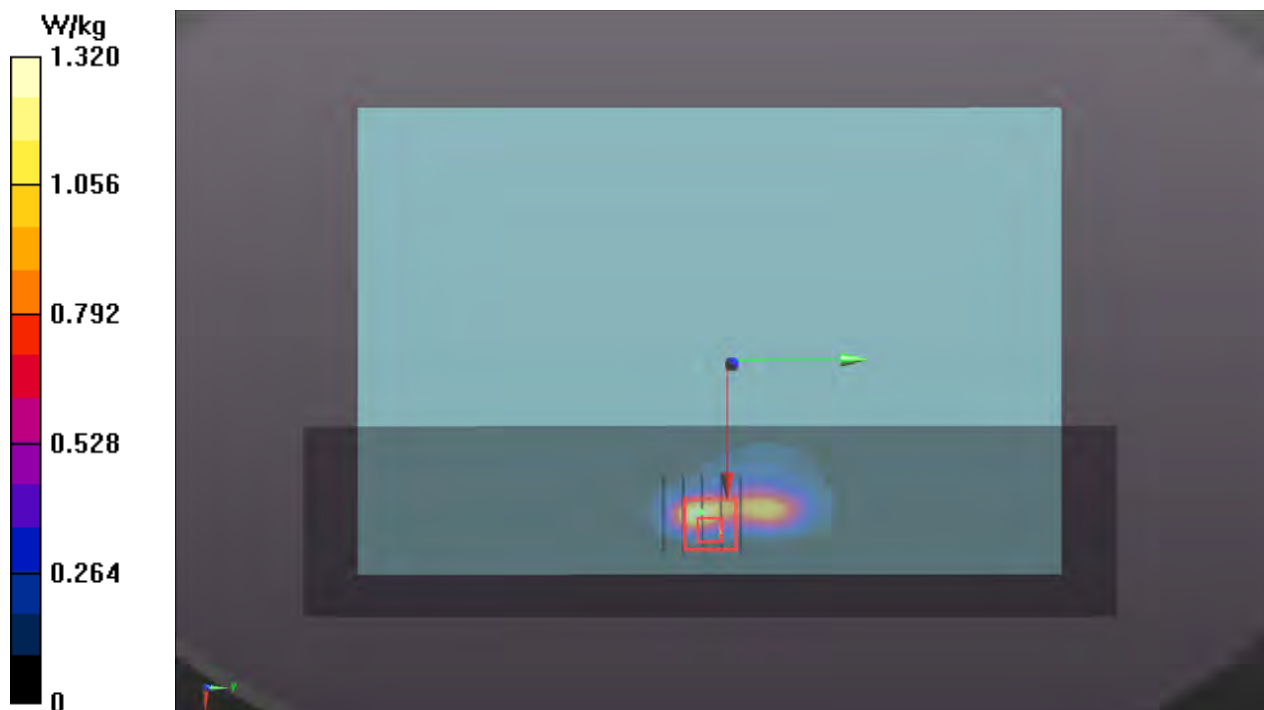
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 20.62 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.676 W/kg; SAR(10 g) = 0.261 W/kg

Maximum value of SAR (measured) = 1.34 W/kg



P06 LTE 41_QPSK20M_Bottom_0mm_Ch40620_1RB_OS0_Power State_Reduction_Ant0

DUT: 190417C27

Communication System: LTE TDD CF0; Frequency: 2593 MHz; Duty Cycle: 1:1.58

Medium: H19T27N1_0814 Medium parameters used: $f = 2593$ MHz; $\sigma = 2.022$ S/m; $\epsilon_r = 37.979$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7537; ConvF(7.19, 7.19, 7.19); Calibrated: 2019/06/18
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1585; Calibrated: 2019/06/07
- Phantom: ELI Phantom_2105; Type: QD OVA 004 Ax; Serial: 2105
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

- **Area Scan (71x291x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.631 W/kg

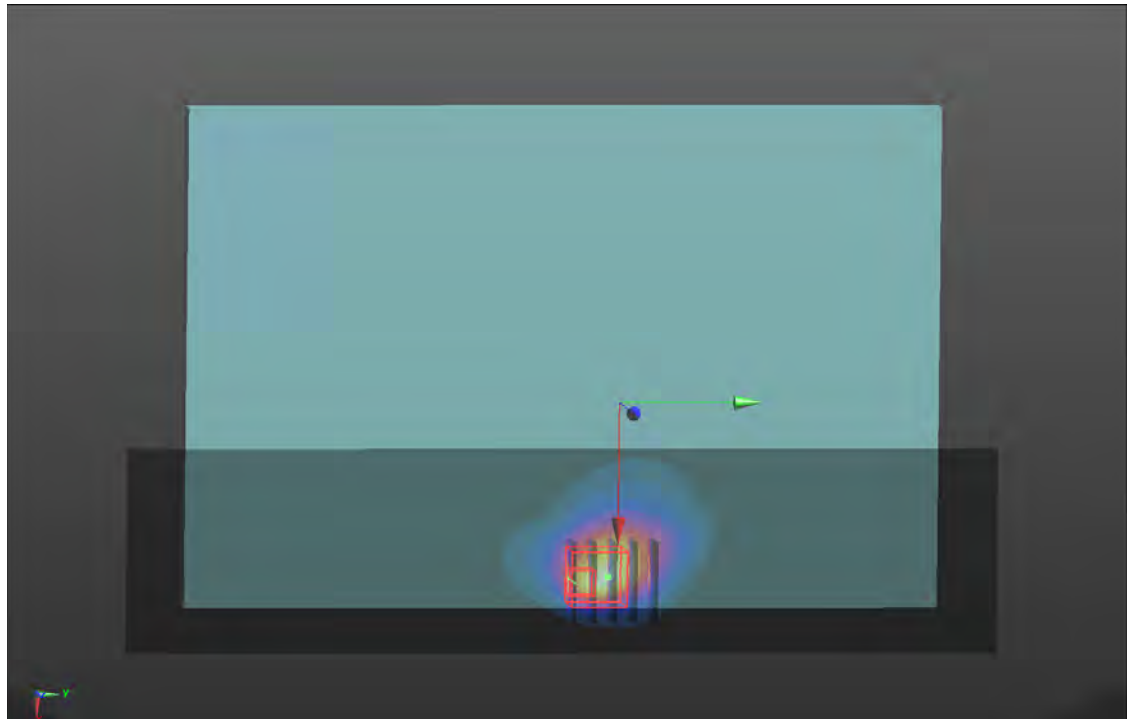
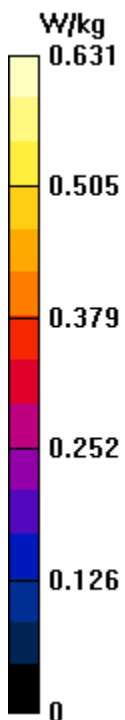
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.28 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.98 W/kg

SAR(1 g) = 0.690 W/kg; SAR(10 g) = 0.209 W/kg

Maximum value of SAR (measured) = 2.26 W/kg



P07 LTE 66_QPSK20M_Bottom_0mm_Ch132322_1RB_OS0_Power State_Reduction_Ant0

DUT: 190417C27

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

Medium: H16T20N1_0816 Medium parameters used: $f = 1745$ MHz; $\sigma = 1.332$ S/m; $\epsilon_r = 38.853$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(8.58, 8.58, 8.58); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (61x231x1):** Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.718 W/kg

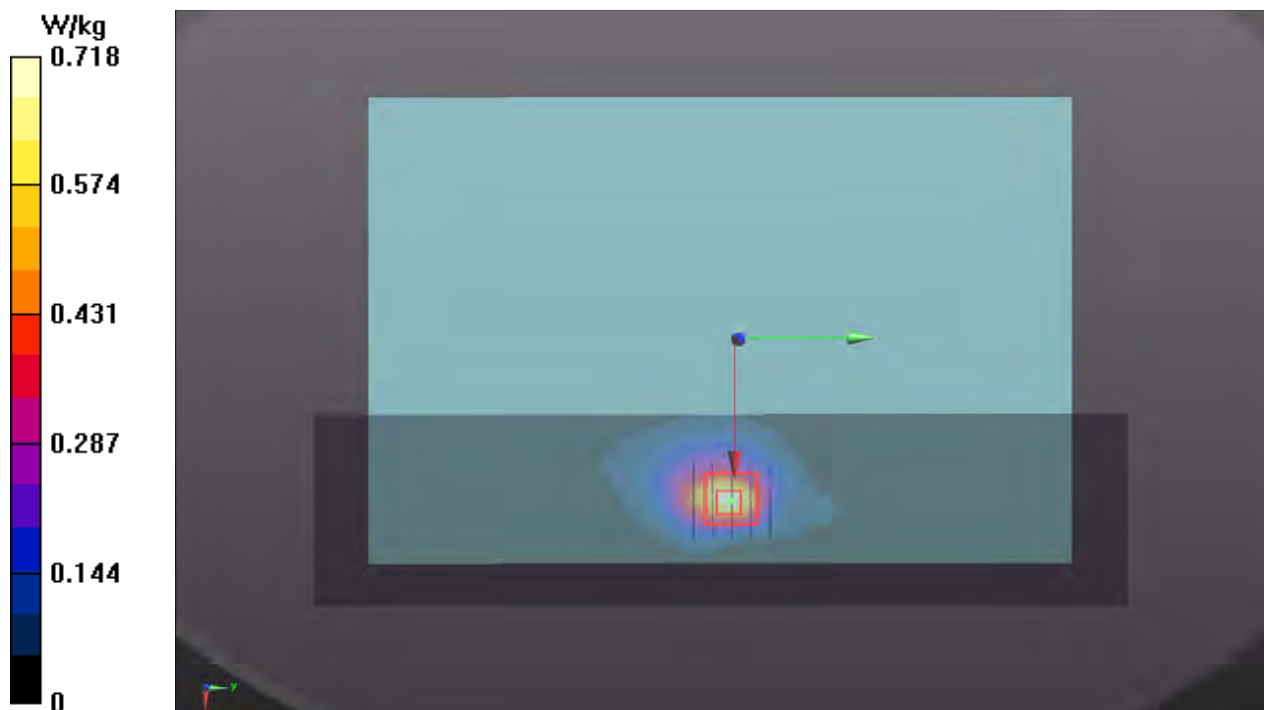
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 19.61 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.877 W/kg

SAR(1 g) = 0.465 W/kg; SAR(10 g) = 0.251 W/kg

Maximum value of SAR (measured) = 0.681 W/kg



P08 WLAN2.4G_802.11b_Bottom_0mm_Ch11_Power State_Down_Ant1_Sensor w

DUT: 190417C27

Communication System: WLAN_2.4G; Frequency: 2462 MHz; Duty Cycle: 1:1.01

Medium: H19T27N1_0830 Medium parameters used: $f = 2462$ MHz; $\sigma = 1.841$ S/m; $\epsilon_r = 38.54$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(7.64, 7.64, 7.64); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

- **Area Scan (71x291x1):** Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm
Maximum value of SAR (interpolated) = 1.12 W/kg

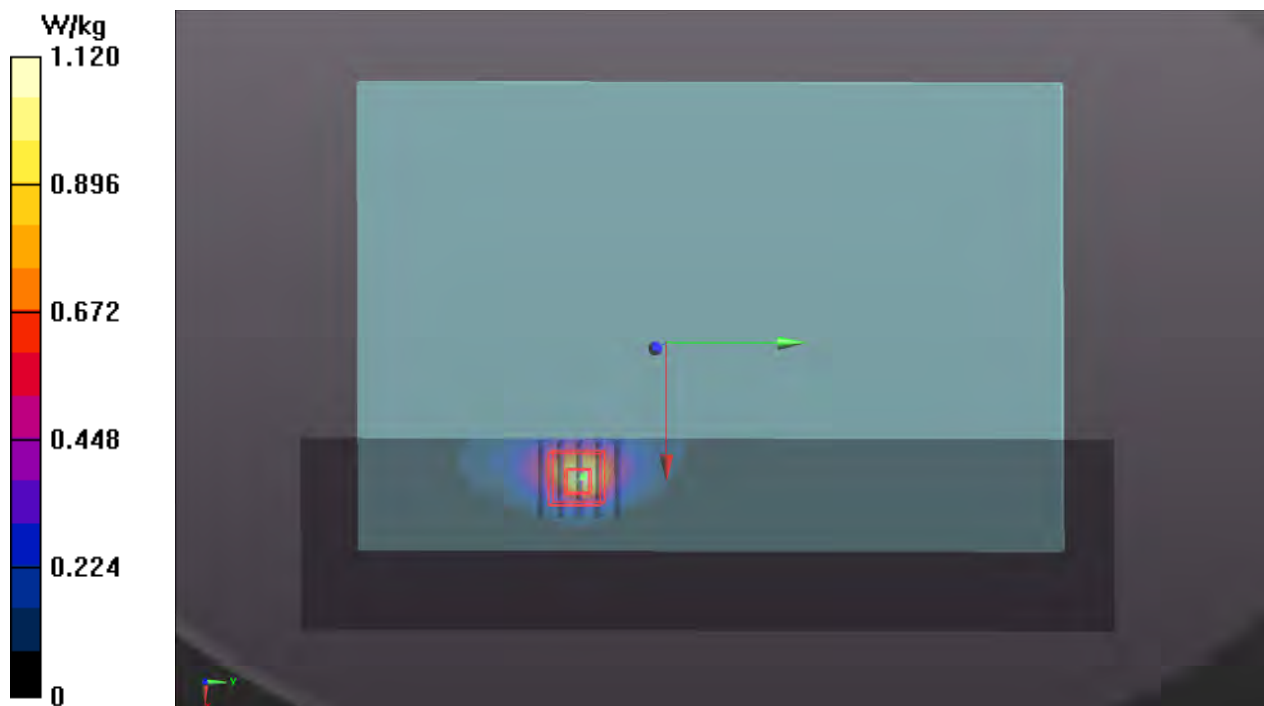
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 23.85 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.302 W/kg

Maximum value of SAR (measured) = 1.05 W/kg



**P09 WLAN5.2G_802.11ac VHT80_Bottom_18mm_Ch42_Power
State_Full_Ant0_Sensor w_o****DUT: 190417C27**

Communication System: WLAN_5G; Frequency: 5210 MHz; Duty Cycle: 1:1.12

Medium: H34T60N1_0912 Medium parameters used: $f = 5210$ MHz; $\sigma = 4.755$ S/m; $\epsilon_r = 35.164$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(5.4, 5.4, 5.4); Calibrated: 2019/05/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2019/05/08
- Phantom: ELI Phantom_1206; Type: QDOVA002AA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

- **Area Scan (81x341x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm
Maximum value of SAR (interpolated) = 0.611 W/kg

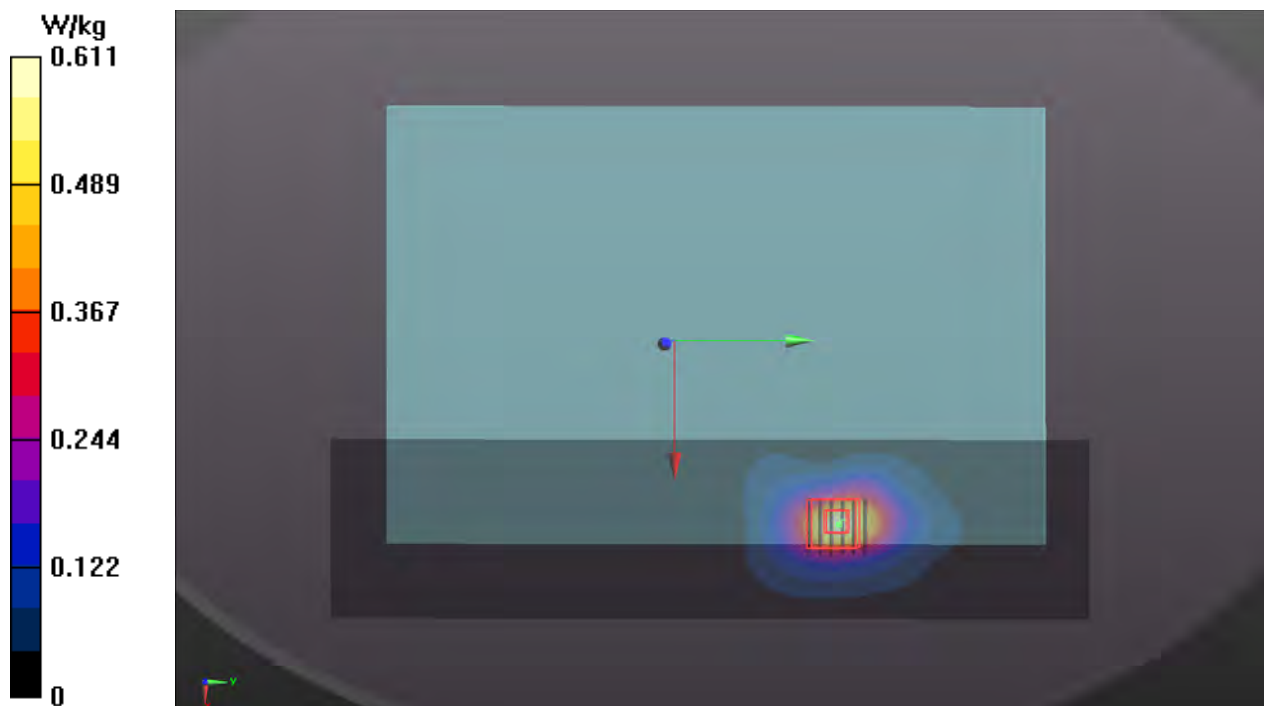
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm

Reference Value = 11.82 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.339 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.712 W/kg



**P10 WLAN5.3G_802.11ac VHT80_Bottom_18mm_Ch58_Power
State_Full_Ant0_Sensor w_o****DUT: 190417C27**

Communication System: WLAN_5G; Frequency: 5290 MHz; Duty Cycle: 1:1.12

Medium: H34T60N1_0830 Medium parameters used: $f = 5290$ MHz; $\sigma = 4.774$ S/m; $\epsilon_r = 36.92$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(5.29, 5.29, 5.29); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (81x341x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm
Maximum value of SAR (interpolated) = 1.15 W/kg

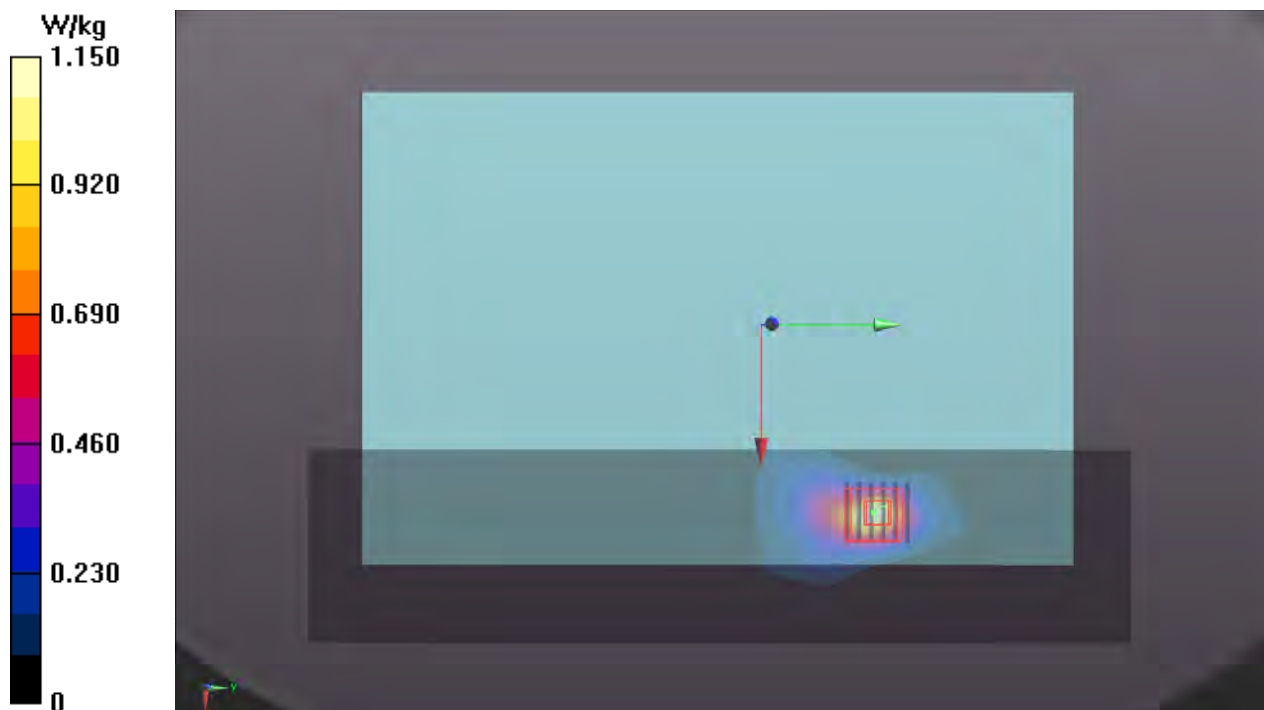
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm

Reference Value = 13.38 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.205 W/kg

Maximum value of SAR (measured) = 0.944 W/kg



P11 WLAN5.6G_802.11ac VHT80_Bottom_18mm_Ch138_Power State_Full_Ant0_Sensor w_o

DUT: 190417C27

Communication System: WLAN_5G; Frequency: 5690 MHz; Duty Cycle: 1:1.12

Medium: H34T60N1_0830 Medium parameters used: $f = 5690$ MHz; $\sigma = 5.185$ S/m; $\epsilon_r = 36.362$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(4.85, 4.85, 4.85); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (81x341x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm
Maximum value of SAR (interpolated) = 1.08 W/kg

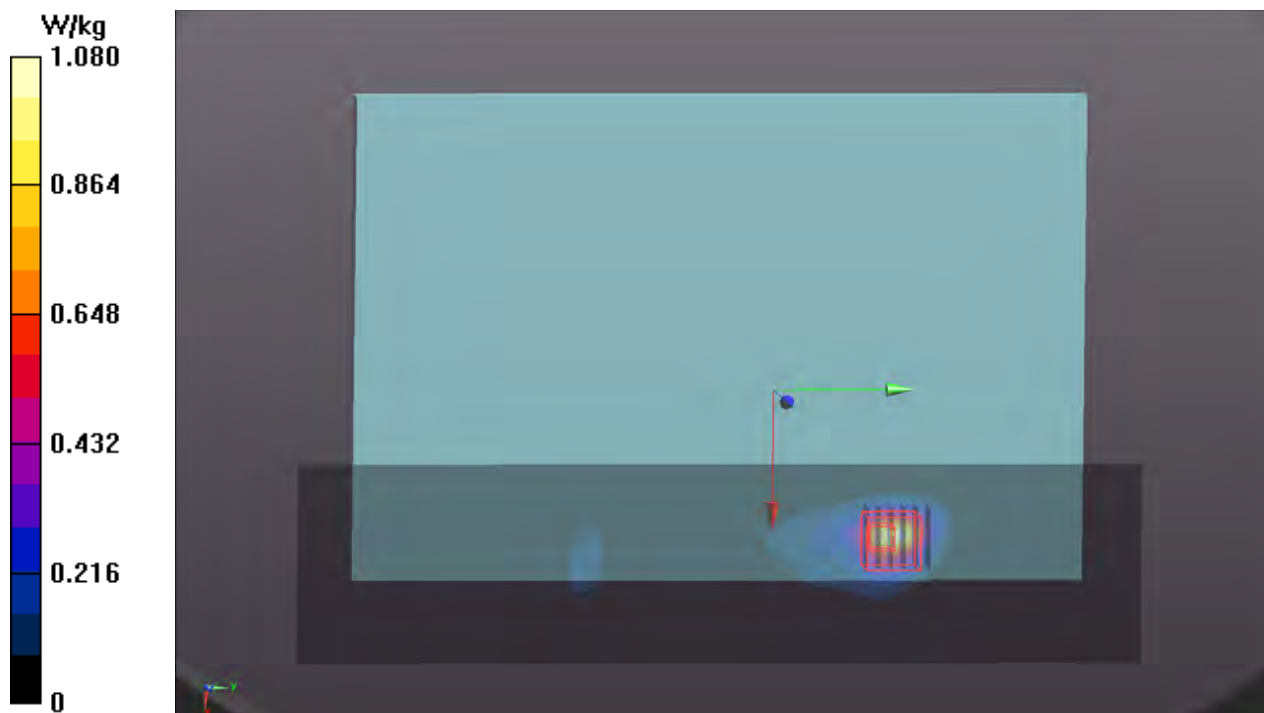
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm

Reference Value = 10.22 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.155 W/kg

Maximum value of SAR (measured) = 0.850 W/kg



P12 WLAN5.8G_802.11ac VHT80_Bottom_18mm_Ch155_Power State_Full_Ant0_Sensor w_o

DUT: 190417C27

Communication System: WLAN_5G; Frequency: 5775 MHz; Duty Cycle: 1:1.12

Medium: H34T60N1_0830 Medium parameters used: $f = 5775$ MHz; $\sigma = 5.274$ S/m; $\epsilon_r = 36.25$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(4.85, 4.85, 4.85); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (81x341x1):** Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm
Maximum value of SAR (interpolated) = 1.05 W/kg

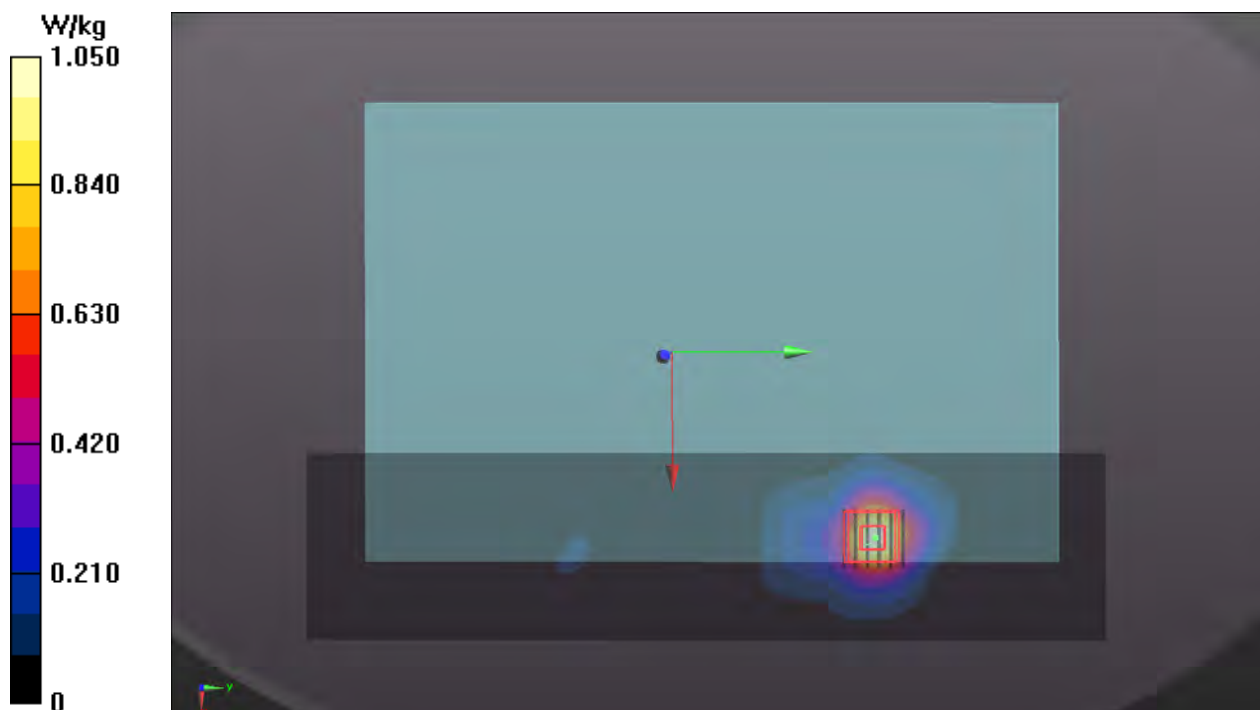
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=2$ mm

Reference Value = 12.66 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.64 W/kg

SAR(1 g) = 0.590 W/kg; SAR(10 g) = 0.226 W/kg

Maximum value of SAR (measured) = 1.15 W/kg



P13 BT_BR_Bottom_0mm_Ch78_Power State_Full_Ant0_Sensor w_o**DUT: 190417C27**

Communication System: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.29

Medium: H19T27N1_0830 Medium parameters used: $f = 2480$ MHz; $\sigma = 1.858$ S/m; $\epsilon_r = 38.47$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7375; ConvF(7.64, 7.64, 7.64); Calibrated: 2018/12/13
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2019/01/24
- Phantom: ELI Phantom_1204; Type: QDOVA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- Area Scan (71x291x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.401 W/kg

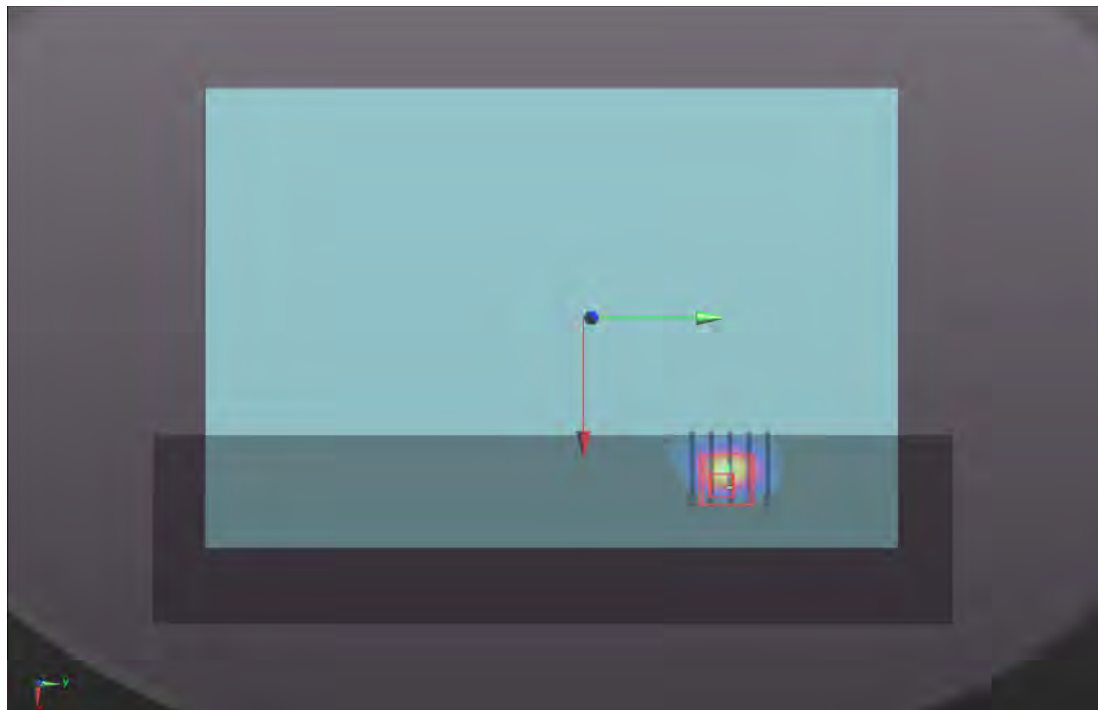
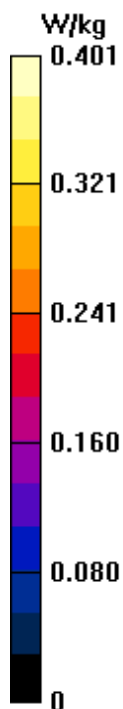
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.38 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.385 W/kg

SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.071 W/kg

Maximum value of SAR (measured) = 0.283 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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

Accreditation No.: **SCS 0108**

Client **Auden**

Certificate No: **D835V2-4d092_Jun19**

CALIBRATION CERTIFICATE

Object **D835V2 - SN:4d092**

Calibration procedure(s) **QA CAL-05.v11**
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: **June 20, 2019**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-19 (No. 217-02894)	Apr-20
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-19 (No. 217-02895)	Apr-20
Reference Probe EX3DV4	SN: 7349	29-May-19 (No. EX3-7349_May19)	May-20
DAE4	SN: 601	30-Apr-19 (No. DAE4-601_Apr19)	Apr-20
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

Calibrated by: **Manu Seitz** **Laboratory Technician**

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

Signature

Issued: June 24, 2019

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.8 $\pm$ 6 %	0.91 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.50 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.13 W/kg $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.4 $\pm$ 6 %	0.98 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	9.57 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.57 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	6.24 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.2 Ω - 1.0 j Ω
Return Loss	- 32.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω - 7.3 j Ω
Return Loss	- 21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.397 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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

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

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 20.06.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d092

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.91 \text{ S/m}$; $\epsilon_r = 41.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.89, 9.89, 9.89) @ 835 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

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

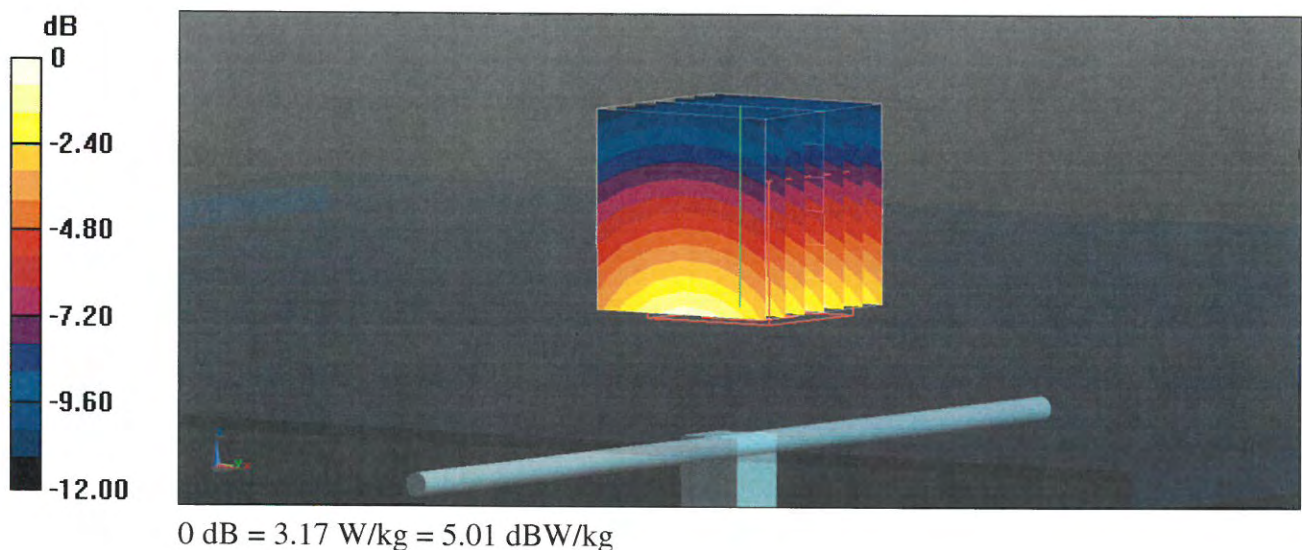
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 63.07 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.60 W/kg

SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.54 W/kg

Maximum value of SAR (measured) = 3.17 W/kg



Impedance Measurement Plot for Head TSL

