FCC SAR Test Report

Report No.	:	**SA150723N018**
Applicant	:	**Lenovo (Shanghai) Electronics Technology Co., Ltd.**
Address	:	**No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ , Shanghai , China**
Product	:	**Portable Tablet Computer**
FCC ID	:	**O57PB1750M**
Brand	:	**Lenovo**
Model No.	:	**Lenovo PB1-750M**
Standards	:	**FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1992 / IEEE 1528:2013** **KDB 865664 D01 v01r04 / KDB 865664 D02 v01r01 / KDB 248227 D01 v02r01** **KDB 447498 D01 v05r02 / KDB 616217 D04 v01r01/ KDB 648474 D04 v01r02** **KDB 941225 D01 v03 / KDB 941225 D05 v02r03**
Sample Received Date	:	**Jul. 29, 2015**
Date of Testing	:	**Aug. 10, 2015 ~ Aug. 18, 2015**

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., China Branch - Dongguan Lab**, 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 A2LA or any government agencies.

Prepared By : Amyee Qian / Engineer

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Certificate #2951.01

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Release Control Record

Report No.	Reason for Change	Date Issued
SA150723N018	Initial release	Aug. 24, 2015

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest Reported Head SAR_{1g} (W/kg)	Highest Reported Body SAR_{1g} (W/kg)
PCE	GSM850	0.13	0.22
	GSM1900	0.06	0.15
	WCDMA II	0.05	0.30
	WCDMA V	0.14	0.50
	LTE 2	0.07	0.32
	LTE 4	0.06	0.67
	LTE 7	0.75	0.29
DTS	2.4G WLAN	0.56	1.02
NII	5.2G WLAN	0.14	1.15
	5.8G WLAN	0.09	0.90
DSS	Bluetooth	N/A	N/A
Highest Simultaneous Transmission SAR		Head (W/kg)	Body (W/kg)
PCE + DTS		0.94	1.50
PCE + NII		0.77	1.55
PCE + DSS		N/A	0.74

Note:

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

2. Description of Equipment Under Test

EUT Type	Portable Tablet Computer
FCC ID	O57PB1750M
Brand Name	Lenovo
Model Name	Lenovo PB1-750M
HW Version	LenovoPad PB1-750M
SW Version	PB1-750M_150717
EUT Configurations	EUT 1 : LCD Panel 1 + Front Camera 1 + Rear Camera 1 + Main Broad 1 + eMCP 1 (2G) EUT 2 : LCD Panel 2 + Front Camera 2 + Rear Camera 2 + Main Broad 2 + eMCP 2 (1G)
Tx Frequency Bands (Unit: MHz)	GSM850 : 824.2 ~ 848.8 GSM1900 : 1850.2 ~ 1909.8 WCDMA Band II : 1852.4 ~ 1907.6 WCDMA Band V : 826.4 ~ 846.6 LTE Band 2 : 1850.7 ~ 1909.3 (1.4M), 1851.5 ~ 1908.5 (3M), 1852.5 ~ 1907.5 (5M), 1855 ~ 1905 (10M), 1857.5 ~ 1902.5 (15M), 1860 ~ 1900 (20M) LTE Band 4 : 1710.7 ~ 1754.3 (1.4M), 1711.5 ~ 1753.5 (3M), 1712.5 ~ 1752.5 (5M), 1715 ~ 1750 (10M), 1717.5 ~ 1747.5 (15M), 1720 ~ 1745 (20M) LTE Band 7 : 2502.5 ~ 2567.5 (5M), 2505 ~ 2565 (10M), 2507.5 ~ 2562.5 (15M), 2510 ~ 2560 (20M) WLAN : 2412 ~ 2462, 5180 ~ 5240, 5745 ~ 5825 Bluetooth : 2402 ~ 2480
Uplink Modulations	GSM & GPRS : GMSK EDGE : 8PSK WCDMA : QPSK LTE : QPSK, 16QAM 802.11b : DSSS 802.11a/g/n : OFDM Bluetooth : GFSK, 8-DPSK, LE
Maximum Tune-up Conducted Power (Unit: dBm)	GSM850 : 33.5 GSM1900 : 31.0 WCDMA Band II : 23.5 WCDMA Band V : 23.0 LTE Band 2 : 24.0 LTE Band 4 : 24.0 LTE Band 7 : 23.0 WLAN 2.4G : 15.0 WLAN 5.2G : 10.0 WLAN 5.8G : 10.5 Bluetooth : 2.0
Antenna Type	Fixed Internal Antenna
EUT Stage	Identical Prototype

Note:

1. 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 1	**Brand Name**	Lenovo(Sunwoda)
	Model Name	L15D1P32
	Power Rating	3.8Vdc, 4250mAh
	Type	Li-Polymer
Battery 2	**Brand Name**	Lenovo (SCUD)
	Model Name	L15D1P32
	Power Rating	3.8Vdc, 4250mAh
	Type	Li-Polymer
LCD Panel 1	**Brand Name**	BOE
	Model Name	TV070HDM
LCD Panel 2	**Brand Name**	DSBJ
	Model Name	DO0700HHF00
Front Camera 1	**Brand Name**	O-film
	Model Name	L545F00
Front Camera 2	**Brand Name**	AVC
	Model Name	CPLBF05003
Rear Camera 1	**Brand Name**	Sunny
	Model Name	F13V01L
Rear Camera 2	**Brand Name**	Qtech
	Model Name	ECM13M0166QF
Main Broad 1	**Brand Name**	Chinabuilder
	Model Name	08B05112C
Main Broad 2	**Brand Name**	js-huashen
	Model Name	82AD005A0
eMCP 1(2G)	**Brand Name**	Samsung
	Model Name	KMR820001M-B609
	Capacity	2G+16G
eMCP 1(1G)	**Brand Name**	Samsung
	Model Name	KMQ82000SM-B418
	Capacity	1G+16G
eMCP 2(2G)	**Brand Name**	Hynix
	Model Name	H9TQ17A8GTMCUR-KUM
	Capacity	1G+16G

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:

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

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be related to the electrical field in the tissue by

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

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

3.2 SPEAG DASY System

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

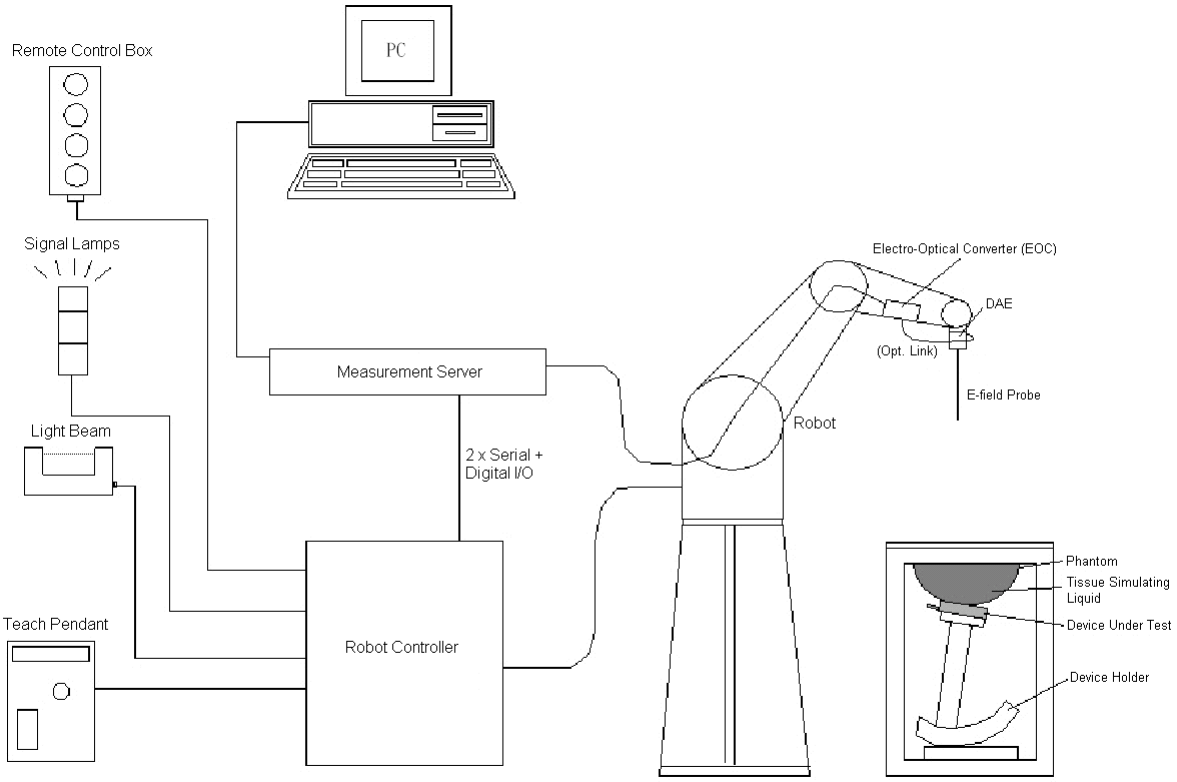


Fig-3.1 DASY System Setup

3.2.1 Robot

The DASY system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

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

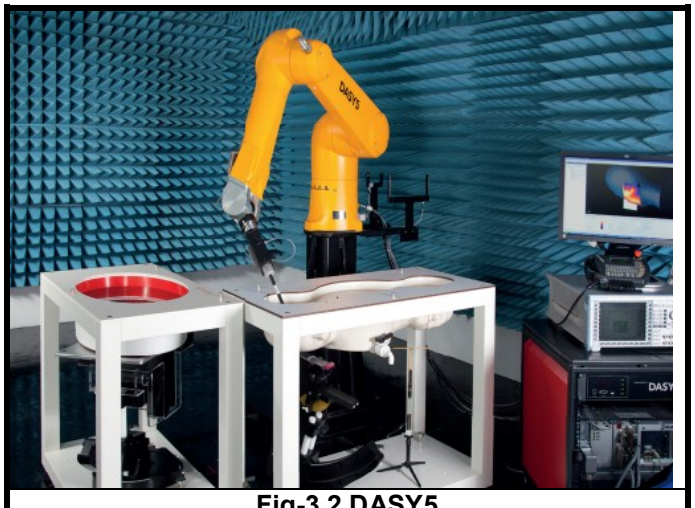


Fig-3.2 DASY5

3.2.2 Probes

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

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

Model	ES3DV3
Construction	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
Frequency	10 MHz to 4 GHz Linearity: ± 0.2 dB
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 µW/g to 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm

3.2.3 Data Acquisition Electronics (DAE)

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

3.2.4 Phantoms

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

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

3.2.5 Device Holder

Model	Mounting Device	
Construction	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	POM	

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

3.2.6 System Validation Dipoles

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

3.2.7 Tissue Simulating Liquids

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

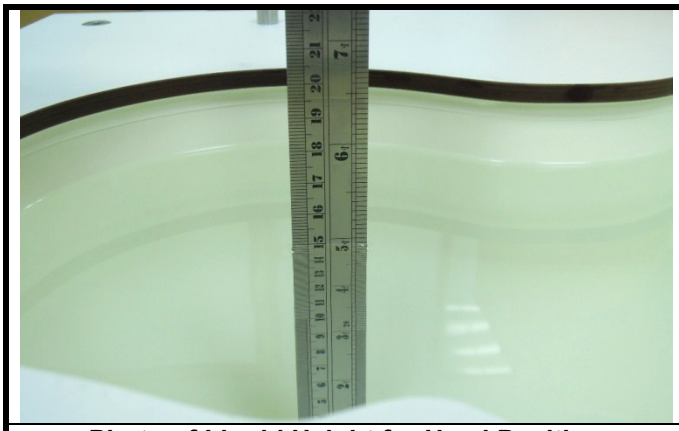
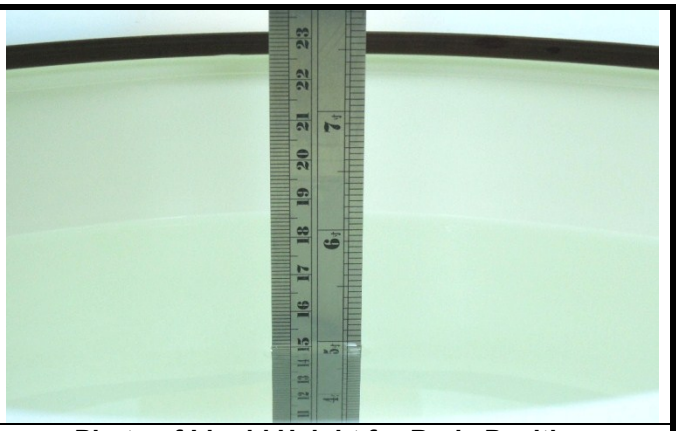
	

Photo of Liquid Height for Head Position	**Photo of Liquid Height for Body Position**

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

Table-3.1 Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of ±5%	Target Conductivity	Range of ±5%
For Head				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
3500	37.9	36.0 ~ 39.8	2.91	2.76 ~ 3.06
5200	36.0	34.2 ~ 37.8	4.66	4.43 ~ 4.89
5300	35.9	34.1 ~ 37.7	4.76	4.52 ~ 5.00
5500	35.6	33.8 ~ 37.4	4.96	4.71 ~ 5.21
5600	35.5	33.7 ~ 37.3	5.07	4.82 ~ 5.32
5800	35.3	33.5 ~ 37.1	5.27	5.01 ~ 5.53
For Body				
750	55.5	52.7 ~ 58.3	0.96	0.91 ~ 1.01
835	55.2	52.4 ~ 58.0	0.97	0.92 ~ 1.02
900	55.0	52.3 ~ 57.8	1.05	1.00 ~ 1.10
1450	54.0	51.3 ~ 56.7	1.30	1.24 ~ 1.37
1640	53.8	51.1 ~ 56.5	1.40	1.33 ~ 1.47
1750	53.4	50.7 ~ 56.1	1.49	1.42 ~ 1.56
1800	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
1900	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2000	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2300	52.9	50.3 ~ 55.5	1.81	1.72 ~ 1.90
2450	52.7	50.1 ~ 55.3	1.95	1.85 ~ 2.05
2600	52.5	49.9 ~ 55.1	2.16	2.05 ~ 2.27
3500	51.3	48.7 ~ 53.9	3.31	3.14 ~ 3.48
5200	49.0	46.6 ~ 51.5	5.30	5.04 ~ 5.57
5300	48.9	46.5 ~ 51.3	5.42	5.15 ~ 5.69
5500	48.6	46.2 ~ 51.0	5.65	5.37 ~ 5.93
5600	48.5	46.1 ~ 50.9	5.77	5.48 ~ 6.06
5800	48.2	45.8 ~ 50.6	6.00	5.70 ~ 6.30

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
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	31.0	-	0.2	-	-	68.8	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-
B3500	-	28.8	-	0.1	-	-	71.1	-
B5G	-	-	-	-	-	10.7	78.6	10.7

3.3 SAR System Verification

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

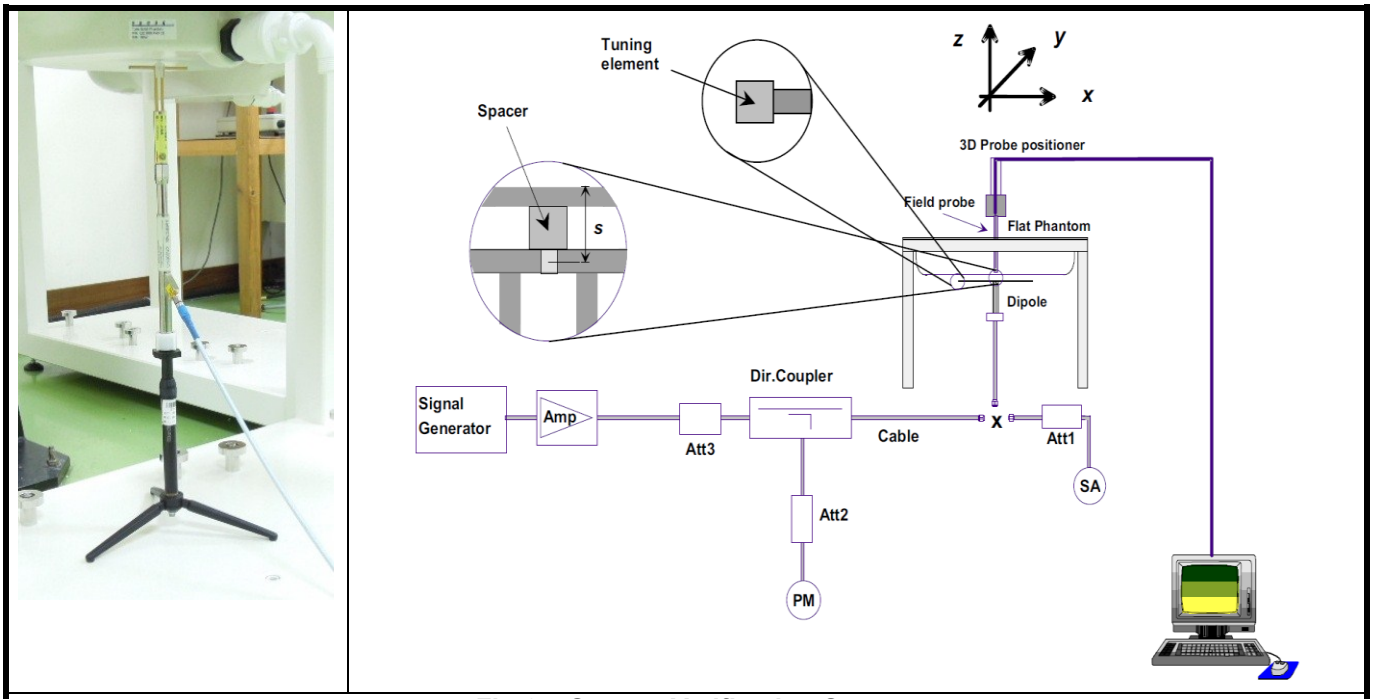


Fig-3.4 System Verification Setup

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

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

3.4 SAR Measurement Procedure

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

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

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

(a) Make EUT to transmit maximum output power
(b) Measure conducted output power through RF cable
(c) Place the EUT in the specific position of phantom
(d) Perform SAR testing steps on the DASY system
(e) Record the SAR value

3.4.1 Area & Zoom Scan Procedure

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

Items	<= 2 GHz	2-3 GHz	3-4 GHz	4-5 GHz	5-6 GHz
Area Scan (Δx, Δy)	<= 15 mm	<= 12 mm	<= 12 mm	<= 10 mm	<= 10 mm
Zoom Scan (Δx, Δy)	<= 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 Δx / Δy (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 form 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 Up and Down two proximity sensors at the top and bottom of the EUT, the Up proximity sensor only can trigger/not trigger power reduction for LTE band 7 on Rear Face, Left Side and Top Side and the Down proximity sensors for all other WWAN bands on Rear Face,Left Side, and Bottom Side of EUT for SAR compliance. Others RF capability (WLAN and 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.

Up Proximity Sensor

According to the procedures noticed in KDB 616217 D04, the Up proximity sensor triggering distance is 16 mm for EUT Rear Face, Top Side and 14 mm for Left Side. The separation distance of 16 mm determined by the smallest triggering distance on Top Side and 14 mm determined by the smallest triggering distance on Left Side is used to access the tilt angle influence and the sensor does not release during ±45 degree. Therefore, the smallest separation distance for tilt angle influence is 14 mm for the Left Side and 16 mm for the Top Side. The details can be found in technical document. 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 15 mm for EUT Rear Face, Top Side and 13 mm for Left Side is used to test SAR.

Down Proximity Sensor

According to the procedures noticed in KDB 616217 D04, the Down proximity sensor triggering distance is 16 mm for EUT Rear Face, Bottom Side and 14 mm for Left Side. The separation distance of 16 mm determined by the smallest triggering distance on Bottom Side and 14 mm determined by the smallest triggering distance on Left Side is used to access the tilt angle influence and the sensor does not release during ±45 degree. Therefore, the smallest separation distance for tilt angle influence is 14mm for the Left Side and 16 mm for the Bottom Side. The details can be found in technical document. 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 15 mm for EUT Rear Face, Bottom Side and 13 mm for Left Side is 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.

<Connections between EUT and System Simulator>

For WWAN SAR testing, the EUT was linked and controlled by base station emulator (Agilent E5515C is used for GSM/WCDMA/CDMA, and Anritsu MT8820C is used for LTE). Communication between the EUT and the emulator was established by air link. The distance between the EUT and the communicating antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during SAR testing.

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

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

1. This EUT is class B device
2. This EUT supports GPRS multi-slot class 33 (max. uplink: 4, max. downlink: 5, total timeslots: 6)
3. This EUT supports EDGE multi-slot class 33 (max. uplink: 4, max. downlink: 5, total timeslots: 6)

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

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

<Considerations Related to WCDMA for Setup and Testing>

WCDMA Handsets Head SAR

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

Handsets with Release 5 HSDPA

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

Handsets with Release 6 HSUPA

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

<Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, is category 3, supports both QPSK and 16QAM modulations, and supported LTE band and channel bandwidth is listed in below. The output power was tested per 3GPP TS 36.521-1 maximum transmit procedures for both QPSK and 16QAM 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
7			V	V	V	V

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

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

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

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

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

<Considerations Related to WLAN for Setup and Testing>

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

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

Initial Test Configuration

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

Subsequent Test Configuration

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

SAR Test Configuration and Channel Selection

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

1) The channel closest to mid-band frequency is selected for SAR measurement.

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

4.2 EUT Testing Position

Since this tablet has receiver and it can be used in close proximity to the ear as handset. According to technical standards, this tablet was tested for SAR compliance in head described in the following subsections.

4.2.1 Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2003 using the SAM phantom illustrated as below.

1. Define two imaginary lines on the handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

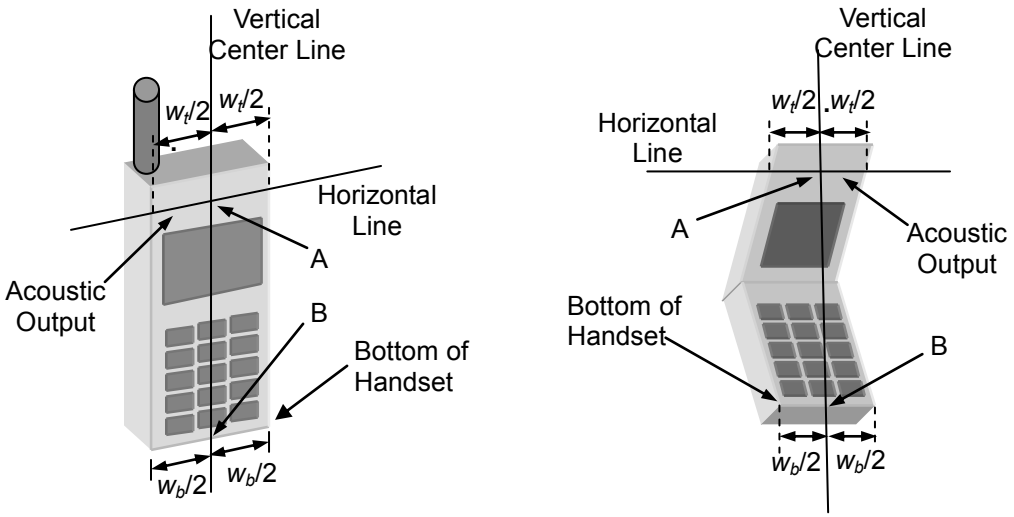


Fig-4.1 Illustration for Handset Vertical and Horizontal Reference Lines

2. Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig-4.2).

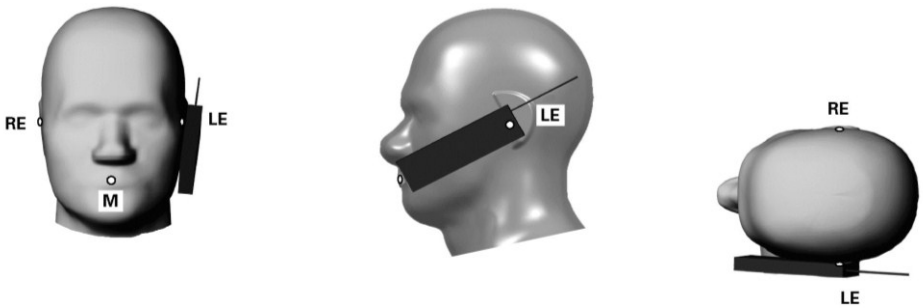


Fig-4.2 Illustration for Cheek Position

3. Tilted Position

(a) To position the device in the “cheek” position described above.

(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig-4.3).

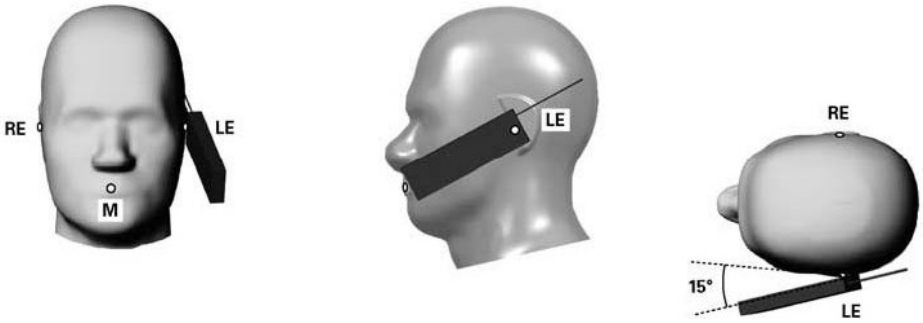


Fig-4.3 Illustration for Tilted Position

4.2.2 Body Exposure Conditions

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

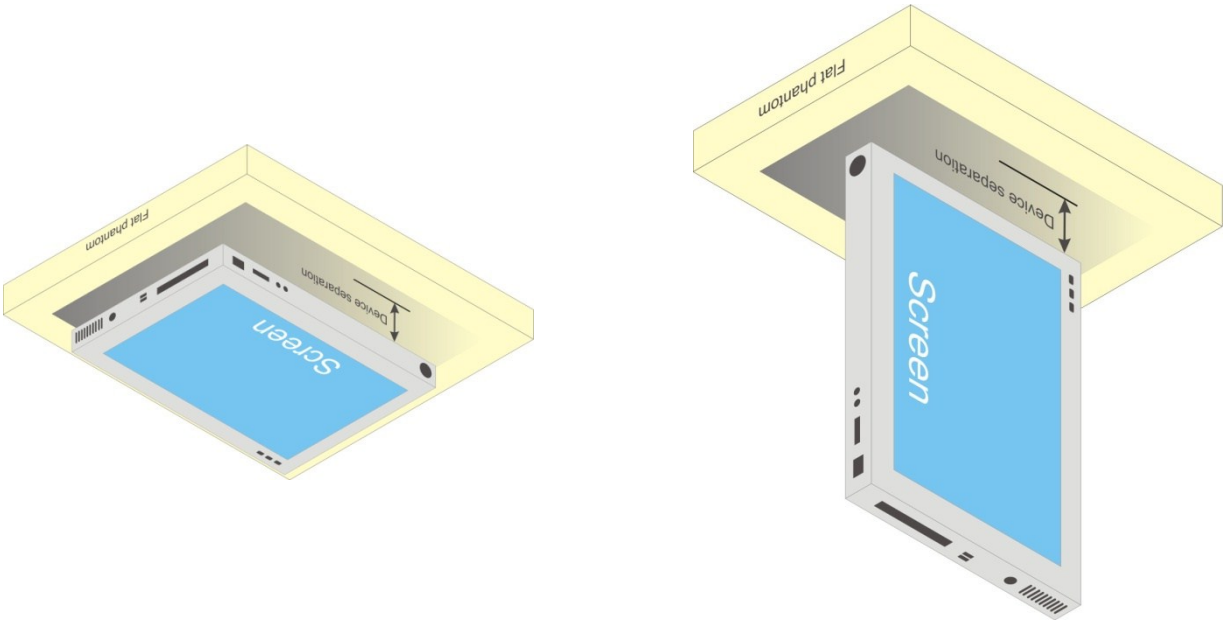


Fig-4.4 Illustration for Tablet Setup

4.2.3 SAR Test Exclusion Evaluations

According to KDB 447498 D01, the SAR test exclusion condition is based on source-based time-averaged maximum conducted output power, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The SAR exclusion threshold is determined by the following formula.

1. For the test separation distance <= 50 mm

$$\frac{\text{Max. Tune up Power}_{(mW)}}{\text{Min. Test Separation Distance}_{(mm)}} \times \sqrt{f_{(GHz)}} \leq 3.0 \text{ for SAR-1g, } \leq 7.5 \text{ for SAR-10g}$$

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

2. For the test separation distance > 50 mm, and the frequency at 100 MHz to 1500 MHz

$$\left[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50\text{ mm}) \times \left(\frac{f_{(MHz)}}{150}\right)\right]_{(mW)}$$

3. For the test separation distance > 50 mm, and the frequency at > 1500 MHz to 6 GHz

$$[(\text{Threshold at 50 mm in Step 1}) + (\text{Test Separation Distance} - 50\text{ mm}) \times 10]_{(mW)}$$

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face			Top Side			Bottom Side			Left Side			Right Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
GSM 850	24.5	281.8	5	51.9	YES	176	876 mW	No	5	51.9	YES	5	51.9	YES	62	231 mW	YES
GSM 1900	22.0	158.5	5	43.8	YES	176	1369 mW	No	5	43.8	YES	5	43.8	YES	62	229 mW	No
WCDMA II	23.5	223.9	5	61.8	YES	176	1369 mW	No	5	61.8	YES	5	61.8	YES	62	229 mW	No
WCDMA V	23.0	199.5	5	36.7	YES	176	874 mW	No	5	36.7	YES	5	36.7	YES	62	231 mW	No
LTE 2	24.0	251.2	5	69.4	YES	176	1369 mW	No	5	69.4	YES	5	69.4	YES	62	229 mW	YES
LTE 4	24.0	251.2	5	66.5	YES	176	1373 mW	No	5	66.5	YES	5	66.5	YES	62	233 mW	YES
LTE 7	23.0	199.5	5	63.8	YES	5	63.8	YES	164	1234 mW	No	5	63.8	YES	70	294 mW	No
WLAN 2.4G	15.0	31.6	5	9.9	YES	7	7.1	YES	154	1136 mW	No	90	496 mW	No	5	9.9	YES
WLAN 5.2G	10.0	10.0	5	4.6	YES	7	3.3	YES	154	1106 mW	No	90	466 mW	No	5	4.6	YES
WLAN 5.8G	10.5	11.2	5	5.4	YES	7	3.9	YES	154	1102 mW	No	90	462 mW	No	5	5.4	YES
BT	2.0	1.6	5	0.5	No	7	0.4	No	154	1135 mW	No	90	495 mW	No	5	0.5	No

Note:

1. When separation distance <= 50 mm and the calculated result shown in above table is <= 3.0 for SAR-1g exposure condition, or <= 7.5 for SAR-10g exposure condition, the SAR testing exclusion is applied.
2. When separation distance > 50 mm and the device output power is less than the calculated result (power threshold, mW) shown in above table, the SAR testing exclusion is applied.
3. Since GSM has multi-slot operation, the maximum tune-up power shown in above table for GSM is source-based time-averaged maximum power.

4.2.4 Simultaneous Transmission Possibilities

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

Simultaneous TX Combination	Capable Transmit Configurations	Head (Voice / VoIP)	Body Exposure Condition
1	GSM850 (Voice / Data) + WLAN (Data)	Yes	Yes
2	GSM1900 (Voice / Data) + WLAN (Data)	Yes	Yes
3	WCDMA II (Voice / Data) + WLAN (Data)	Yes	Yes
4	WCDMA V (Voice / Data) + WLAN (Data)	Yes	Yes
5	LTE 2 (Data) + WLAN (Data)	Yes	Yes
6	LTE 4 (Data) + WLAN (Data)	Yes	Yes
7	LTE 7 (Data) + WLAN (Data)	Yes	Yes
8	GSM850 (Voice / Data) + BT (Data)	No	Yes
9	GSM1900 (Voice / Data) + BT (Data)	No	Yes
10	WCDMA II (Voice / Data) + BT (Data)	No	Yes
11	WCDMA V (Voice / Data) + BT (Data)	No	Yes
12	LTE 2 (Data) + BT (Data)	No	Yes
13	LTE 4 (Data) + BT (Data)	No	Yes
14	LTE 7 (Data) + BT (Data)	No	Yes

Note :

1. The 2.4G WLAN and 5G WLAN cannot transmit simultaneously.
2. The WLAN and Bluetooth cannot transmit simultaneously, so there is no co-location test requirement for WLAN and Bluetooth.
3. The WWAN antenna-0 and antenna-1 cannot transmit simultaneously.

4.3 Tissue Verification

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

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Aug. 11,2015	H835	835	20.6	0.916	42.748	0.90	41.50	1.78	3.01
Aug. 12,2015	H1750	1750	20.7	1.335	41.503	1.37	40.10	-2.55	3.50
Aug. 11,2015	H1900	1900	20.9	1.413	41.330	1.40	40.00	0.93	3.33
Aug. 12,2015	H1900	1900	20.8	1.442	39.907	1.40	40.00	3.00	-0.23
Aug. 10,2015	H2450	2450	20.8	1.870	39.584	1.80	39.20	3.89	0.98
Aug. 10,2015	H2600	2600	20.9	1.987	37.616	1.96	39.00	1.38	-3.55
Aug. 18,2015	H5G	5200	20.8	4.670	36.483	4.66	36.00	0.21	1.34
Aug. 18,2015	H5G	5800	20.8	5.273	35.577	5.27	35.30	0.06	0.78
Aug. 13,2015	B835	835	20.7	0.980	57.348	0.97	55.20	1.03	3.89
Aug. 14,2015	B1750	1750	20.9	1.479	52.249	1.49	53.40	-0.74	-2.16
Aug. 13,2015	B1900	1900	20.9	1.551	52.998	1.52	53.30	2.04	-0.57
Aug. 14,2015	B1900	1900	20.9	1.488	52.438	1.52	53.30	-2.11	-1.62
Aug. 12,2015	B2450	2450	21.2	1.929	51.582	1.95	52.70	-1.08	-2.12
Aug. 14,2015	B2600	2600	21.3	2.211	52.397	2.16	52.50	2.36	-0.20
Aug. 17,2015	B5G	5200	21.1	5.208	50.972	5.30	49.00	-1.74	4.02
Aug. 17,2015	B5G	5800	21.1	6.185	49.782	6.00	48.20	3.08	3.28

Note:

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ±5% of the target values. Liquid temperature during the SAR testing must be within ±2 ℃.

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. 11,2015	3873	Head	835	0.916	42.748	Pass	Pass	Pass	GMSK	Pass	N/A
Aug. 12,2015	3873	Head	1750	1.335	41.503	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 11,2015	3873	Head	1900	1.413	41.330	Pass	Pass	Pass	GMSK	Pass	N/A
Aug. 12,2015	3873	Head	1900	1.442	39.907	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 10,2015	3873	Head	2450	1.870	39.584	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 10,2015	3873	Head	2600	1.987	37.616	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 18,2015	3753	Head	5200	4.670	36.483	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 18,2015	3753	Head	5800	5.273	35.577	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 13,2015	3873	Body	835	0.980	57.348	Pass	Pass	Pass	GMSK	Pass	N/A
Aug. 14,2015	3753	Body	1750	1.479	52.249	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 13,2015	3753	Body	1900	1.551	52.998	Pass	Pass	Pass	GMSK	Pass	N/A
Aug. 14,2015	3753	Body	1900	1.488	52.438	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 12,2015	3873	Body	2450	1.929	51.582	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 14,2015	3753	Body	2600	2.211	52.397	Pass	Pass	Pass	N/A	N/A	N/A
Aug. 17,2015	3753	Body	5200	5.208	50.972	Pass	Pass	Pass	OFDM	N/A	Pass
Aug. 17,2015	3753	Body	5800	6.185	49.782	Pass	Pass	Pass	OFDM	N/A	Pass

4.5 System Verification

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Aug. 11,2015	Head	835	9.52	2.30	9.20	-3.36	4d139	3873	1341
Aug. 12,2015	Head	1750	36.90	9.32	37.28	1.03	1071	3873	1341
Aug. 11,2015	Head	1900	40.10	10.10	40.40	0.75	5d159	3873	1341
Aug. 12,2015	Head	1900	40.10	10.30	41.20	2.74	5d159	3873	1341
Aug. 10,2015	Head	2450	53.30	14.10	56.40	5.82	893	3873	1341
Aug. 10,2015	Head	2600	57.20	14.40	57.60	0.70	1058	3873	1341
Aug. 18,2015	Head	5200	77.20	8.30	83.00	7.51	1133	3753	913
Aug. 18,2015	Head	5800	80.30	7.95	79.50	-1.00	1133	3753	913
Aug. 13,2015	Body	835	9.53	2.38	9.52	-0.10	4d139	3873	1341
Aug. 14,2015	Body	1750	39.00	9.81	39.24	0.62	1071	3753	913
Aug. 13,2015	Body	1900	41.10	9.55	38.20	-7.06	5d159	3753	913
Aug. 14,2015	Body	1900	41.10	9.96	39.84	-3.07	5d159	3753	913
Aug. 12,2015	Body	2450	50.80	12.80	51.20	0.79	893	3873	1341
Aug. 14,2015	Body	2600	56.80	15.30	61.20	7.75	1058	3753	913
Aug. 17,2015	Body	5200	73.60	7.87	78.70	6.93	1133	3753	913
Aug. 17,2015	Body	5800	74.00	7.41	74.10	0.14	1133	3753	913

Note:

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

4.6 Maximum Output Power

4.6.1 Maximum Conducted Power

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

Mode	GSM850 (without Power Reduction)	GSM850 (with Power Reduction)	Power Reduction (dB)
GSM (GMSK, 1Tx-slot)	33.5	24.0	9.5
GPRS (GMSK, 1Tx-slot)	33.5	24.0	9.5
GPRS (GMSK, 2Tx-slot)	30.5	20.5	10.0
GPRS (GMSK, 3Tx-slot)	28.0	19.0	9.0
GPRS (GMSK, 4Tx-slot)	27.0	18.0	9.0
EDGE (8PSK, 1Tx-slot)	27.5	24.0	3.5
EDGE (8PSK, 2Tx-slot)	26.0	21.0	5.0
EDGE (8PSK, 3Tx-slot)	24.0	19.0	5.0
EDGE (8PSK, 4Tx-slot)	22.0	18.0	4.0
Mode	**GSM1900 (without Power Reduction)**	**GSM1900 (with Power Reduction)**	**Power Reduction (dB)**
GSM (GMSK, 1Tx-slot)	31.0	22.0	9.0
GPRS (GMSK, 1Tx-slot)	31.0	22.0	9.0
GPRS (GMSK, 2Tx-slot)	27.5	21.0	6.5
GPRS (GMSK, 3Tx-slot)	26.0	19.0	7.0
GPRS (GMSK, 4Tx-slot)	25.0	19.0	6.0
EDGE (8PSK, 1Tx-slot)	27.0	22.0	5.0
EDGE (8PSK, 2Tx-slot)	25.0	21.0	4.0
EDGE (8PSK, 3Tx-slot)	23.5	19.0	4.5
EDGE (8PSK, 4Tx-slot)	21.5	18.5	3.0

Mode	WCDMA Band II (without Power Reduction)	WCDMA Band II (with Power Reduction)	Power Reduction (dB)
RMC 12.2K	23.5	18.0	5.5
HSDPA	22.5	17.0	5.5
HSUPA	22.5	16.5	6.0

Mode	WCDMA Band V (without Power Reduction)	WCDMA Band V (with Power Reduction)	Power Reduction (dB)
RMC 12.2K	23.0	20.5	2.5
HSDPA	22.5	19.5	3.0
HSUPA	22.0	19.5	2.5

Mode	LTE 2 (without Power Reduction)	LTE 2 (with Power Reduction)	Power Reduction (dB)
QPSK / 16QAM	24.0	18.0	6.0

Mode	LTE 4 (without Power Reduction)	LTE 4 (with Power Reduction)	Power Reduction (dB)
QPSK / 16QAM	24.0	18.0	6.0

Mode	LTE 7 (without Power Reduction)	LTE 7 (with Power Reduction)	Power Reduction (dB)
QPSK / 16QAM	23.0	17.0	6.0

Mode	2.4G WLAN	5.2G WLAN	5.8G WLAN
802.11b	15.0	N/A	N/A
802.11g	12.0	N/A	N/A
802.11a	N/A	10.0	10.5
802.11n HT20	12.0	10.0	10.5
802.11n HT40	10.0	9.5	10.0

Mode	2.4G Bluetooth
GFSK	2.0
8-DPSK	-0.5
LE	2.0

4.6.2 Measured Conducted Power Result

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

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
EUT without Power Reduction (P-Sensor NOT Triggered)						
Maximum Burst-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	33.22	**33.29**	33.27	30.29	30.53	**30.54**
GPRS (GMSK, 1Tx-slot)	33.19	33.05	33.08	30.20	30.48	30.53
GPRS (GMSK, 2Tx-slot)	30.35	30.21	30.27	26.99	27.15	27.05
GPRS (GMSK, 3Tx-slot)	27.86	27.79	27.84	25.22	25.47	25.39
GPRS (GMSK, 4Tx-slot)	26.71	26.71	26.65	24.39	24.55	24.56
EDGE (8PSK, 1Tx-slot)	27.26	27.21	27.15	26.43	26.46	26.44
EDGE (8PSK, 2Tx-slot)	25.49	25.37	25.76	24.71	24.71	24.78
EDGE (8PSK, 3Tx-slot)	23.64	23.51	23.52	22.87	22.88	22.94
EDGE (8PSK, 4Tx-slot)	21.37	21.34	21.26	20.79	20.82	20.85
Maximum Frame-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	24.22	24.29	24.27	21.29	21.53	21.54
GPRS (GMSK, 1Tx-slot)	24.19	24.05	24.08	21.20	21.48	21.53
GPRS (GMSK, 2Tx-slot)	**24.35**	24.21	24.27	20.99	21.15	21.05
GPRS (GMSK, 3Tx-slot)	23.60	23.53	23.58	20.96	21.21	21.13
GPRS (GMSK, 4Tx-slot)	23.71	23.71	23.65	21.39	21.55	**21.56**
EDGE (8PSK, 1Tx-slot)	18.26	18.21	18.15	17.43	17.46	17.44
EDGE (8PSK, 2Tx-slot)	19.49	19.37	19.76	18.71	18.71	18.78
EDGE (8PSK, 3Tx-slot)	19.38	19.25	19.26	18.61	18.62	18.68
EDGE (8PSK, 4Tx-slot)	18.37	18.34	18.26	17.79	17.82	17.85

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
EUT with Power Reduction (P-Sensor Triggered)						
Maximum Burst-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	23.45	23.57	**23.58**	21.38	21.44	**21.46**
GPRS (GMSK, 1Tx-slot)	23.29	23.39	23.56	21.33	21.41	21.38
GPRS (GMSK, 2Tx-slot)	20.01	20.11	20.28	20.28	20.32	20.42
GPRS (GMSK, 3Tx-slot)	18.11	18.12	18.31	18.30	18.36	18.38
GPRS (GMSK, 4Tx-slot)	17.52	17.51	17.64	18.24	18.23	18.34
EDGE (8PSK, 1Tx-slot)	23.39	23.43	23.44	21.25	21.20	21.33
EDGE (8PSK, 2Tx-slot)	20.17	20.20	20.33	20.11	20.15	20.16
EDGE (8PSK, 3Tx-slot)	18.31	18.35	18.44	18.44	18.58	18.59
EDGE (8PSK, 4Tx-slot)	17.40	17.34	17.37	17.86	17.96	18.00
Maximum Frame-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	14.45	14.57	14.58	12.38	12.44	12.46
GPRS (GMSK, 1Tx-slot)	14.29	14.39	14.56	12.33	12.41	12.38
GPRS (GMSK, 2Tx-slot)	14.01	14.11	14.28	14.28	14.32	14.42
GPRS (GMSK, 3Tx-slot)	13.85	13.86	14.05	14.04	14.10	14.12
GPRS (GMSK, 4Tx-slot)	14.52	14.51	**14.64**	15.24	15.23	**15.34**
EDGE (8PSK, 1Tx-slot)	14.39	14.43	14.44	12.25	12.20	12.33
EDGE (8PSK, 2Tx-slot)	14.17	14.20	14.33	14.11	14.15	14.16
EDGE (8PSK, 3Tx-slot)	14.05	14.09	14.18	14.18	14.32	14.33
EDGE (8PSK, 4Tx-slot)	14.40	14.34	14.37	14.86	14.96	15.00

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	
EUT without Power Reduction (P-Sensor NOT Triggered)							
RMC 12.2K	**23.03**	22.98	22.94	22.49	22.43	**22.68**	-
HSDPA Subtest-1	22.25	22.10	22.15	21.69	21.75	21.92	0
HSDPA Subtest-2	22.23	22.16	22.20	21.71	21.70	21.81	0
HSDPA Subtest-3	21.69	21.61	21.62	21.32	21.27	21.22	0.5
HSDPA Subtest-4	21.64	21.60	21.74	21.18	21.26	21.38	0.5
HSUPA Subtest-1	21.28	21.36	21.10	20.83	21.08	21.35	0
HSUPA Subtest-2	19.17	19.14	19.09	18.91	19.03	19.21	2
HSUPA Subtest-3	20.77	20.59	20.34	19.65	19.63	19.93	1
HSUPA Subtest-4	19.08	19.24	19.03	19.18	19.05	19.14	2
HSUPA Subtest-5	21.84	21.96	21.69	21.40	21.48	21.64	0
EUT with Power Reduction (P-Sensor Triggered)							
RMC 12.2K	17.50	17.31	**17.51**	20.28	**20.35**	20.34	-
HSDPA Subtest-1	16.54	16.52	16.62	19.15	19.34	19.25	-
HSDPA Subtest-2	16.47	16.43	16.59	19.14	19.39	19.33	-
HSDPA Subtest-3	15.98	16.03	16.05	18.62	18.88	18.87	-
HSDPA Subtest-4	15.97	15.94	16.04	18.64	18.85	18.89	-
HSUPA Subtest-1	16.00	15.81	15.80	18.80	19.10	18.81	-
HSUPA Subtest-2	13.85	13.94	13.99	16.65	16.88	16.93	-
HSUPA Subtest-3	14.83	14.90	14.92	17.60	17.80	17.82	-
HSUPA Subtest-4	13.88	13.92	14.01	16.69	16.92	17.01	-
HSUPA Subtest-5	16.11	16.10	16.19	18.70	19.15	18.91	-

Band / BW	RB Size	RB Offset	QPSK Low CH 18607 1850.7 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19193 1909.3 MHz	3GPP MPR (dB)	16QAM Low CH 18607 1850.7 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19193 1909.3 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 1.4M	1	0	23.38	23.18	**23.45**	0	22.12	22.14	**22.39**	1
	1	2	23.31	23.14	23.17	0	22.35	22.09	22.24	1
	1	5	22.93	22.94	23.22	0	22.03	21.94	22.17	1
	3	0	23.37	23.17	23.44	0	22.10	22.12	22.37	1
	3	1	23.30	23.13	23.16	0	22.33	22.07	22.22	1
	3	3	22.92	22.93	23.21	0	22.01	21.92	22.15	1
	6	0	22.29	22.04	22.28	1	21.69	21.72	21.70	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 1.4M	1	0	17.27	17.15	**17.42**	0	17.15	17.16	**17.40**	1
	1	2	17.14	17.12	17.38	0	17.05	16.96	17.19	1
	1	5	16.98	17.12	17.20	0	16.99	17.06	16.96	1
	3	0	17.26	17.14	17.41	0	17.13	17.14	17.38	1
	3	1	17.13	17.11	17.37	0	17.03	16.94	17.17	1
	3	3	16.97	17.11	17.19	0	16.97	17.04	16.94	1
	6	0	17.07	17.13	17.32	1	17.17	17.10	17.35	2

Band / BW	RB Size	RB Offset	QPSK Low CH 18615 1851.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19185 1908.5 MHz	3GPP MPR (dB)	16QAM Low CH 18615 1851.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19185 1908.5 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 3M	1	0	23.41	23.21	**23.48**	0	22.15	22.17	**22.42**	1
	1	7	23.34	23.17	23.20	0	22.38	22.12	22.27	1
	1	14	22.96	22.97	23.25	0	22.06	21.97	22.20	1
	8	0	22.36	22.31	22.51	1	21.71	21.69	21.72	2
	8	3	22.24	22.22	22.43	1	21.64	21.62	21.60	2
	8	7	22.29	22.24	22.42	1	21.65	21.60	21.65	2
	15	0	22.32	22.07	22.31	1	21.72	21.75	21.73	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 3M	1	0	17.30	17.18	**17.45**	0	17.18	17.19	17.43	1
	1	7	17.17	17.15	17.41	0	17.08	16.99	17.22	1
	1	14	17.01	17.15	17.23	0	17.02	17.09	16.99	1
	8	0	17.16	17.29	17.44	1	17.21	17.21	**17.44**	2
	8	3	17.08	17.00	17.28	1	17.17	17.19	17.41	2
	8	7	17.11	16.99	17.16	1	17.19	17.16	17.37	2
	15	0	17.10	17.16	17.35	1	17.20	17.13	17.38	2

Band / BW	RB Size	RB Offset	QPSK Low CH 18625 1852.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19175 1907.5 MHz	3GPP MPR (dB)	16QAM Low CH 18625 1852.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19175 1907.5 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 5M	1	0	23.44	23.24	**23.51**	0	22.18	22.20	**22.45**	1
	1	12	23.37	23.20	23.23	0	22.41	22.15	22.30	1
	1	24	22.99	23.00	23.28	0	22.09	22.00	22.23	1
	12	0	22.39	22.34	22.54	1	21.74	21.72	21.75	2
	12	6	22.27	22.25	22.46	1	21.67	21.65	21.63	2
	12	13	22.32	22.27	22.45	1	21.68	21.63	21.68	2
	25	0	22.35	22.10	22.34	1	21.75	21.78	21.76	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 5M	1	0	17.33	17.21	**17.48**	0	17.21	17.22	17.46	1
	1	12	17.20	17.18	17.44	0	17.11	17.02	17.25	1
	1	24	17.04	17.18	17.26	0	17.05	17.12	17.02	1
	12	0	17.19	17.32	17.47	1	17.24	17.24	**17.47**	2
	12	6	17.11	17.03	17.31	1	17.20	17.22	17.44	2
	12	13	17.14	17.02	17.19	1	17.22	17.19	17.40	2
	25	0	17.13	17.19	17.38	1	17.23	17.16	17.41	2

Band / BW	RB Size	RB Offset	QPSK Low CH 18650 1855.0 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19150 1905.0 MHz	3GPP MPR (dB)	16QAM Low CH 18650 1855.0 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19150 1905.0 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 10M	1	0	23.46	23.26	**23.53**	0	22.20	22.22	**22.47**	1
	1	24	23.39	23.22	23.25	0	22.43	22.17	22.32	1
	1	49	23.01	23.02	23.30	0	22.11	22.02	22.25	1
	25	0	22.41	22.36	22.56	1	21.76	21.74	21.77	2
	25	12	22.29	22.27	22.48	1	21.69	21.67	21.65	2
	25	25	22.34	22.29	22.47	1	21.70	21.65	21.70	2
	50	0	22.37	22.12	22.36	1	21.77	21.80	21.78	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 10M	1	0	17.35	17.23	**17.50**	0	17.23	17.24	17.48	1
	1	24	17.22	17.20	17.46	0	17.13	17.04	17.27	1
	1	49	17.06	17.20	17.28	0	17.07	17.14	17.04	1
	25	0	17.21	17.34	17.49	1	17.26	17.26	**17.49**	2
	25	12	17.13	17.05	17.33	1	17.22	17.24	17.46	2
	25	25	17.16	17.04	17.21	1	17.24	17.21	17.42	2
	50	0	17.15	17.21	17.40	1	17.25	17.18	17.43	2

Band / BW	RB Size	RB Offset	QPSK Low CH 18675 1857.5 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19125 1902.5 MHz	3GPP MPR (dB)	16QAM Low CH 18675 1857.5 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19125 1902.5 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 15M	1	0	23.49	23.29	**23.56**	0	22.23	22.25	**22.50**	1
	1	37	23.42	23.25	23.28	0	22.46	22.20	22.35	1
	1	74	23.04	23.05	23.33	0	22.14	22.05	22.28	1
	36	0	22.44	22.39	22.59	1	21.79	21.77	21.80	2
	36	19	22.32	22.30	22.51	1	21.72	21.70	21.68	2
	36	39	22.37	22.32	22.50	1	21.73	21.68	21.73	2
	75	0	22.40	22.15	22.39	1	21.80	21.83	21.81	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 15M	1	0	17.38	17.26	**17.53**	0	17.26	17.27	17.51	1
	1	37	17.25	17.23	17.49	0	17.16	17.07	17.30	1
	1	74	17.09	17.23	17.31	0	17.10	17.17	17.07	1
	36	0	17.24	17.37	17.52	1	17.29	17.29	**17.52**	2
	36	19	17.16	17.08	17.36	1	17.25	17.27	17.49	2
	36	39	17.19	17.07	17.24	1	17.27	17.24	17.45	2
	75	0	17.18	17.24	17.43	1	17.28	17.21	17.46	2

Band / BW	RB Size	RB Offset	QPSK Low CH 18700 1860.0 MHz	QPSK Mid CH 18900 1880.0 MHz	QPSK High CH 19100 1900.0 MHz	3GPP MPR (dB)	16QAM Low CH 18700 1860.0 MHz	16QAM Mid CH 18900 1880.0 MHz	16QAM High CH 19100 1900.0 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
2 / 20M	1	0	23.54	23.34	**23.61**	0	22.28	22.30	**22.55**	1
	1	50	23.47	23.30	23.33	0	22.51	22.25	22.40	1
	1	99	23.09	23.10	23.38	0	22.19	22.10	22.33	1
	50	0	22.49	22.44	22.64	1	21.84	21.82	21.85	2
	50	25	22.37	22.35	22.56	1	21.77	21.75	21.73	2
	50	50	22.42	22.37	22.55	1	21.78	21.73	21.78	2
	100	0	22.45	22.20	22.44	1	21.85	21.88	21.86	2
EUT with Power Reduction (P-Sensor Triggered)										
2 / 20M	1	0	17.43	17.31	**17.58**	0	17.31	17.32	17.56	1
	1	50	17.30	17.28	17.54	0	17.21	17.12	17.35	1
	1	99	17.14	17.28	17.36	0	17.15	17.22	17.12	1
	50	0	17.29	17.42	17.57	1	17.34	17.34	**17.57**	2
	50	25	17.21	17.13	17.41	1	17.30	17.32	17.54	2
	50	50	17.24	17.12	17.29	1	17.32	17.29	17.50	2
	100	0	17.23	17.29	17.48	1	17.33	17.26	17.51	2

Band / BW	RB Size	RB Offset	QPSK Low CH 19957 1710.7 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20393 1754.3 MHz	3GPP MPR (dB)	16QAM Low CH 19957 1710.7 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20393 1754.3 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 1.4M	**1**	**0**	23.15	**23.26**	23.09	0	22.11	22.24	**22.32**	**1**
	1	2	23.07	23.17	22.96	0	22.02	22.22	22.23	1
	1	5	23.05	23.16	23.01	0	21.89	22.02	22.06	1
	3	0	23.13	23.24	23.07	0	22.10	22.23	22.31	1
	3	1	23.05	23.15	22.94	0	22.01	22.21	22.22	1
	3	3	23.03	23.14	22.99	0	21.88	22.01	22.05	1
	6	0	22.15	22.10	21.89	1	21.49	21.50	21.46	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 1.4M	1	0	17.08	**17.22**	17.01	0	16.98	17.10	17.01	1
	1	2	17.04	16.86	16.91	0	16.92	17.00	16.98	1
	1	5	16.94	16.74	16.72	0	16.82	16.84	16.96	1
	3	0	17.06	17.20	16.99	0	16.97	17.09	17.00	1
	3	1	17.02	16.84	16.89	0	16.91	16.99	16.97	1
	3	3	16.92	16.72	16.70	0	16.81	16.83	16.95	1
	6	0	17.01	16.94	16.94	1	**17.16**	16.98	17.04	2

Band / BW	RB Size	RB Offset	QPSK Low CH 19965 1711.5 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20385 1753.5 MHz	3GPP MPR (dB)	16QAM Low CH 19965 1711.5 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20385 1753.5 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 3M	1	0	23.16	**23.27**	23.10	0	22.12	22.25	**22.33**	1
	1	7	23.08	23.18	22.97	0	22.03	22.23	22.24	1
	1	14	23.06	23.17	23.02	0	21.90	22.03	22.07	1
	8	0	22.22	22.18	22.13	1	21.53	21.46	21.52	2
	8	3	22.11	21.92	21.90	1	21.52	21.47	21.35	2
	8	7	22.07	21.95	22.19	1	21.48	21.31	21.46	2
	15	0	22.16	22.11	21.90	1	21.50	21.51	21.47	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 3M	1	0	17.09	**17.23**	17.02	0	16.99	17.11	17.02	1
	1	7	17.05	16.87	16.92	0	16.93	17.01	16.99	1
	1	14	16.95	16.75	16.73	0	16.83	16.85	16.97	1
	8	0	17.21	17.06	16.93	1	17.13	16.93	17.01	2
	8	3	17.01	16.90	16.72	1	16.98	16.89	16.88	2
	8	7	17.00	16.72	16.71	1	17.04	16.87	16.76	2
	15	0	17.02	16.95	16.95	1	**17.17**	16.99	17.05	2

Band / BW	RB Size	RB Offset	QPSK Low CH 19975 1712.5 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20375 1752.5 MHz	3GPP MPR (dB)	16QAM Low CH 19975 1712.5 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20375 1752.5 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 5M	1	0	23.19	**23.30**	23.13	0	22.15	22.28	**22.36**	1
	1	12	23.11	23.21	23.00	0	22.06	22.26	22.27	1
	1	24	23.09	23.20	23.05	0	21.93	22.06	22.10	1
	12	0	22.25	22.21	22.16	1	21.56	21.49	21.55	2
	12	6	22.14	21.95	21.93	1	21.55	21.50	21.38	2
	12	13	22.10	21.98	22.22	1	21.51	21.34	21.49	2
	25	0	22.19	22.14	21.93	1	21.53	21.54	21.50	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 5M	1	0	17.12	**17.26**	17.05	0	17.02	17.14	17.05	1
	1	12	17.08	16.90	16.95	0	16.96	17.04	17.02	1
	1	24	16.98	16.78	16.76	0	16.86	16.88	17.00	1
	12	0	17.24	17.09	16.96	1	17.16	16.96	17.04	2
	12	6	17.04	16.93	16.75	1	17.01	16.92	16.91	2
	12	13	17.03	16.75	16.74	1	17.07	16.90	16.79	2
	25	0	17.05	16.98	16.98	1	**17.20**	17.02	17.08	2

Band / BW	RB Size	RB Offset	QPSK Low CH 20000 1715.0 MHz	QPSK Mid CH 20175 1732.5 MHz	QPSK High CH 20350 1750.0 MHz	3GPP MPR (dB)	16QAM Low CH 20000 1715.0 MHz	16QAM Mid CH 20175 1732.5 MHz	16QAM High CH 20350 1750.0 MHz	3GPP MPR (dB)
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 10M	1	0	23.23	**23.34**	23.17	0	22.19	22.32	**22.40**	1
	1	24	23.15	23.25	23.04	0	22.10	22.30	22.31	1
	1	49	23.13	23.24	23.09	0	21.97	22.10	22.14	1
	25	0	22.29	22.25	22.20	1	21.60	21.53	21.59	2
	25	12	22.18	21.99	21.97	1	21.59	21.54	21.42	2
	25	25	22.14	22.02	22.26	1	21.55	21.38	21.53	2
	50	0	22.23	22.18	21.97	1	21.57	21.58	21.54	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 10M	1	0	17.16	**17.30**	17.09	0	17.06	17.18	17.09	1
	1	24	17.12	16.94	16.99	0	17.00	17.08	17.06	1
	1	49	17.02	16.82	16.80	0	16.90	16.92	17.04	1
	25	0	17.28	17.13	17.00	1	17.20	17.00	17.08	2
	25	12	17.08	16.97	16.79	1	17.05	16.96	16.95	2
	25	25	17.07	16.79	16.78	1	17.11	16.94	16.83	2
	50	0	17.09	17.02	17.02	1	**17.24**	17.06	17.12	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20025 1717.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20325 1747.5 MHz		Low CH 20025 1717.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20325 1747.5 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 15M	1	0	23.29	**23.40**	23.23	0	22.25	22.38	**22.46**	1
	1	37	23.21	23.31	23.10	0	22.16	22.36	22.37	1
	1	74	23.19	23.30	23.15	0	22.03	22.16	22.20	1
	36	0	22.35	22.31	22.26	1	21.66	21.59	21.65	2
	36	19	22.24	22.05	22.03	1	21.65	21.60	21.48	2
	36	39	22.20	22.08	22.32	1	21.61	21.44	21.59	2
	75	0	22.29	22.24	22.03	1	21.63	21.64	21.60	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 15M	1	0	17.22	**17.36**	17.15	0	17.12	17.24	17.15	1
	1	37	17.18	17.00	17.05	0	17.06	17.14	17.12	1
	1	74	17.08	16.88	16.86	0	16.96	16.98	17.10	1
	36	0	17.34	17.19	17.06	1	17.26	17.06	17.14	2
	36	19	17.14	17.03	16.85	1	17.11	17.02	17.01	2
	36	39	17.13	16.85	16.84	1	17.17	17.00	16.89	2
	75	0	17.15	17.08	17.08	1	**17.30**	17.12	17.18	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20050 1720.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20300 1745.0 MHz		Low CH 20050 1720.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20300 1745.0 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
4 / 20M	1	0	23.32	**23.43**	23.26	0	22.28	22.41	**22.49**	1
	1	50	23.24	23.34	23.13	0	22.19	22.39	22.40	1
	1	99	23.22	23.33	23.18	0	22.06	22.19	22.23	1
	50	0	22.38	22.34	22.29	1	21.69	21.62	21.68	2
	50	25	22.27	22.08	22.06	1	21.68	21.63	21.51	2
	50	50	22.23	22.11	22.35	1	21.64	21.47	21.62	2
	100	0	22.32	22.27	22.06	1	21.66	21.67	21.63	2
EUT with Power Reduction (P-Sensor Triggered)										
4 / 20M	1	0	17.25	**17.39**	17.18	0	17.15	17.27	17.18	1
	1	50	17.21	17.03	17.08	0	17.09	17.17	17.15	1
	1	99	17.11	16.91	16.89	0	16.99	17.01	17.13	1
	50	0	17.37	17.22	17.09	1	17.29	17.09	17.17	2
	50	25	17.17	17.06	16.88	1	17.14	17.05	17.04	2
	50	50	17.16	16.88	16.87	1	17.20	17.03	16.92	2
	100	0	17.18	17.11	17.11	1	**17.33**	17.15	17.21	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20775	Mid CH 21100	High CH 21425		Low CH 20775	Mid CH 21100	High CH 21425	
			2502.5 MHz	2535.0 MHz	2567.5 MHz		2502.5 MHz	2535.0 MHz	2567.5 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
7 / 5M	1	0	**22.30**	22.09	22.14	0	21.31	21.35	**21.49**	1
	1	12	22.24	22.06	22.12	0	21.32	21.34	21.38	1
	1	24	22.06	22.17	22.08	0	21.33	21.30	21.11	1
	12	0	21.47	21.52	21.58	1	20.55	20.53	20.59	2
	12	6	21.36	21.46	21.50	1	20.51	20.50	20.58	2
	12	13	21.29	21.36	21.32	1	20.47	20.45	20.51	2
	25	0	21.41	21.43	21.50	1	20.58	20.56	20.59	2
EUT with Power Reduction (P-Sensor Triggered)										
7 / 5M	1	0	**16.55**	16.44	16.33	0	16.43	16.18	16.29	1
	1	12	16.50	16.41	16.31	0	16.39	16.15	16.28	1
	1	24	16.15	16.26	16.15	0	16.34	16.06	16.24	1
	12	0	16.48	16.40	16.50	1	16.38	16.41	**16.52**	2
	12	6	16.47	16.39	16.41	1	16.36	16.25	16.41	2
	12	13	16.36	16.38	16.39	1	16.31	16.24	16.35	2
	25	0	16.50	16.45	16.40	1	16.38	16.42	16.37	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20800	Mid CH 21100	High CH 21400		Low CH 20800	Mid CH 21100	High CH 21400	
			2505.0 MHz	2535.0 MHz	2565.0 MHz		2505.0 MHz	2535.0 MHz	2565.0 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
7 / 10M	1	0	**22.34**	22.13	22.18	0	21.35	21.39	**21.53**	1
	1	24	22.28	22.10	22.16	0	21.36	21.38	21.42	1
	1	49	22.10	22.21	22.12	0	21.37	21.34	21.15	1
	25	0	21.51	21.56	21.62	1	20.59	20.57	20.63	2
	25	12	21.40	21.50	21.54	1	20.55	20.54	20.62	2
	25	25	21.33	21.40	21.36	1	20.51	20.49	20.55	2
	50	0	21.45	21.47	21.54	1	20.62	20.60	20.63	2
EUT with Power Reduction (P-Sensor Triggered)										
7 / 10M	1	0	**16.59**	16.48	16.37	0	16.47	16.22	16.33	1
	1	24	16.54	16.45	16.35	0	16.43	16.19	16.32	1
	1	49	16.19	16.30	16.19	0	16.38	16.10	16.28	1
	25	0	16.52	16.44	16.54	1	16.42	16.45	**16.56**	2
	25	12	16.51	16.43	16.45	1	16.40	16.29	16.45	2
	25	25	16.40	16.42	16.43	1	16.35	16.28	16.39	2
	50	0	16.54	16.49	16.44	1	16.42	16.46	16.41	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20825	Mid CH 21100	High CH 21375		Low CH 20825	Mid CH 21100	High CH 21375	
			2507.5 MHz	2535.0 MHz	2562.5 MHz		2507.5 MHz	2535.0 MHz	2562.5 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
7 / 15M	1	0	**22.40**	22.19	22.24	0	21.41	21.45	**21.59**	1
	1	37	22.34	22.16	22.22	0	21.42	21.44	21.48	1
	1	74	22.16	22.27	22.18	0	21.43	21.40	21.21	1
	36	0	21.57	21.62	21.68	1	20.65	20.63	20.69	2
	36	19	21.46	21.56	21.60	1	20.61	20.60	20.68	2
	36	39	21.39	21.46	21.42	1	20.57	20.55	20.61	2
	75	0	21.51	21.53	21.60	1	20.68	20.66	20.69	2
EUT with Power Reduction (P-Sensor Triggered)										
7 / 15M	1	0	**16.65**	16.54	16.43	0	16.53	16.28	16.39	1
	1	37	16.60	16.51	16.41	0	16.49	16.25	16.38	1
	1	74	16.25	16.36	16.25	0	16.44	16.16	16.34	1
	36	0	16.58	16.50	16.60	1	16.48	16.51	**16.62**	2
	36	19	16.57	16.49	16.51	1	16.46	16.35	16.51	2
	36	39	16.46	16.48	16.49	1	16.41	16.34	16.45	2
	75	0	16.60	16.55	16.50	1	16.48	16.52	16.47	2

Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20850	Mid CH 21100	High CH 21350		Low CH 20850	Mid CH 21100	High CH 21350	
			2510.0 MHz	2535.0 MHz	2560.0 MHz		2510.0 MHz	2535.0 MHz	2560.0 MHz	
EUT without Power Reduction (P-Sensor NOT Triggered)										
7 / 20M	1	0	**22.43**	22.22	22.27	0	21.44	21.48	**21.62**	1
	1	50	22.37	22.19	22.25	0	21.45	21.47	21.51	1
	1	99	22.19	22.30	22.21	0	21.46	21.43	21.24	1
	50	0	21.60	21.65	21.71	1	20.68	20.66	20.72	2
	50	25	21.49	21.59	21.63	1	20.64	20.63	20.71	2
	50	50	21.42	21.49	21.45	1	20.60	20.58	20.64	2
	100	0	21.54	21.56	21.63	1	20.71	20.69	20.72	2
EUT with Power Reduction (P-Sensor Triggered)										
7 / 20M	1	0	**16.68**	16.57	16.46	0	16.56	16.31	16.42	1
	1	50	16.63	16.54	16.44	0	16.52	16.28	16.41	1
	1	99	16.28	16.39	16.28	0	16.47	16.19	16.37	1
	50	0	16.61	16.53	16.63	1	16.51	16.54	**16.65**	2
	50	25	16.60	16.52	16.54	1	16.49	16.38	16.54	2
	50	50	16.49	16.51	16.52	1	16.44	16.37	16.48	2
	100	0	16.63	16.58	16.53	1	16.51	16.55	16.50	2

<WLAN 2.4G>

Mode	802.11b		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	14.31	**14.62**	14.50
Mode	802.11g		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	11.24	**11.52**	11.43
Mode	802.11n (HT20)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	11.61	**11.75**	11.34
Mode	802.11n (HT40)		
Channel / Frequency (MHz)	3 (2422)	6 (2437)	9 (2452)
Average Power	9.31	9.44	**9.63**

<WLAN 5.2G>

Mode	802.11a			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Average Power	9.55	9.78	**9.88**	9.65
Mode	802.11n (HT20)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Average Power	9.42	9.53	**9.78**	9.62
Mode	802.11n (HT40)			
Channel / Frequency (MHz)	38 (5190)		46 (5230)	
Average Power	9.15		**9.26**	

<WLAN 5.8G>

Mode	802.11a				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Average Power	9.89	9.87	**10.06**	9.97	9.91
Mode	802.11n (HT20)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Average Power	9.83	9.80	**9.96**	9.86	9.84
Mode	802.11n (HT40)				
Channel / Frequency (MHz)	151 (5755)		159 (5795)		
Average Power	9.32		**9.58**		

<Bluetooth>

Mode	GFSK		
Channel / Frequency (MHz)	0 (2402)	39 (2441)	78 (2480)
Average Power	0.15	**1.47**	0.11

Mode	8-DPSK		
Channel / Frequency (MHz)	0 (2402)	39 (2441)	78 (2480)
Average Power	-2.08	**-0.61**	-2.17

Mode	LE		
Channel / Frequency (MHz)	0 (2402)	19 (2440)	39 (2480)
Average Power	0.54	**1.50**	0.46

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

<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 ≤ 1/4 dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

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

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

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

(2) QPSK with 100% RB allocation

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

(3) Higher order modulations

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

(4) Other channel bandwidth

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

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

(1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is <= 0.4 W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is <= 0.8 W/kg or all test positions are measured.

(2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is <= 0.8 W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2 W/kg.

(3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is <= 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is <= 1.2 W/kg.

4.7.2 SAR Results for Head Exposure Condition

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GSM	Right Cheek	189	1	33.5	33.29	1.05	0.01	0.112	0.12
	GSM850	GSM	Right Tilted	189	1	33.5	33.29	1.05	0.14	0.091	0.10
01	GSM850	GSM	Left Cheek	189	1	33.5	33.29	1.05	0.16	0.121	**0.13**
	GSM850	GSM	Left Tilted	189	1	33.5	33.29	1.05	-0.09	0.078	0.08
	GSM850	GSM	Left Cheek	189	2	33.5	33.29	1.05	0.07	0.102	0.11
	GSM1900	GSM	Right Cheek	810	1	31.0	30.54	1.11	0.09	0.00679	0.01
	GSM1900	GSM	Right Tilted	810	1	31.0	30.54	1.11	0.05	0.00442	0.00
	GSM1900	GSM	Left Cheek	810	1	31.0	30.54	1.11	0.08	0.011	0.01
	GSM1900	GSM	Left Tilted	810	1	31.0	30.54	1.11	0.02	0.00355	0.00
02	GSM1900	GSM	Left Cheek	810	2	31.0	30.54	1.11	0.14	0.058	**0.06**
	WCDMA II	RMC12.2K	Right Cheek	9262	1	23.5	23.03	1.11	0.02	0.017	0.02
	WCDMA II	RMC12.2K	Right Tilted	9262	1	23.5	23.03	1.11	0.05	0.016	0.02
	WCDMA II	RMC12.2K	Left Cheek	9262	1	23.5	23.03	1.11	0.03	0.028	0.03
	WCDMA II	RMC12.2K	Left Tilted	9262	1	23.5	23.03	1.11	-0.02	0.00913	0.01
03	WCDMA II	RMC12.2K	Left Cheek	9262	2	23.5	23.03	1.11	0.06	0.048	**0.05**
	WCDMA V	RMC12.2K	Right Cheek	4233	1	23.0	22.68	1.08	0.09	0.120	0.13
	WCDMA V	RMC12.2K	Right Tilted	4233	1	23.0	22.68	1.08	0.13	0.094	0.10
04	WCDMA V	RMC12.2K	Left Cheek	4233	1	23.0	22.68	1.08	0.14	0.127	**0.14**
	WCDMA V	RMC12.2K	Left Tilted	4233	1	23.0	22.68	1.08	0.01	0.083	0.09
	WCDMA V	RMC12.2K	Left Cheek	4233	2	23.0	22.68	1.08	0.16	0.103	0.11

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	RB#	RB Offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	Right Cheek	19100	1	1	0	24.0	23.61	1.09	0.02	0.050	0.05
	LTE 2	QPSK20M	Right Tilted	19100	1	1	0	24.0	23.61	1.09	0.05	0.039	0.04
05	LTE 2	QPSK20M	Left Cheek	19100	1	1	0	24.0	23.61	1.09	0.02	0.065	**0.07**
	LTE 2	QPSK20M	Left Tilted	19100	1	1	0	24.0	23.61	1.09	0.09	0.027	0.03
	LTE 2	QPSK20M	Right Cheek	19100	1	50	0	23.0	22.64	1.09	0.03	0.037	0.04
	LTE 2	QPSK20M	Right Tilted	19100	1	50	0	23.0	22.64	1.09	0.04	0.029	0.03
	LTE 2	QPSK20M	Left Cheek	19100	1	50	0	23.0	22.64	1.09	0.07	0.051	0.06
	LTE 2	QPSK20M	Left Tilted	19100	1	50	0	23.0	22.64	1.09	0.07	0.021	0.02
	LTE 2	QPSK20M	Left Cheek	19100	2	1	0	24.0	23.61	1.09	0.08	0.018	0.02
	LTE 4	QPSK20M	Right Cheek	20175	1	1	0	24.0	23.43	1.14	0.07	0.029	0.03
	LTE 4	QPSK20M	Right Tilted	20175	1	1	0	24.0	23.43	1.14	-0.18	0.026	0.03
	LTE 4	QPSK20M	Left Cheek	20175	1	1	0	24.0	23.43	1.14	0.01	0.041	0.05
	LTE 4	QPSK20M	Left Tilted	20175	1	1	0	24.0	23.43	1.14	0.07	0.016	0.02
	LTE 4	QPSK20M	Right Cheek	20050	1	50	0	23.0	22.38	1.15	0.09	0.025	0.03
	LTE 4	QPSK20M	Right Tilted	20050	1	50	0	23.0	22.38	1.15	0.08	0.021	0.02
	LTE 4	QPSK20M	Left Cheek	20050	1	50	0	23.0	22.38	1.15	0.09	0.035	0.04
	LTE 4	QPSK20M	Left Tilted	20050	1	50	0	23.0	22.38	1.15	0.16	0.012	0.01
06	LTE 4	QPSK20M	Left Cheek	20175	2	1	0	24.0	23.43	1.14	0.08	0.049	**0.06**
07	LTE 7	QPSK20M	Right Cheek	20850	1	1	0	23.0	22.43	1.14	0.05	0.660	**0.75**
	LTE 7	QPSK20M	Right Tilted	20850	1	1	0	23.0	22.43	1.14	0.10	0.541	0.62
	LTE 7	QPSK20M	Left Cheek	20850	1	1	0	23.0	22.43	1.14	0.02	0.237	0.27
	LTE 7	QPSK20M	Left Tilted	20850	1	1	0	23.0	22.43	1.14	0.04	0.270	0.31
	LTE 7	QPSK20M	Right Cheek	21350	1	50	0	22.0	21.71	1.07	0.05	0.632	0.68
	LTE 7	QPSK20M	Right Tilted	21350	1	50	0	22.0	21.71	1.07	0.11	0.490	0.52
	LTE 7	QPSK20M	Left Cheek	21350	1	50	0	22.0	21.71	1.07	0.05	0.205	0.22
	LTE 7	QPSK20M	Left Tilted	21350	1	50	0	22.0	21.71	1.07	0.12	0.224	0.24
	LTE 7	QPSK20M	Right Cheek	20850	2	1	0	23.0	22.43	1.14	0.19	0.530	0.60

Plot No.	Band	Test Position	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	802.11b	Right Cheek	6	1	15.0	14.62	1.09	0.06	0.178	0.19
	802.11b	Right Tilted	6	1	15.0	14.62	1.09	0.00	0.063	0.07
08	802.11b	Left Cheek	6	1	15.0	14.62	1.09	0.05	0.509	**0.56**
	802.11b	Left Tilted	6	1	15.0	14.62	1.09	0.03	0.247	0.27
	802.11b	Left Cheek	6	2	15.0	14.62	1.09	0.02	0.484	0.53
	802.11a	Right Cheek	44	1	10.0	9.88	1.03	0.05	0.018	0.02
	802.11a	Right Tilted	44	1	10.0	9.88	1.03	0.02	0.018	0.02
09	802.11a	Left Cheek	44	1	10.0	9.88	1.03	0.09	0.137	**0.14**
	802.11a	Left Tilted	44	1	10.0	9.88	1.03	0.02	0.052	0.05
	802.11a	Left Cheek	44	2	10.0	9.88	1.03	0.06	0.106	0.11
	802.11a	Right Cheek	157	1	10.5	10.06	1.11	0.08	0.00935	0.01
	802.11a	Right Tilted	157	1	10.5	10.06	1.11	0.16	0.00329	0.00
10	802.11a	Left Cheek	157	1	10.5	10.06	1.11	-0.06	0.077	**0.09**
	802.11a	Left Tilted	157	1	10.5	10.06	1.11	-0.04	0.026	0.03
	802.11a	Left Cheek	157	2	10.5	10.06	1.11	0.00	0.047	0.05

4.7.3 SAR Results for Body Exposure Condition

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	EUT Config.	Power Reduction	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS12	Rear Face	0	251	1	w/	18.0	17.64	1.09	0.09	0.147	0.16
11	GSM850	GPRS10	Rear Face	1.5	128	1	w/o	30.5	30.35	1.04	0.01	0.213	**0.22**
	GSM850	GPRS12	Left Side	0	251	1	w/	18.0	17.64	1.09	0.06	0.102	0.11
	GSM850	GPRS10	Left Side	1.3	128	1	w/o	30.5	30.35	1.04	0.10	0.095	0.10
	GSM850	GPRS10	Right Side	0	128	1	w/o	30.5	30.35	1.04	0.01	0.149	0.15
	GSM850	GPRS12	Bottom Side	0	251	1	w/	18.0	17.64	1.09	-0.11	0.057	0.06
	GSM850	GPRS10	Bottom Side	1.5	128	1	w/o	30.5	30.35	1.04	-0.07	0.198	0.20
	GSM850	GPRS10	Rear Face	1.5	128	2	w/o	30.5	30.35	1.04	-0.11	0.170	0.18
12	GSM1900	GPRS12	Rear Face	0	810	1	w/	19.0	18.34	1.16	0.05	0.133	**0.15**
	GSM1900	GPRS12	Rear Face	1.5	810	1	w/o	25.0	24.56	1.11	-0.18	0.038	0.04
	GSM1900	GPRS12	Left Side	0	810	1	w/	19.0	18.34	1.16	0.16	0.021	0.02
	GSM1900	GPRS12	Left Side	1.3	810	1	w/o	25.0	24.56	1.11	0.07	0.013	0.01
	GSM1900	GPRS12	Bottom Side	0	810	1	w/	19.0	18.34	1.16	0.02	0.116	0.14
	GSM1900	GPRS12	Bottom Side	1.5	810	1	w/o	25.0	24.56	1.11	-0.12	0.031	0.03
	GSM1900	GPRS12	Rear Face	0	810	2	w/	19.0	18.34	1.16	0.03	0.117	0.14
13	WCDMA II	RMC12.2K	Rear Face	0	9538	1	w/	18.0	17.51	1.12	0.07	0.265	**0.30**
	WCDMA II	RMC12.2K	Rear Face	1.5	9262	1	w/o	23.5	23.03	1.11	0.00	0.099	0.11
	WCDMA II	RMC12.2K	Left Side	0	9538	1	w/	18.0	17.51	1.12	0.02	0.040	0.04
	WCDMA II	RMC12.2K	Left Side	1.3	9262	1	w/o	23.5	23.03	1.11	0.08	0.026	0.03
	WCDMA II	RMC12.2K	Bottom Side	0	9538	1	w/	18.0	17.51	1.12	0.07	0.255	0.29
	WCDMA II	RMC12.2K	Bottom Side	1.5	9262	1	w/o	23.5	23.03	1.11	-0.04	0.074	0.08
	WCDMA II	RMC12.2K	Rear Face	0	9538	2	w/	18.0	17.51	1.12	0.06	0.258	0.29
14	WCDMA V	RMC12.2K	Rear Face	0	4182	1	w/	20.5	20.35	1.04	0.07	0.483	**0.50**
	WCDMA V	RMC12.2K	Rear Face	1.5	4233	1	w/o	23.0	22.68	1.08	0.16	0.208	0.22
	WCDMA V	RMC12.2K	Left Side	0	4182	1	w/	20.5	20.35	1.04	0.00	0.359	0.37
	WCDMA V	RMC12.2K	Left Side	1.3	4233	1	w/o	23.0	22.68	1.08	-0.13	0.124	0.13
	WCDMA V	RMC12.2K	Bottom Side	0	4182	1	w/	20.5	20.35	1.04	0.04	0.184	0.19
	WCDMA V	RMC12.2K	Bottom Side	1.5	4233	1	w/o	23.0	22.68	1.08	0.01	0.173	0.19
	WCDMA V	RMC12.2K	Rear Face	0	4182	2	w/	20.5	20.35	1.04	0.12	0.476	0.49

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	EUT Config.	RB#	RB Offset	Power Reduction	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	Rear Face	0	19100	1	1	0	w/	18.0	17.58	1.10	0.03	0.247	0.27
	LTE 2	QPSK20M	Rear Face	1.5	19100	1	1	0	w/o	24.0	23.61	1.09	-0.08	0.073	0.08
	LTE 2	QPSK20M	Left Side	0	19100	1	1	0	w/	18.0	17.58	1.10	-0.06	0.044	0.05
	LTE 2	QPSK20M	Left Side	1.3	19100	1	1	0	w/o	24.0	23.61	1.09	0.07	0.019	0.02
	LTE 2	QPSK20M	Right Side	0	19100	1	1	0	w/o	24.0	23.61	1.09	0.06	0.044	0.05
15	LTE 2	QPSK20M	Bottom Side	0	19100	1	1	0	w/	18.0	17.58	1.10	0.08	0.291	**0.32**
	LTE 2	QPSK20M	Bottom Side	1.5	19100	1	1	0	w/o	24.0	23.61	1.09	0.13	0.064	0.07
	LTE 2	QPSK20M	Rear Face	0	19100	1	50	0	w/	18.0	17.57	1.10	0.09	0.240	0.26
	LTE 2	QPSK20M	Rear Face	1.5	19100	1	50	0	w/o	23.0	22.64	1.09	0.02	0.057	0.06
	LTE 2	QPSK20M	Left Side	0	19100	1	50	0	w/	18.0	17.57	1.10	0.06	0.040	0.04
	LTE 2	QPSK20M	Left Side	1.3	19100	1	50	0	w/o	23.0	22.64	1.09	0.06	0.015	0.02
	LTE 2	QPSK20M	Right Side	0	19100	1	50	0	w/o	23.0	22.64	1.09	0.07	0.032	0.03
	LTE 2	QPSK20M	Bottom Side	0	19100	1	50	0	w/	18.0	17.57	1.10	0.16	0.270	0.30
	LTE 2	QPSK20M	Bottom Side	1.5	19100	1	50	0	w/o	23.0	22.64	1.09	-0.05	0.048	0.05
	LTE 2	QPSK20M	Bottom Side	0	19100	2	1	0	w/	18.0	17.58	1.10	0.05	0.285	0.31

Plot No.	Band	Mode	Test Position	Separation Distance (mm)	Ch.	EUT Config.	RB#	RB Offset	Power Reduction	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 4	QPSK20M	Rear Face	0	20175	1	1	0	w/	18.0	17.39	1.15	0.08	0.404	0.46
	LTE 4	QPSK20M	Rear Face	1.5	20175	1	1	0	w/o	24.0	23.43	1.14	0.13	0.139	0.16
	LTE 4	QPSK20M	Left Side	0	20175	1	1	0	w/	18.0	17.39	1.15	0.16	0.089	0.10
	LTE 4	QPSK20M	Left Side	1.3	20175	1	1	0	w/o	24.0	23.43	1.14	-0.01	0.042	0.05
	LTE 4	QPSK20M	Right Side	0	20175	1	1	0	w/o	24.0	23.43	1.14	0.16	0.087	0.10
	LTE 4	QPSK20M	Bottom Side	0	20175	1	1	0	w/	18.0	17.39	1.15	0.17	0.571	0.66
	LTE 4	QPSK20M	Bottom Side	1.5	20175	1	1	0	w/o	24.0	23.43	1.14	0.04	0.171	0.19
	LTE 4	QPSK20M	Rear Face	0	20050	1	50	0	w/	18.0	17.37	1.16	0.07	0.375	0.43
	LTE 4	QPSK20M	Rear Face	1.5	20050	1	50	0	w/o	23.0	22.38	1.15	-0.04	0.108	0.12
	LTE 4	QPSK20M	Left Side	0	20050	1	50	0	w/	18.0	17.37	1.16	0.05	0.106	0.12
	LTE 4	QPSK20M	Left Side	1.3	20050	1	50	0	w/o	23.0	22.38	1.15	-0.09	0.038	0.04
	LTE 4	QPSK20M	Right Side	0	20050	1	50	0	w/o	23.0	22.38	1.15	0.02	0.070	0.08
	LTE 4	QPSK20M	Bottom Side	0	20050	1	50	0	w/	18.0	17.37	1.16	0.11	0.559	0.65
	LTE 4	QPSK20M	Bottom Side	1.5	20050	1	50	0	w/o	23.0	22.38	1.15	-0.08	0.149	0.17
16	LTE 4	QPSK20M	Bottom Side	0	20175	2	1	0	w/	18.0	17.39	1.15	0.09	0.583	**0.67**
	LTE 7	QPSK20M	Rear Face	0	20850	1	1	0	w/	17.0	16.68	1.08	0.02	0.228	0.25
	LTE 7	QPSK20M	Rear Face	1.5	20850	1	1	0	w/o	23.0	22.43	1.14	-0.04	0.094	0.11
	LTE 7	QPSK20M	Left Side	0	20850	1	1	0	w/	17.0	16.68	1.08	0.02	0.105	0.11
	LTE 7	QPSK20M	Left Side	1.3	20850	1	1	0	w/o	23.0	22.43	1.14	-0.02	0.029	0.03
	LTE 7	QPSK20M	Top Side	0	20850	1	1	0	w/	17.0	16.68	1.08	-0.09	0.261	0.28
	LTE 7	QPSK20M	Top Side	1.5	20850	1	1	0	w/o	23.0	22.43	1.14	0.06	0.100	0.11
17	LTE 7	QPSK20M	Rear Face	0	21350	1	50	0	w/	17.0	16.63	1.09	0.09	0.270	**0.29**
	LTE 7	QPSK20M	Rear Face	1.5	21350	1	50	0	w/o	22.0	21.71	1.07	-0.02	0.080	0.09
	LTE 7	QPSK20M	Left Side	0	21350	1	50	0	w/	17.0	16.63	1.09	-0.01	0.116	0.13
	LTE 7	QPSK20M	Left Side	1.3	21350	1	50	0	w/o	22.0	21.71	1.07	0.05	0.031	0.03
	LTE 7	QPSK20M	Top Side	0	21350	1	50	0	w/	17.0	16.63	1.09	0.16	0.245	0.27
	LTE 7	QPSK20M	Top Side	1.5	21350	1	50	0	w/o	22.0	21.71	1.07	0.04	0.083	0.09
	LTE 7	QPSK20M	Rear Face	0	21350	2	50	0	w/	17.0	16.63	1.09	-0.02	0.193	0.21

Plot No.	Band	Test Position	Separation Distance (mm)	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-10g (W/kg)	Scaled SAR-10g (W/kg)
	802.11b	Rear Face	0	6	1	15.0	14.62	1.09	0.13	0.754	0.82
	802.11b	Right Side	0	6	1	15.0	14.62	1.09	0.07	0.828	0.90
	802.11b	Top Side	0	6	1	15.0	14.62	1.09	0.09	0.059	0.06
	802.11b	Rear Face	0	11	1	15.0	14.50	1.12	0.03	0.889	1.00
18	802.11b	Right Side	0	11	1	15.0	14.50	1.12	0.01	0.905	**1.02**
	802.11b	Right Side	0	11	2	15.0	14.50	1.12	0.03	0.866	0.97
	802.11b	Right Side	0	11	1	15.0	14.50	1.12	0.02	0.869	0.98
	802.11a	Rear Face	0	44	1	10.0	9.88	1.03	0.00	0.458	0.47
19	802.11a	Right Side	0	44	1	10.0	9.88	1.03	-0.09	1.120	**1.15**
	802.11a	Top Side	0	44	1	10.0	9.88	1.03	0.04	0.083	0.09
	802.11a	Right Side	0	40	1	10.0	9.78	1.05	0.10	0.944	0.99
	802.11a	Right Side	0	44	2	10.0	9.88	1.03	0.07	1.090	1.12
	802.11a	Right Side	0	44	1	10.0	9.88	1.03	0.01	1.010	1.04
	802.11a	Rear Face	0	157	1	10.5	10.06	1.11	0.06	0.318	0.35
20	802.11a	Right Side	0	157	1	10.5	10.06	1.11	0.00	0.812	**0.90**
	802.11a	Top Side	0	157	1	10.5	10.06	1.11	-0.15	0.00938	0.01
	802.11a	Right Side	0	161	1	10.5	9.97	1.13	0.00	0.793	0.90
	802.11a	Right Side	0	157	2	10.5	10.06	1.11	0.03	0.784	0.87
	802.11a	Right Side	0	157	1	10.5	10.06	1.11	0.04	0.810	0.90

4.7.4 SAR Measurement Variability

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

SAR repeated measurement procedure:

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

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
802.11b	Right Side	11	0.905	0.869	1.04	N/A	N/A	N/A	N/A
802.11a	Right Side	44	1.120	1.010	1.11	N/A	N/A	N/A	N/A
802.11a	Right Side	157	0.812	0.810	1.00	N/A	N/A	N/A	N/A

4.7.5 Simultaneous Multi-band Transmission Evaluation

<Estimated SAR Calculation>

According to KDB 447498 D01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR was estimated according to following formula to result in substantially conservative SAR values of <= 0.4 W/kg to determine simultaneous transmission SAR test exclusion.

$$\text{Estimated SAR} = \frac{\text{Max. Tune up Power}_{(\text{mW})}}{\text{Min. Test Separation Distance}_{(\text{mm})}} \times \frac{\sqrt{f_{(\text{GHz})}}}{7.5}$$

If the minimum test separation distance is < 5 mm, a distance of 5 mm is used for estimated SAR calculation. When the test separation distance is > 50 mm, the 0.4 W/kg is used for SAR-1g.

Mode / Band	Frequency (GHz)	Max. Tune-up Power (dBm)	Test Position	Separation Distance (mm)	Estimated SAR (W/kg)
GSM850	0.848	24.5 (Max Frame-Averaged Power)	Body	0	0.40
GSM1900	1.909	22.0 (Max Frame-Averaged Power)	Body	0	0.40
WCDMA II	1.907	23.5	Body	0	0.40
WCDMA V	0.846	23.0	Body	0	0.40
LTE 2	1.909	24.0	Body	0	0.40
LTE 4	1.754	24.0	Body	0	0.40
LTE 7	2.567	23.0	Body	0	0.40
WLAN (DTS)	2.462	15.0	Body	0	0.40
WLAN (NII)	5.2	10.0	Body	0	0.40
WLAN (NII)	5.8	10.5	Body	0	0.40
BT (DSS)	2.48	2.0	Body	0	0.07

Note:

1. The separation distance is determined from the outer housing of the EUT to the user.
2. When standalone SAR testing is not required, an estimated SAR can be applied to determine simultaneous transmission SAR test exclusion.

<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.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	GSM850 + WLAN (DTS)	Head	Right Cheek	0.12	0.19	0.31	∑SAR < 1.6, Not required
			Right Tilted	0.10	0.07	0.17	∑SAR < 1.6, Not required
			Left Cheek	0.13	0.56	**0.69**	∑SAR < 1.6, Not required
			Left Tilted	0.08	0.27	0.35	∑SAR < 1.6, Not required
		Body	Rear Face	0.22	1.00	**1.22**	∑SAR < 1.6, Not required
			Left Side	0.11	0.40	0.51	∑SAR < 1.6, Not required
			Right Side	0.15	1.02	1.17	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.20	0.40	0.60	∑SAR < 1.6, Not required
2	GSM850 + WLAN (NII)	Head	Right Cheek	0.12	0.02	0.14	∑SAR < 1.6, Not required
			Right Tilted	0.10	0.02	0.12	∑SAR < 1.6, Not required
			Left Cheek	0.13	0.14	**0.27**	∑SAR < 1.6, Not required
			Left Tilted	0.08	0.05	0.13	∑SAR < 1.6, Not required
		Body	Rear Face	0.22	0.47	0.69	∑SAR < 1.6, Not required
			Left Side	0.11	0.40	0.51	∑SAR < 1.6, Not required
			Right Side	0.15	1.15	**1.30**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.20	0.40	0.60	∑SAR < 1.6, Not required
3	GSM850 + BT (DSS)	Body	Rear Face	0.22	0.07	0.29	∑SAR < 1.6, Not required
			Left Side	0.11	0.07	0.18	∑SAR < 1.6, Not required
			Right Side	0.15	0.07	0.22	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Bottom Side	0.20	0.07	0.27	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	GSM1900 + WLAN (DTS)	Head	Right Cheek	0.01	0.19	0.20	∑SAR < 1.6, Not required
			Right Tilted	0.00	0.07	0.07	∑SAR < 1.6, Not required
			Left Cheek	0.06	0.56	**0.62**	∑SAR < 1.6, Not required
			Left Tilted	0.00	0.27	0.27	∑SAR < 1.6, Not required
		Body	Rear Face	0.15	1.00	1.15	∑SAR < 1.6, Not required
			Left Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Right Side	0.40	1.02	**1.42**	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.14	0.40	0.54	∑SAR < 1.6, Not required
2	GSM1900 + WLAN (NII)	Head	Right Cheek	0.01	0.02	0.03	∑SAR < 1.6, Not required
			Right Tilted	0.00	0.02	0.02	∑SAR < 1.6, Not required
			Left Cheek	0.06	0.14	**0.20**	∑SAR < 1.6, Not required
			Left Tilted	0.00	0.05	0.05	∑SAR < 1.6, Not required
		Body	Rear Face	0.15	0.47	0.62	∑SAR < 1.6, Not required
			Left Side	0.02	0.40	0.42	∑SAR < 1.6, Not required
			Right Side	0.40	1.15	**1.55**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.14	0.40	0.54	∑SAR < 1.6, Not required
3	GSM1900 + BT (DSS)	Body	Rear Face	0.15	0.07	0.22	∑SAR < 1.6, Not required
			Left Side	0.02	0.07	0.09	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Bottom Side	0.14	0.07	0.21	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	WCDMA II + WLAN (DTS)	Head	Right Cheek	0.02	0.19	0.21	∑SAR < 1.6, Not required
			Right Tilted	0.02	0.07	0.09	∑SAR < 1.6, Not required
			Left Cheek	0.05	0.56	**0.61**	∑SAR < 1.6, Not required
			Left Tilted	0.01	0.27	0.28	∑SAR < 1.6, Not required
		Body	Rear Face	0.30	1.00	1.30	∑SAR < 1.6, Not required
			Left Side	0.04	0.40	0.44	∑SAR < 1.6, Not required
			Right Side	0.40	1.02	**1.42**	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.29	0.40	0.69	∑SAR < 1.6, Not required
2	WCDMA II + WLAN (NII)	Head	Right Cheek	0.02	0.02	0.04	∑SAR < 1.6, Not required
			Right Tilted	0.02	0.02	0.04	∑SAR < 1.6, Not required
			Left Cheek	0.05	0.14	**0.19**	∑SAR < 1.6, Not required
			Left Tilted	0.01	0.05	0.06	∑SAR < 1.6, Not required
		Body	Rear Face	0.30	0.47	0.77	∑SAR < 1.6, Not required
			Left Side	0.04	0.40	0.44	∑SAR < 1.6, Not required
			Right Side	0.40	1.15	**1.55**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.29	0.40	0.69	∑SAR < 1.6, Not required
3	WCDMA II + BT (DSS)	Body	Rear Face	0.30	0.07	0.37	∑SAR < 1.6, Not required
			Left Side	0.04	0.07	0.11	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Bottom Side	0.29	0.07	0.36	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	WCDMA V + WLAN (DTS)	Head	Right Cheek	0.13	0.19	0.32	∑SAR < 1.6, Not required
			Right Tilted	0.10	0.07	0.17	∑SAR < 1.6, Not required
			Left Cheek	0.14	0.56	**0.70**	∑SAR < 1.6, Not required
			Left Tilted	0.09	0.27	0.36	∑SAR < 1.6, Not required
		Body	Rear Face	0.50	1.00	**1.50**	∑SAR < 1.6, Not required
			Left Side	0.37	0.40	0.77	∑SAR < 1.6, Not required
			Right Side	0.40	1.02	1.42	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.19	0.40	0.59	∑SAR < 1.6, Not required
2	WCDMA V + WLAN (NII)	Head	Right Cheek	0.13	0.02	0.15	∑SAR < 1.6, Not required
			Right Tilted	0.10	0.02	0.12	∑SAR < 1.6, Not required
			Left Cheek	0.14	0.14	**0.28**	∑SAR < 1.6, Not required
			Left Tilted	0.09	0.05	0.14	∑SAR < 1.6, Not required
		Body	Rear Face	0.50	0.47	0.97	∑SAR < 1.6, Not required
			Left Side	0.37	0.40	0.77	∑SAR < 1.6, Not required
			Right Side	0.40	1.15	**1.55**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.19	0.40	0.59	∑SAR < 1.6, Not required
3	WCDMA V + BT (DSS)	Body	Rear Face	0.50	0.07	**0.57**	∑SAR < 1.6, Not required
			Left Side	0.37	0.07	0.44	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Bottom Side	0.19	0.07	0.26	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	LTE 2 + WLAN (DTS)	Head	Right Cheek	0.05	0.19	0.24	∑SAR < 1.6, Not required
			Right Tilted	0.04	0.07	0.11	∑SAR < 1.6, Not required
			Left Cheek	0.07	0.56	**0.63**	∑SAR < 1.6, Not required
			Left Tilted	0.03	0.27	0.30	∑SAR < 1.6, Not required
		Body	Rear Face	0.27	1.00	**1.27**	∑SAR < 1.6, Not required
			Left Side	0.05	0.40	0.45	∑SAR < 1.6, Not required
			Right Side	0.05	1.02	1.07	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.32	0.40	0.72	∑SAR < 1.6, Not required
2	LTE 2 + WLAN (NII)	Head	Right Cheek	0.05	0.02	0.07	∑SAR < 1.6, Not required
			Right Tilted	0.04	0.02	0.06	∑SAR < 1.6, Not required
			Left Cheek	0.07	0.14	**0.21**	∑SAR < 1.6, Not required
			Left Tilted	0.03	0.05	0.08	∑SAR < 1.6, Not required
		Body	Rear Face	0.27	0.47	0.74	∑SAR < 1.6, Not required
			Left Side	0.05	0.40	0.45	∑SAR < 1.6, Not required
			Right Side	0.05	1.15	**1.20**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.32	0.40	0.72	∑SAR < 1.6, Not required
3	LTE 2 + BT (DSS)	Body	Rear Face	0.27	0.07	0.34	∑SAR < 1.6, Not required
			Left Side	0.05	0.07	0.12	∑SAR < 1.6, Not required
			Right Side	0.05	0.07	0.12	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Bottom Side	0.32	0.07	0.39	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	LTE 4 + WLAN (DTS)	Head	Right Cheek	0.03	0.19	0.22	∑SAR < 1.6, Not required
			Right Tilted	0.03	0.07	0.10	∑SAR < 1.6, Not required
			Left Cheek	0.06	0.56	**0.62**	∑SAR < 1.6, Not required
			Left Tilted	0.02	0.27	0.29	∑SAR < 1.6, Not required
		Body	Rear Face	0.46	1.00	**1.46**	∑SAR < 1.6, Not required
			Left Side	0.12	0.40	0.52	∑SAR < 1.6, Not required
			Right Side	0.10	1.02	1.12	∑SAR < 1.6, Not required
			Top Side	0.40	0.06	0.46	∑SAR < 1.6, Not required
			Bottom Side	0.67	0.40	1.07	∑SAR < 1.6, Not required
2	LTE 4 + WLAN (NII)	Head	Right Cheek	0.03	0.02	0.05	∑SAR < 1.6, Not required
			Right Tilted	0.03	0.02	0.05	∑SAR < 1.6, Not required
			Left Cheek	0.06	0.14	**0.20**	∑SAR < 1.6, Not required
			Left Tilted	0.02	0.05	0.07	∑SAR < 1.6, Not required
		Body	Rear Face	0.46	0.47	0.93	∑SAR < 1.6, Not required
			Left Side	0.12	0.40	0.52	∑SAR < 1.6, Not required
			Right Side	0.10	1.15	**1.25**	∑SAR < 1.6, Not required
			Top Side	0.40	0.09	0.49	∑SAR < 1.6, Not required
			Bottom Side	0.67	0.40	1.07	∑SAR < 1.6, Not required
3	LTE 4 + BT (DSS)	Body	Rear Face	0.46	0.07	0.53	∑SAR < 1.6, Not required
			Left Side	0.12	0.07	0.19	∑SAR < 1.6, Not required
			Right Side	0.10	0.07	0.17	∑SAR < 1.6, Not required
			Top Side	0.40	0.07	0.47	∑SAR < 1.6, Not required
			Bottom Side	0.67	0.07	**0.74**	∑SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	LTE 7 + WLAN (DTS)	Head	Right Cheek	0.75	0.19	**0.94**	∑SAR < 1.6, Not required
			Right Tilted	0.62	0.07	0.69	∑SAR < 1.6, Not required
			Left Cheek	0.27	0.56	0.83	∑SAR < 1.6, Not required
			Left Tilted	0.31	0.27	0.58	∑SAR < 1.6, Not required
		Body	Rear Face	0.29	1.00	1.29	∑SAR < 1.6, Not required
			Left Side	0.13	0.40	0.53	∑SAR < 1.6, Not required
			Right Side	0.40	1.02	**1.42**	∑SAR < 1.6, Not required
			Top Side	0.28	0.06	0.34	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
2	LTE 7 + WLAN (NII)	Head	Right Cheek	0.75	0.02	**0.77**	∑SAR < 1.6, Not required
			Right Tilted	0.62	0.02	0.64	∑SAR < 1.6, Not required
			Left Cheek	0.27	0.14	0.41	∑SAR < 1.6, Not required
			Left Tilted	0.31	0.05	0.36	∑SAR < 1.6, Not required
		Body	Rear Face	0.29	0.47	0.76	∑SAR < 1.6, Not required
			Left Side	0.13	0.40	0.53	∑SAR < 1.6, Not required
			Right Side	0.40	1.15	**1.55**	∑SAR < 1.6, Not required
			Top Side	0.28	0.09	0.37	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.40	0.80	∑SAR < 1.6, Not required
3	LTE 7 + BT (DSS)	Body	Rear Face	0.29	0.07	0.36	∑SAR < 1.6, Not required
			Left Side	0.13	0.07	0.20	∑SAR < 1.6, Not required
			Right Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required
			Top Side	0.28	0.07	0.35	∑SAR < 1.6, Not required
			Bottom Side	0.40	0.07	**0.47**	∑SAR < 1.6, Not required

Test Engineer：Yihu Xiong

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D835V2	4d139	Nov. 04, 2014	1 Years
System Validation Dipole	SPEAG	D1750V2	1071	Nov. 06, 2014	1 Years
System Validation Dipole	SPEAG	D1900V2	5d159	Nov. 05, 2014	1 Years
System Validation Dipole	SPEAG	D2450V2	893	Nov. 03, 2014	1 Years
System Validation Dipole	SPEAG	D2600V2	1058	Jun. 19, 2015	1 Years
System Validation Dipole	SPEAG	D5GHzV2	1133	Nov. 06, 2014	1 Years
Dosimetric E-Field Probe	SPEAG	EX3DV4	3873	Aug. 26, 2014	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1341	Aug. 26, 2014	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3753	Apr. 24, 2015	1 Year
Data Acquisition Electronics	SPEAG	DAE4	913	Dec. 15, 2014	1 Year
Radio Communication Analyzer	ANRITSU	MT8820C	6201300717	Oct. 09, 2014	1 Year
Wireless Communication Test Set	Agilent	E5515C	MY50267377	Nov. 12, 2014	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214638	Sep. 20, 2014	1 Year
EXA Spectrum Analyzer	ANRITSU	FSV40	101003	Apr. 07, 2015	1 Year
MXG Analong Signal Generator	Agilent	N5183A	MY50140980	Nov. 10, 2014	1 Year
Power Meter	Agilent	N1914A	MY52180044	Aug. 28, 2014	1 Year
Power Sensor	Agilent	E9304A H18	MY52050011	Oct. 14, 2014	1 Year
Temp. & Humi. Recorder	HUATO	A2000TH	HE20107684	Jun. 25, 2015	1 Year
Electronic Thermometer	YONGFA	YF-160A	120100323	Oct. 21, 2014	1 Year

6. Measurement Uncertainty

Source of Uncertainty	Tolerance (± %)	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	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.707	0.707	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	∞
System Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
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	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Output Power Variation - SAR Drift Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Liquid Conductivity - Deviation from Target Values	5.0	Rectangular	√3	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - Measurement Uncertainty	1.0	Normal	1	0.64	0.43	0.6	0.4	25
Liquid Permittivity - Deviation from Target Values	5.0	Rectangular	√3	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - Measurement Uncertainty	0.5	Normal	1	0.60	0.49	0.3	0.2	25
Combined Standard Uncertainty						± 11.2 %	± 10.4 %	
Expanded Uncertainty (K=2)						**± 22.4 %**	**± 20.8 %**	

Uncertainty budget for frequency range 300 MHz to 3 GHz

Source of Uncertainty	Tolerance (± %)	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	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.707	0.707	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	∞
System Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
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	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom Shell	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	1.5 / 0.7	Normal	1	1	1	1.5	0.7	32
Device Holder Uncertainty	4.2 / 1.8	Normal	1	1	1	4.2	1.8	32
Output Power Variation - SAR Drift Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.6	Rectangular	√3	1	1	4.4	4.4	∞
Liquid Conductivity - Deviation from Target Values	5.0	Rectangular	√3	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - Measurement Uncertainty	1.0	Normal	1	0.64	0.43	0.6	0.4	25
Liquid Permittivity - Deviation from Target Values	5.0	Rectangular	√3	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - Measurement Uncertainty	0.5	Normal	1	0.60	0.49	0.3	0.2	25
Combined Standard Uncertainty						± 12.3 %	± 11.5 %	
Expanded Uncertainty (K=2)						**± 24.6 %**	**± 23.0 %**	

Uncertainty budget for frequency range 3 GHz to 6 GHz

7. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., China 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:

China Dongguan Lab:
No. 34, Guantai Rd., Houjie Town, Dongguan, Guangdong 523942, China
Tel: 86-769-8593-5656
Fax: 86-769-8599-1080

Email: service.dg@cn.bureauveritas.com
Web Site: www.adt.com.tw

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

---END---

Appendix A. SAR Plots of System Verification

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

Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/11

System Check_H835_150811

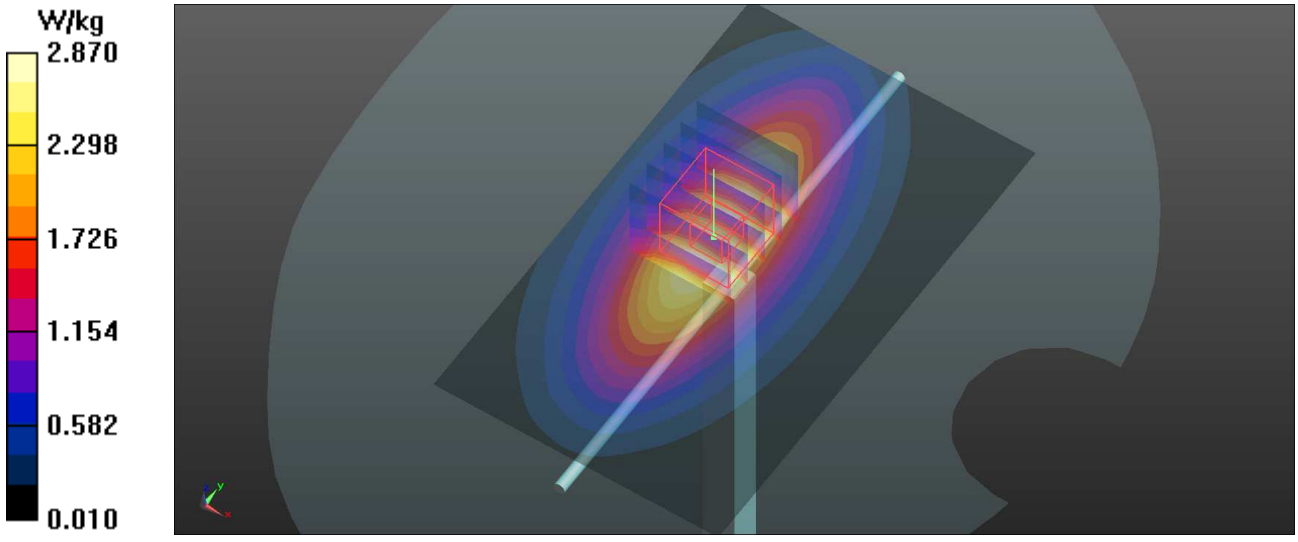
DUT: Dipole:835 MHz; Type:D835V2; SN;4d139

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: H835-A_0811 Medium parameters used: f = 835 MHz; σ = 0.916 S/m; ε_r = 42.748; ρ = 1000 kg/m^3
Ambient Temperature：21.5 ℃； Liquid Temperature：20.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(9.77, 9.77, 9.77); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.87 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.87 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.48 W/kg
SAR(1 g) = 2.3 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (measured) = 2.93 W/kg



System Check_H1750_150812

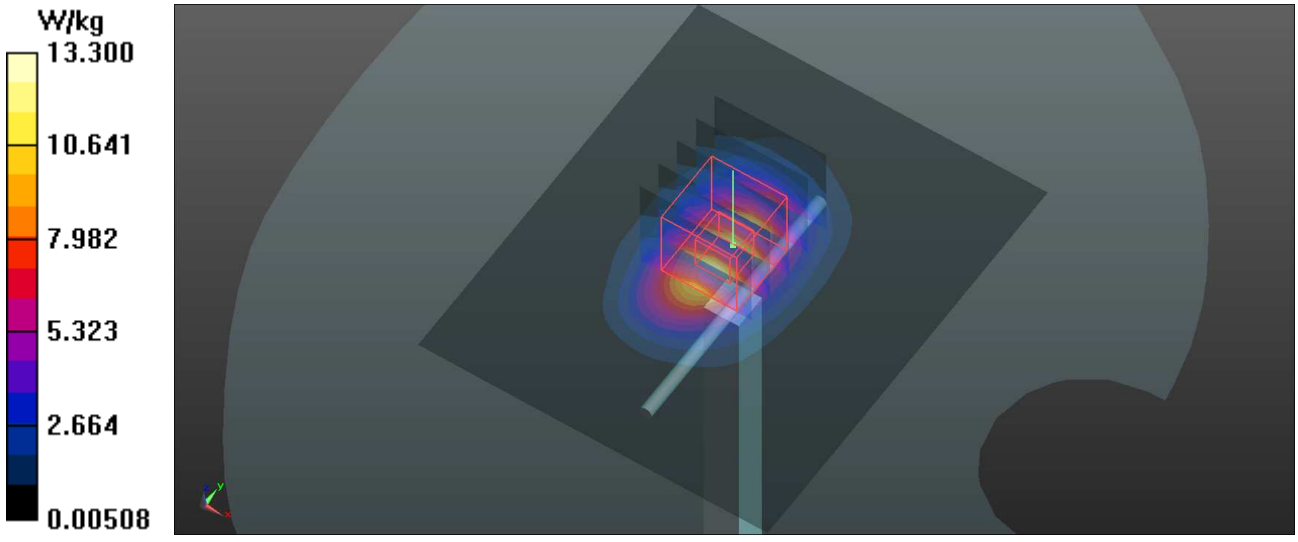
DUT: Dipole 1750 MHz ;Type:D1750V2; SN:1071

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: H1750-A_0812 Medium parameters used: f = 1750 MHz; σ = 1.335 S/m; ε_r = 41.503; ρ = 1000 kg/m^3
Ambient Temperature：21.7 ℃; Liquid Temperature：20.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(8.06, 8.06, 8.06); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (51x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.3 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 90.43 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 9.32 W/kg; SAR(10 g) = 5.04 W/kg
Maximum value of SAR (measured) = 13.0 W/kg



System Check_H1900_150812

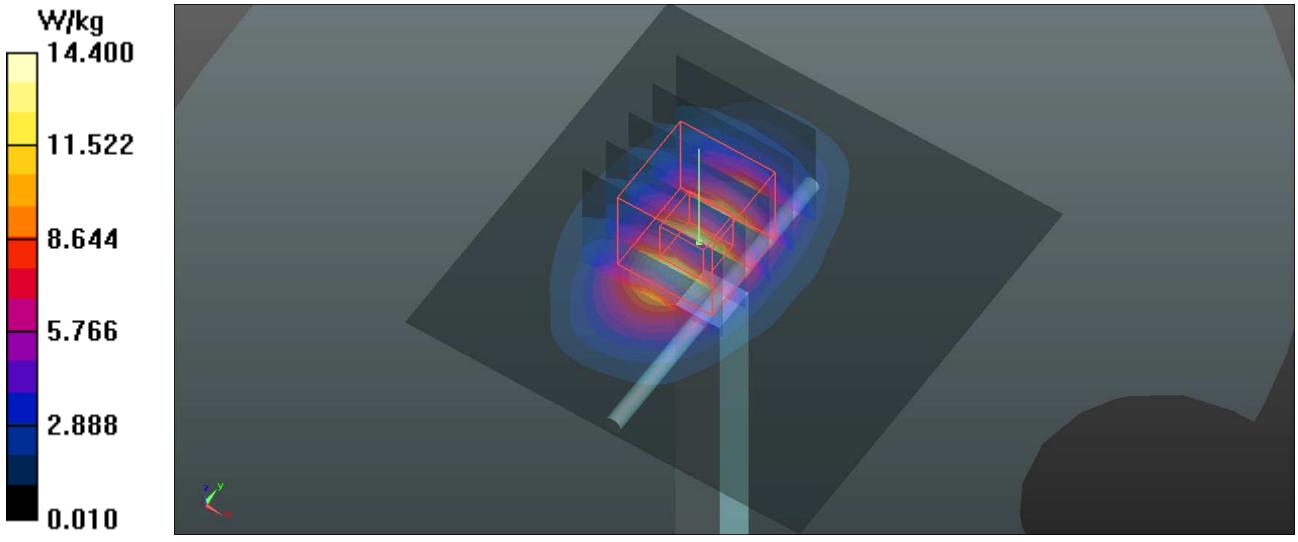
DUT: Dipole 1900 MHz;Type: D1900V2; SN: 5d159

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: H1900-A_0812 Medium parameters used: f = 1900 MHz; σ = 1.442 S/m; ε_r = 39.907; ρ = 1000 kg/m^3
Ambient Temperature：21.8 ℃; Liquid Temperature：20.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(7.82, 7.82, 7.82); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 95.51 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.35 W/kg
Maximum value of SAR (measured) = 14.9 W/kg



System Check_H2450_150810

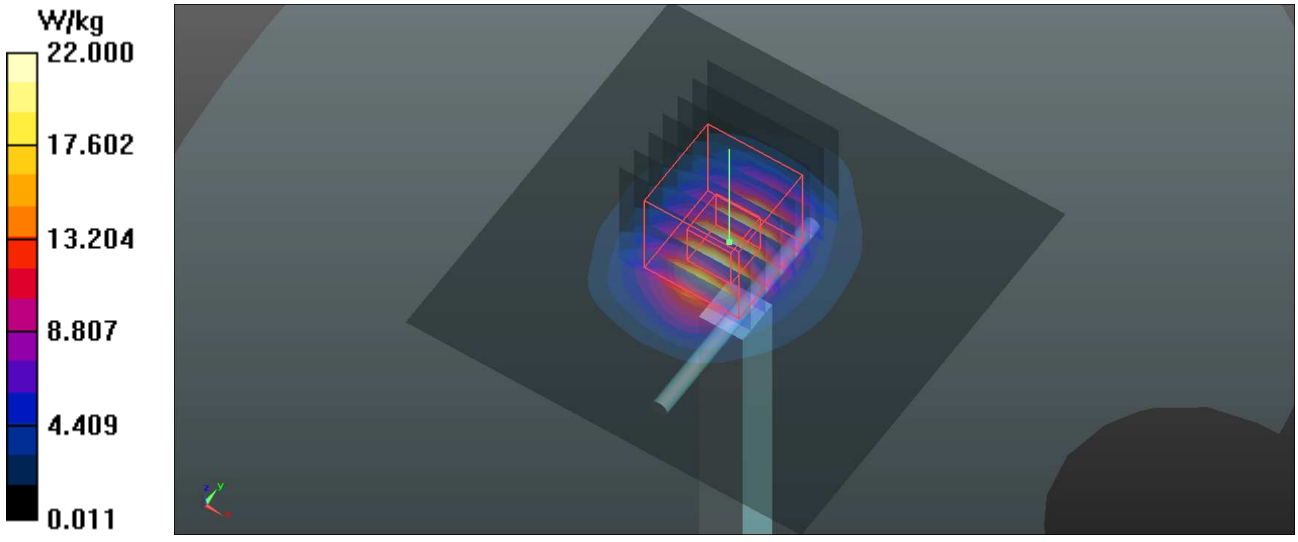
DUT: Dipole 2450 MHz; Type:D2450V2; SN:893

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: H2450-A_0810 Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 39.584; ρ = 1000 kg/m^3
Ambient Temperature：21.7 ℃; Liquid Temperature：20.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(7.18, 7.18, 7.18); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.0 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.7 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 31.1 W/kg
SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.43 W/kg
Maximum value of SAR (measured) = 22.0 W/kg



System Check_H2600_150810

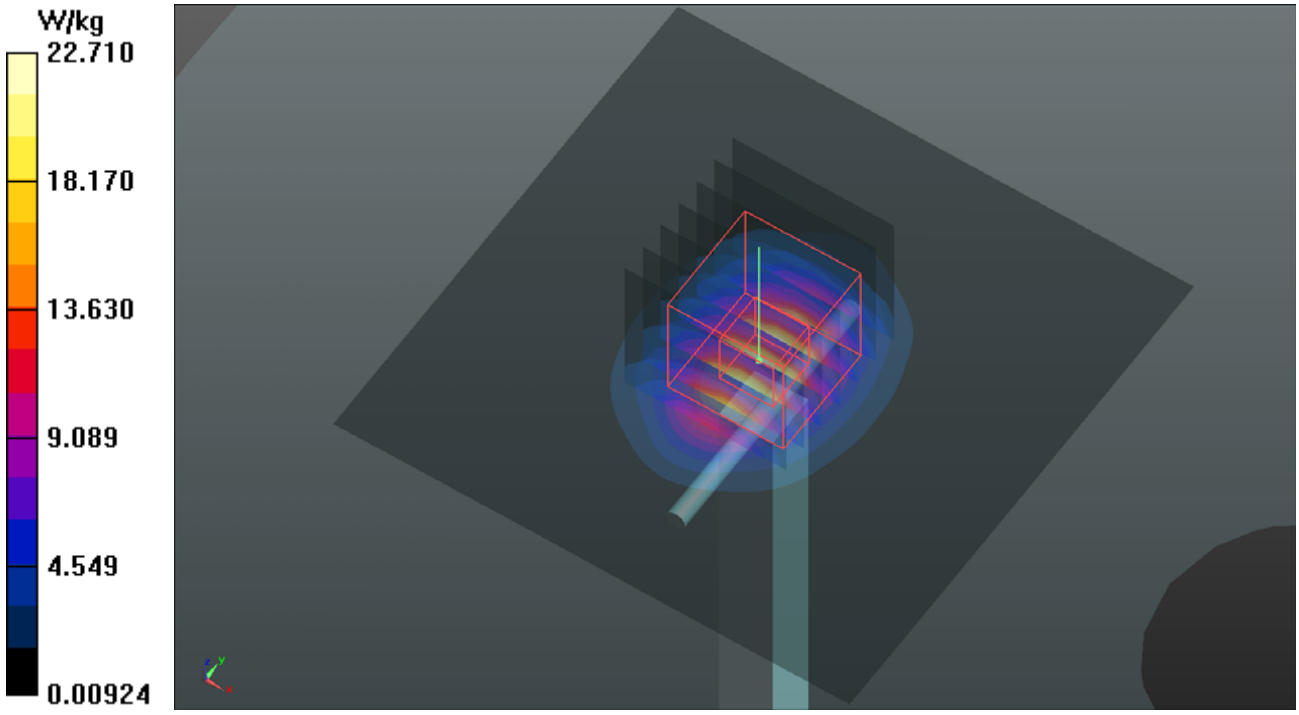
DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1058

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: H2600-A_0810 Medium parameters used: f = 2600 MHz; σ = 1.987 S/m; ε_r = 37.616; ρ = 1000 kg/m^3
Ambient Temperature：21.8℃; Liquid Temperature：20.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 -SN3873; ConvF(7.05, 7.05, 7.05); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 22.7 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.3 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 31.0 W/kg
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.4 W/kg
Maximum value of SAR (measured) = 22.6 W/kg



System Check_H5200_150818

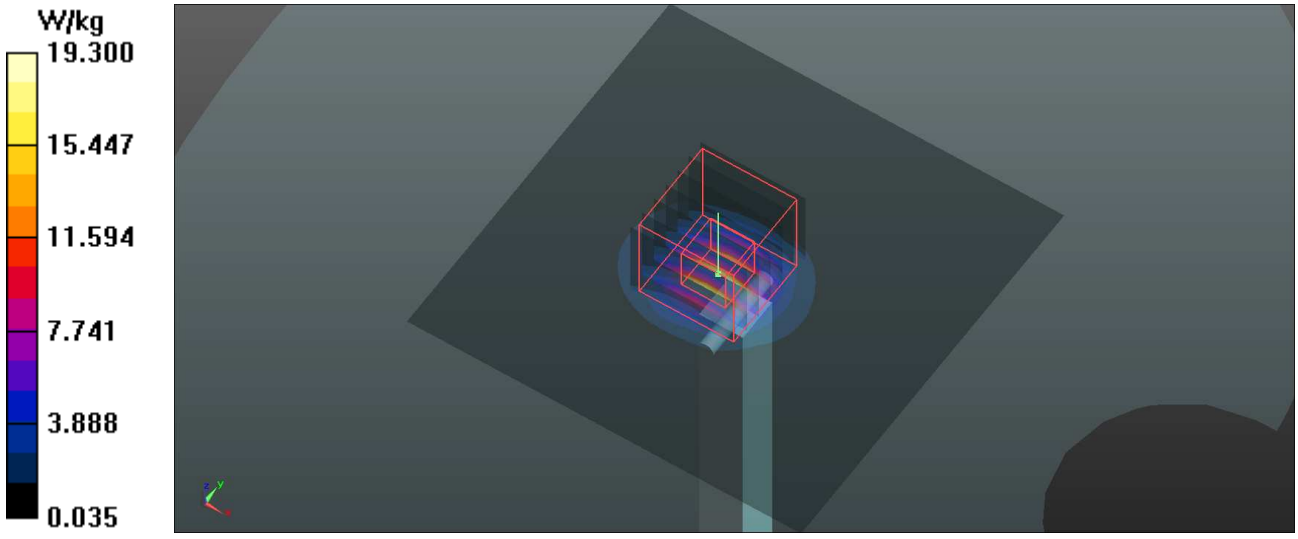
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: H5G-A_0818 Medium parameters used: f = 5200 MHz; σ = 4.67 S/m; ε_r = 36.483; ρ = 1000 kg/m^3
Ambient Temperature：21.7 ℃; Liquid Temperature：20.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(5.26, 5.26, 5.26); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.3 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 58.64 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 33.4 W/kg
SAR(1 g) = 8.3 W/kg; SAR(10 g) = 2.4 W/kg
Maximum value of SAR (measured) = 20.9 W/kg



System Check_H5800_150818

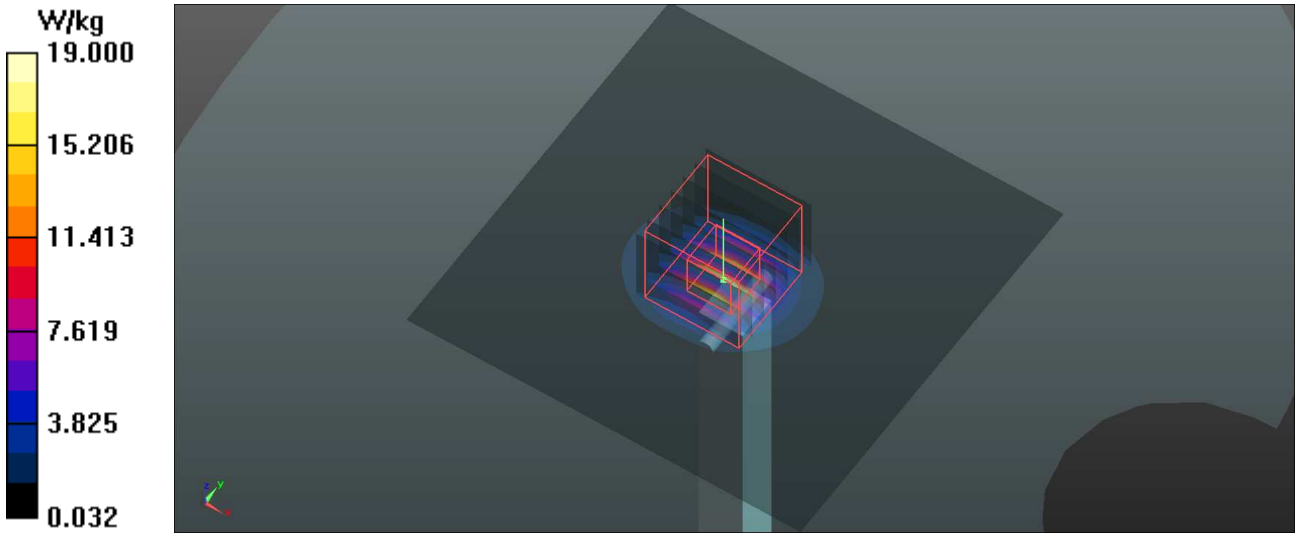
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: H5G-A_0818 Medium parameters used: f = 5800 MHz; σ = 5.273 S/m; ε_r = 35.577; ρ = 1000 kg/m^3
Ambient Temperature：21.7 ℃; Liquid Temperature：20.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(4.72, 4.72, 4.72); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.0 W/kg

Pin=100mW/Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 57.37 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 34.1 W/kg
SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.27 W/kg
Maximum value of SAR (measured) = 20.8 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/13

System Check_B835_150813

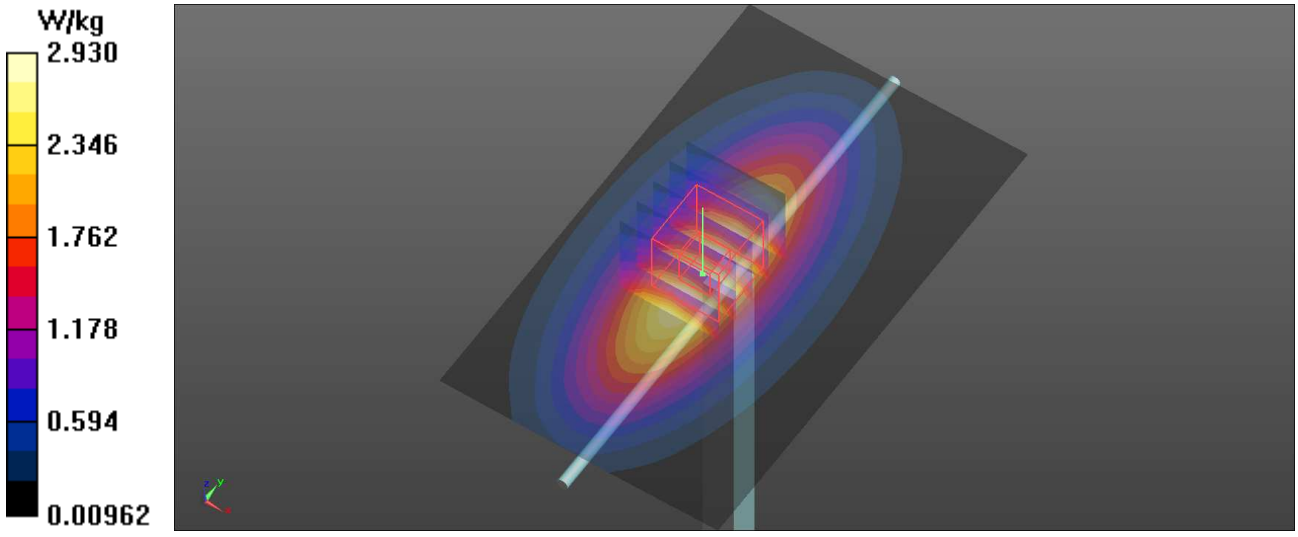
DUT: Dipole:835 MHz; Type:D835V2; SN:4d139

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: B835-A_0813 Medium parameters used: f = 835 MHz; σ = 0.98 S/m; ε_r = 57.348; ρ = 1000 kg/m^3
Ambient Temperature：21.6 ℃; Liquid Temperature：20.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(9.5, 9.5, 9.5); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.93 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.59 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 2.98 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/14

System Check_B1750_150814

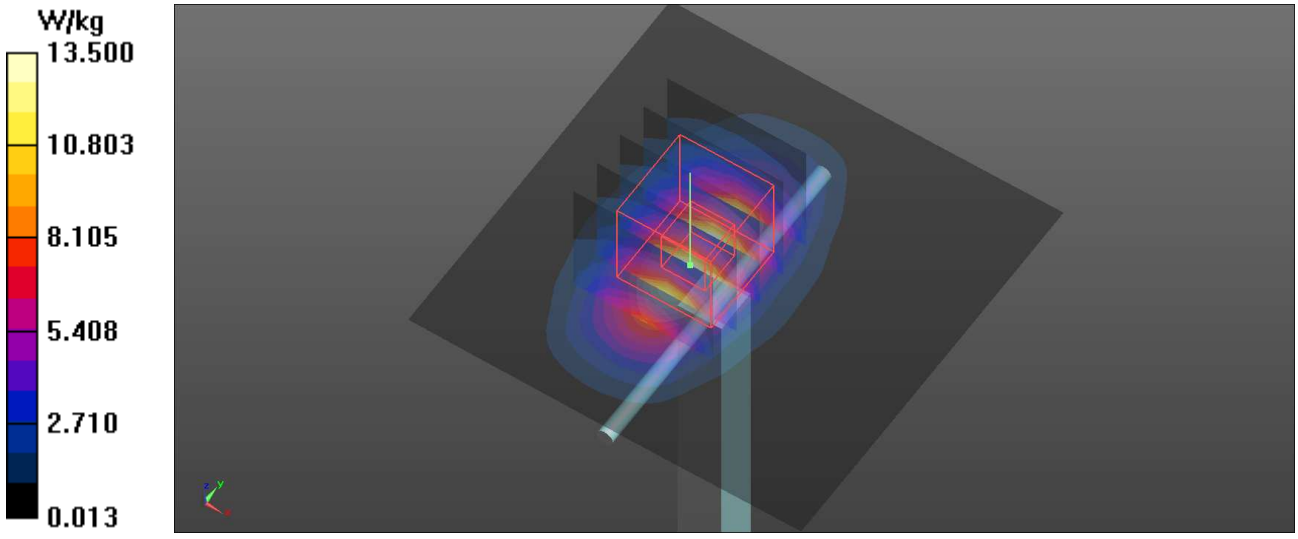
DUT: Dipole 1750 MHz ;Type:D1750V2; SN:1071

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: B1750-A_0814 Medium parameters used: f = 1750 MHz; σ = 1.479 S/m; ε_r = 52.249; ρ = 1000 kg/m^3
Ambient Temperature：21.7 ℃; Liquid Temperature：20.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(7.7, 7.7, 7.7); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.5 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 92.35 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.81 W/kg; SAR(10 g) = 5.28 W/kg
Maximum value of SAR (measured) = 13.7 W/kg



System Check_B1900_150813

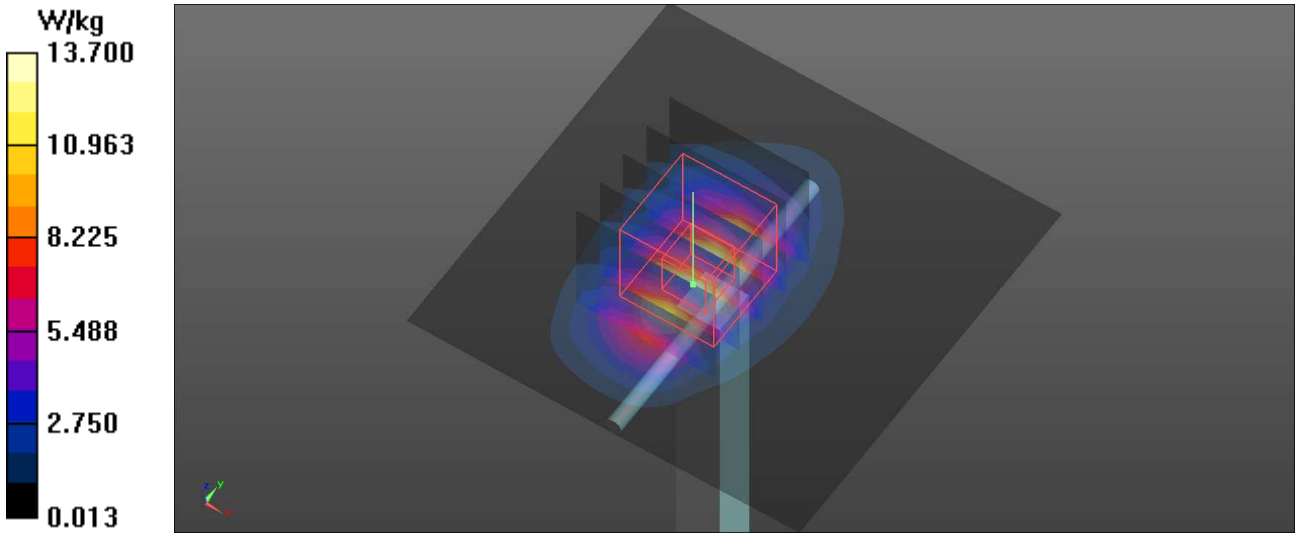
DUT: Dipole:1900MHz; Type:D1900V2; SN:5d159

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: B1900-A_0813 Medium parameters used: f = 1900 MHz; σ = 1.551 S/m; ε_r = 52.998; ρ = 1000 kg/m^3
Ambient Temperature：21.9 ℃; Liquid Temperature：20.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(7.48, 7.48, 7.48); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.7 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 93.71 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 17.0 W/kg
SAR(1 g) = 9.55 W/kg; SAR(10 g) = 5 W/kg
Maximum value of SAR (measured) = 13.5 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/12

System Check_B2450_150812

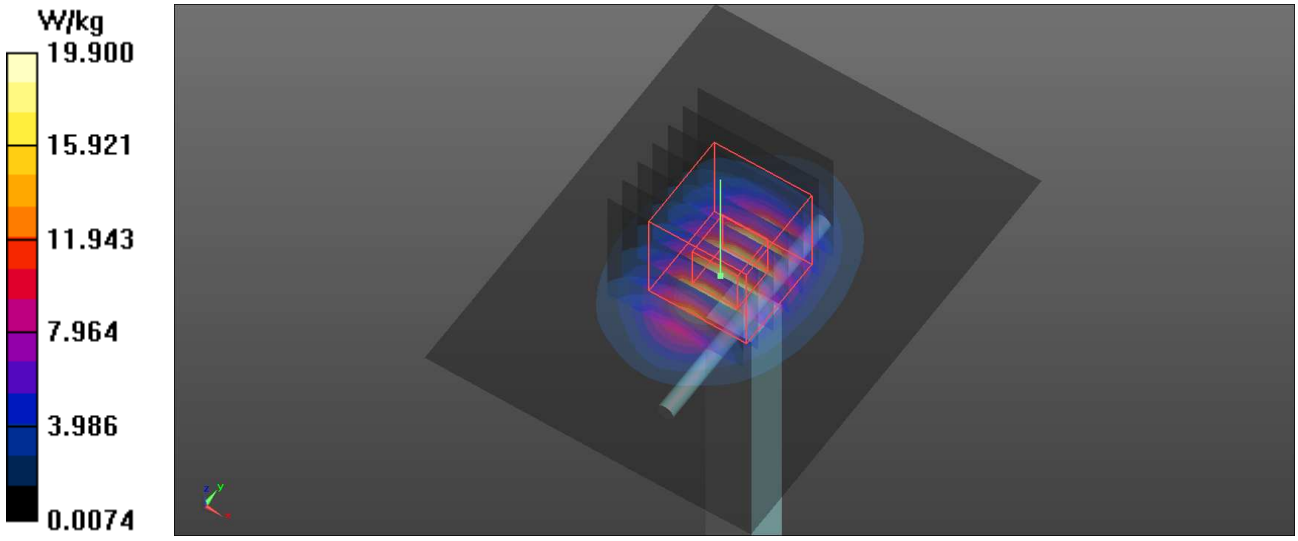
DUT: Dipole 2450 MHz; Type:D2450V2; SN:893

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: B2450-A_0812 Medium parameters used: f = 2450 MHz; σ = 1.929 S/m; ε_r = 51.582; ρ = 1000 kg/m^3
Ambient Temperature：22.1 ℃; Liquid Temperature：21.2 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3873; ConvF(7.13, 7.13, 7.13); Calibrated: 2014/08/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2014/08/26
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 19.9 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.5 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 27.9 W/kg
SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.77 W/kg
Maximum value of SAR (measured) = 19.7 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/14

System Check_B2600_150814

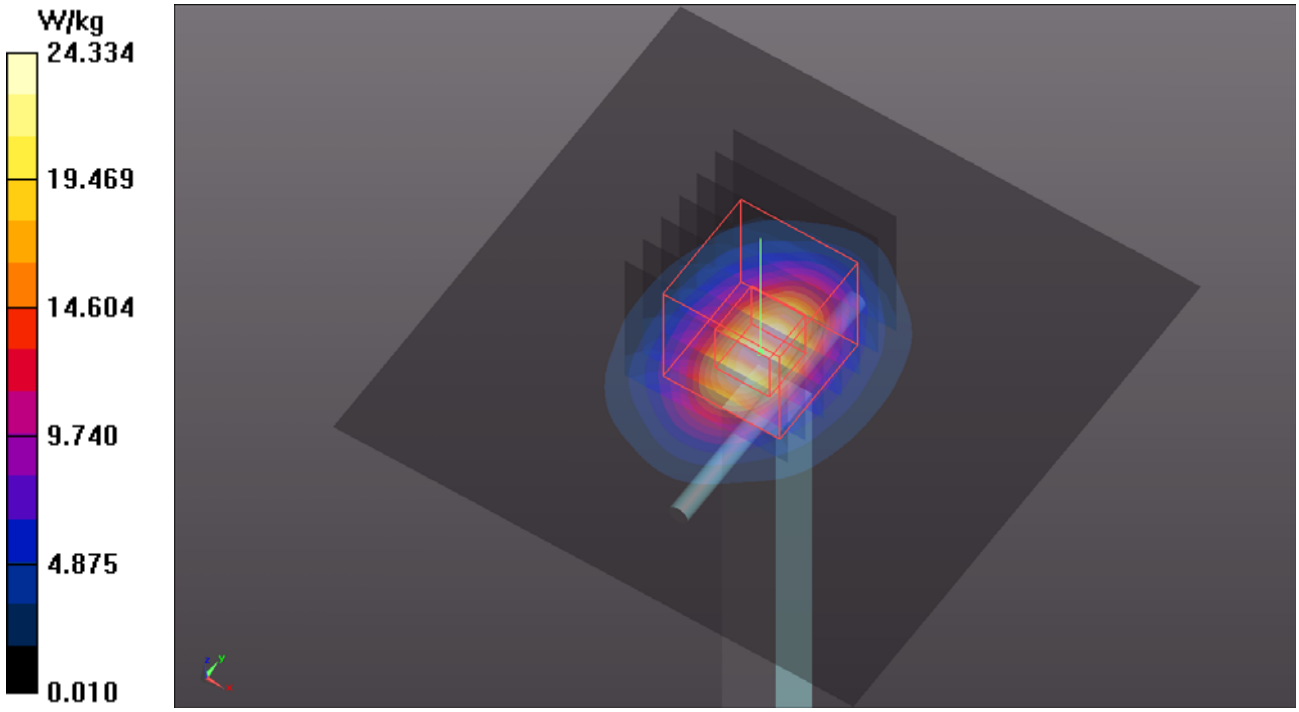
DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1058

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: B2600-A_0814 Medium parameters used: f = 2600 MHz; σ = 2.211 S/m; ε_r = 52.397; ρ = 1000 kg/m^3
Ambient Temperature：22.2℃； Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(7.16, 7.16, 7.16); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 24.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 104.6 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 34.1 W/kg
SAR(1 g) = 15.3 W/kg; SAR(10 g) = 6.8 W/kg
Maximum value of SAR (measured) = 24.3 W/kg



System Check_B5200_150817

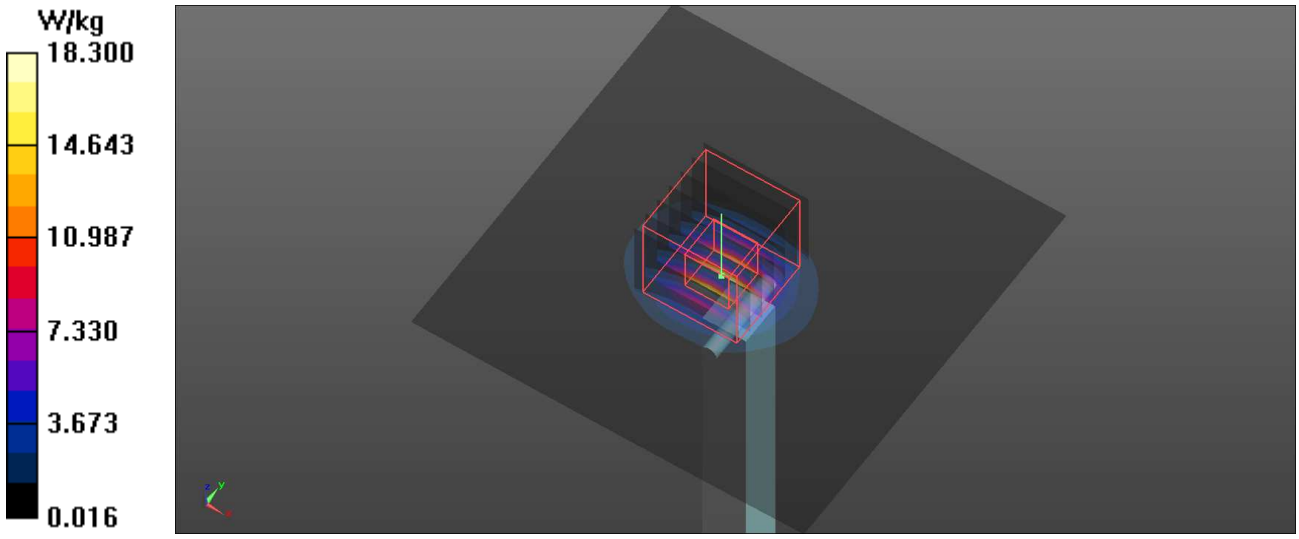
DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: B5G-A_0817 Medium parameters used: f = 5200 MHz; σ = 5.208 S/m; ε_r = 50.972; ρ = 1000 kg/m^3
Ambient Temperature：21.9 ℃; Liquid Temperature：21.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(4.94, 4.94, 4.94); Calibrated: 2015/04/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 18.3 W/kg

Pin=100mW/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 53.79 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 30.3 W/kg
SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



Test Laboratory: Bureau Veritas ADT SAR/HAC Testing Lab Date: 2015/08/17

System Check_B5800_150817

DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: B5G-A_0817 Medium parameters used: f = 5800 MHz; σ = 6.185 S/m; ε_r = 49.782; ρ = 1000 kg/m^3
Ambient Temperature：21.9 ℃; Liquid Temperature：21.1 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3753; ConvF(4.36, 4.36, 4.36); Calibrated: 2015/04/10;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn913; Calibrated: 2014/12/15
- Phantom: ELI 5.0; Type: QD OVA 001 BB; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.9 W/kg

Pin=100mW/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 51.59 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 32.8 W/kg
SAR(1 g) = 7.41 W/kg; SAR(10 g) = 2.07 W/kg
Maximum value of SAR (measured) = 19.5 W/kg