FCC SAR Test Report

FCC ID: QISNMO-L23

Project No.	:	1603C213
Equipment	:	Smart Phone
Model Name	:	HUAWEI NMO-L23,NMO-L23
Applicant	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen China

Date of Receipt	:	Mar. 17, 2016
Date of Test	:	Apr. 01, 2016 ~ May 03, 2016
Issued Date	:	May 04, 2016
Tested by	:	BTL Inc.

PREPARED BY : (Super Jiang/ Technical Engineer)

APPROVED BY : (Steven Lu / Technical Manager)

BTL INC.

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000

Testing Laboratory 2640

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**), or National Institute of Standards and Technology (**NIST**) .

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For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCC SAR-1-1603C213	Original Issue	May 04, 2016

1. GENERAL SUMMARY

Equipment	Smart Phone
Brand Name	HUAWEI
Model Name	HUAWEI NMO-L23,NMO-L23
Model difference	Only differs in model name
Manufacturer	Huawei Technologies Co., Ltd.
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen China
Standard(s)	**ANSI Std C95.1-1992** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.(IEEE Std C95.1-1991) **IEEE Std 1528-2013** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques **KDB941225 D01** 3G SAR Procedures v03r01 **KDB941225 D05** SAR for LTE Devices v02r05 **KDB941225 D06** Hotspot Mode V02r01 **KDB447498 D01** General RF Exposure Guidance v06 **KDB648474 D04** Handset SAR v01r03 **KDB248227 D01** 802. 11 Wi-Fi SAR v02r02 **KDB865664 D01** SAR measurement 100 MHz to 6 GHz v01r04 **KDB865664 D02** SAR Reporting v01r02 **KDB690783 D01** SAR Listings on Grants v01r03

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCC SAR-1-1603C213) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. RF EMISSIONS MEASUREMENT

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **SAR room** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town,Dong Guan, China.523792

2.2 MEASUREMENT UNCERTAINTY

Note: Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04,when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

3. GENERAL INFORMATION

3.1 STATEMENT OF COMPLIANCE

Equipment Class	Mode	Highest Head SAR-1g (W/kg)	Highest Body-worn(15mm) SAR-1g(W/kg)	Highest Hotspot(10mm) SAR-1g(W/kg)
PCE(Top Ant)	GSM850	0.62	0.08	0.18
	GSM1900	0.78	0.03	0.08
	UMTS Band 2	0.64	0.06	0.09
	UMTS Band 4	0.79	0.05	0.09
	UMTS Band 5	0.69	0.12	0.17
	LTE Band 2	0.53	0.06	0.08
	LTE Band 4	0.33	0.04	0.07
	LTE Band 5	0.92	0.07	0.12
	LTE Band 7	0.79	0.06	0.15
	LTE Band 12	0.65	0.08	0.12
	LTE Band 17	1.12	0.16	0.26
PCE(Bottom Ant)	GSM850	0.39	0.40	0.44
	GSM1900	0.25	0.13	0.29
	UMTS Band 2	0.37	0.21	0.51
	UMTS Band 4	0.47	0.31	0.46
	UMTS Band 5	0.29	0.42	0.39
	LTE Band 2	0.31	0.18	0.33
	LTE Band 4	0.41	0.31	0.45
	LTE Band 5	0.17	0.27	0.28
	LTE Band 7	0.71	0.43	1.09
	LTE Band 12	0.11	0.13	0.17
	LTE Band 17	0.13	0.15	0.20
DTS	2.4G WLAN	0.85	0.07	0.12
The highest simultaneous SAR value is 1.55 W/kg per KDB690783 D01				

Note:

1)* For body-worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and that positions the handset a minimum of 15mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The device is in compliance with Specific Absorption Rate（SAR）for general population uncontrolled exposure limits according to the FCC rule §2.1093, the ANSI/IEEE C95.1:1992, the NCRP Report Number 86 for uncontrolled environment, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 .

3.2 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone		
Model Name	HUAWEI NMO-L23,NMO-L23		
IMEI Code	Sample 1	IMEI 1:	860909030000849
		IMEI 2:	860909030006945
	Sample 2	IMEI 1:	860909030004288
		IMEI 2:	860909030010384
S/N	Sample 1	VXJ0116303000085	
	Sample 2	VXJ0116303000429	
HW Version	HL2NEMM		
SW Version	NMO-L23C900B049		
Modulation	GSM(GMSK/8PSK),UMTS(QPSK),LTE(QPSK/16QAM), WiFi(DSSS/OFDM),BT(GFSK/π /4-DQPSK/8-DPSK)		
Operation Frequency Range(s)	Band	TX (MHz)	RX (MHz)
	GSM850	824-849	869-894
	GSM1900	1850-1910	1930-1990
	UMTS Band 2	1850-1910	1930-1990
	UMTS Band 4	1710-1755	2110-2155
	UMTS Band 5	824-849	869-894
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 17	704-716	734-746
	Bluetooth	2400-2483.5	
	WIFI	2412 -2462	
GPRS/EDGE Multislot Class(12)	Max Number of Timeslots in Uplink:	4	
	Max Number of Timeslots in Downlink:	4	
	Max Total Timeslot:	5	
GSM Device class	Class B		
HSDPA UE Category	14		
HSUPA UE Category	6		
DC-HSDPA UE Category	24		
Power Class:	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(UMTS Band 2/4/5)		
	3, tested with power control “all Max” (LTE Band 2/4/5/7/12/17)		
Test Channels (low-mid-high):	128-190-251 (GSM850)		
	512-661-810 (GSM1900)		
	9262-9400-9538(UMTS Band 2)		
	1312-1413-1513 (UMTS Band 4)		
	4132-4182-4233 (UMTS Band 5)		
	18607-18900-19193(LTE Band 2 BW=1.4MHz)		
	18615-18900-19185(LTE Band 2 BW=3MHz)		
	18625-18900-19175(LTE Band 2 BW=5MHz)		
	18650-18900-19150(LTE Band 2 BW=10MHz)		
	18675-18900-19125(LTE Band 2 BW=15MHz)		
	18700-18900-19100(LTE Band 2 BW=20MHz)		
	19957-20175-20393(LTE Band 4 BW=1.4MHz)		
	19965-20175-20385(LTE Band 4 BW=3MHz)		

	19975-20175-20375(LTE Band 4 BW=5MHz)	
	20000-20175-20350(LTE Band 4 BW=10MHz)	
	20025-20175-20325(LTE Band 4 BW=15MHz)	
	20050-20175-20300(LTE Band 4 BW=20MHz)	
	20407-20525-20643(LTE Band 5 BW=1.4MHz)	
	20415-20525-20635(LTE Band 5 BW=3MHz)	
	20425-20525-20625(LTE Band 5 BW=5MHz)	
	20450-20525-20600(LTE Band 5 BW=10MHz)	
	20775-21100-21425(LTE Band 7 BW=5MHz)	
	20800-21100-21400(LTE Band 7 BW=10MHz)	
	20825-21100-21375(LTE Band 7 BW=15MHz)	
	20850-21100-21350(LTE Band 7 BW=20MHz)	
	23017-23095-23173(LTE Band 12 BW=1.4MHz)	
	23025-23095-23165(LTE Band 12 BW=3MHz)	
	23035-23095-23155(LTE Band 12 BW=5MHz)	
	23060-23095-23130(LTE Band 12 BW=10MHz)	
	23755-23790-23825(LTE Band 17 BW=5MHz)	
	23780-23790-23800(LTE Band 17 BW=10MHz)	
	1-6 -11 (2.4G WIFI 802.11b/g/n HT20)	
	3-6 - 9 (2.4G WIFI 802.11n HT40)	
Antenna Gain	BT/2.4G WiFi: -2.1dBi	
	Top Antenna	GSM1900/ UMTS/LTE Band 2: -2.1dBi
		UMTS/LTE Band 4: -1.6dBi
		GSM850/ UMTS/LTE Band 5/17: -3.1dBi
		LTE Band 7: 1.8dBi
		LTE Band 12:-3.12dBi
	Bottom Antenna	GSM1900/ UMTS/LTE Band 2: 1.3dBi
		UMTS/LTE Band 4: 0.45dBi
		GSM850/ UMTS/LTE Band 5:-2.78dBi
		LTE Band 7:1.4dBi
		LTE Band 12/17:-8.6dBi
Other Information		
Battery	Huawei Technologies Co., Ltd. Battery Model: HB366481ECW Nominal Voltage: ⎓ +3.82V Charging Voltage: ⎓ +4.4V Rated capacity: 2900mAh 1. Sunwoda Electronic Co., LTD 2. SCUD (FUJIAN) Electronics Co., Ltd 3. DESAY CORPORATION.	
Earphone	1. Jiangxi Lianchuang Hongsheng Electronic Co., LTD. Model: MEMD1532B528000 2. BOLUO COUNTY QUANCHENG ELECTRONIC Model: 1293#+3283# 3.5MM-150 3. GOERTEK INC. Model: HA1-3	

Note: The sample 1 is the same as the sample 2.The sample 1 is used for the bottom antenna testing, and the sample 2 is used for the top antenna testing.

3.3 LABORATORY ENVIRONMENT

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

3.4 MAIN TEST INSTRUMENTS

Item	Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Interval
1	Data Acquisition Electronics	Speag	DAE4	1390	Sep. 18, 2015	1 Year
2	E-field Probe	Speag	EX3DV4	3932	Feb. 19, 2016	1 Year
3	System Validation Dipole	Speag	D750V3	1095	Sep. 30, 2015	1 Year
4	System Validation Dipole	Speag	D835V2	4d160	Sep. 30, 2015	1 Year
5	System Validation Dipole	Speag	D1750V2	1101	Sep. 22, 2015	1 Year
6	System Validation Dipole	Speag	D1900V2	5d179	Sep. 29, 2015	1 Year
7	System Validation Dipole	Speag	D2450V2	919	Sep. 28, 2015	1 Year
8	System Validation Dipole	Speag	D2600V2	1067	Sep. 28, 2015	1 Year
9	Twin Sam Phantom	Speag	Twin Sam Phantom V5.0	1784	NA	NA
10	Twin Sam Phantom	Speag	Twin Sam Phantom V5.0	1896	NA	NA
11	8960 Series 10 Wireless Com Te st set	Agilent	E5515E	MY52112163	Aug. 03, 2015	1 Year
12	8960 Series 10 Wireless Com Te st set	Agilent	E5515E	MY52111002	Sep. 09, 2015	1 Year
13	CMW500-Wideband Radio Communication Tester	RS	CMW500	152366	Mar. 27, 2016	1 Year
14	CMW500-Wideband Radio Communication Tester	RS	CMW500	152372	Mar. 27, 2016	1 Year
15	Power Amplifier	Mini-Circuits	ZHL-42W+	QA1333003	NA	NA
16	ENA Network Analyzer	Agilent	E5071C	MY46102965	Mar. 27, 2016	1 Year
17	MXG Analog Signal Generator	Agilent	N5181A	MY49060710	Oct .11, 2015	1 Year
18	P-series power meter	Agilent	N1911A	MY45100473	Oct. 26, 2015	1 Year
19	wideband power sensor	Agilent	N1921A	MY51100041	Oct. 26, 2015	1 Year
20	power Meter	Anritsu	ML2495A	1128009	Mar. 27, 2016	1 Year
21	Pulse Power Sensor	Anritsu	MA 2411B	1027500	Mar. 27, 2016	1 Year
22	Dielectric Assessment Kit	Speag	DAK-3.5	1226	Aug. 04, 2015	1 Year
23	Dual directional coupler	Woken	TS-PCC0M-05	107090019	Mar. 16, 2016	1 Year

Remark: ” N/A” denotes no model name, serial No. or calibration specified.
All calibration period of equipment list is one year.

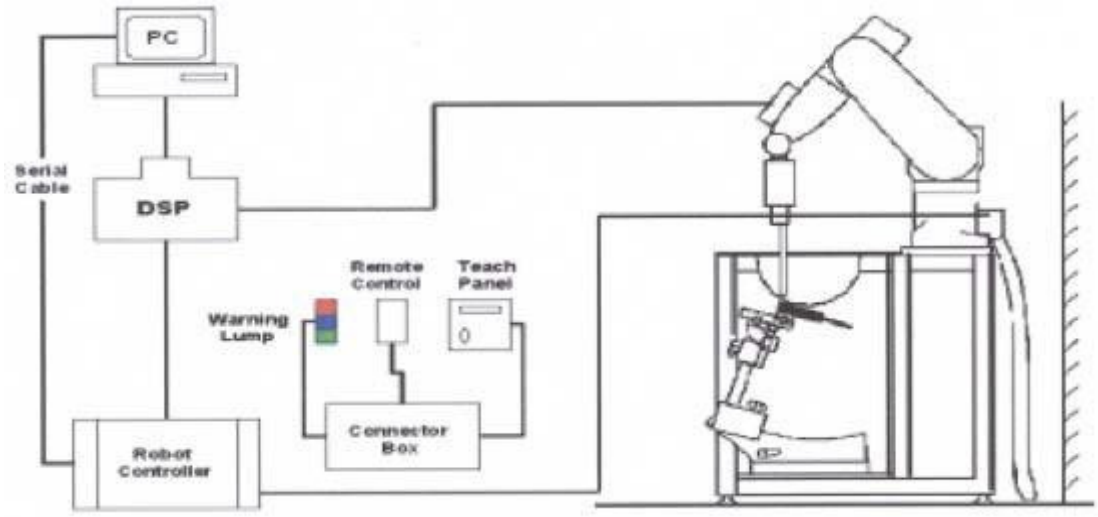
4.SAR MEASUREMENTS SYSTEM CONFIGURATION

4.1SAR MEASUREMENT SET-UP

The DASY5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. TheDASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 7
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.1.1Test Setup Layout



4.2DASY5E-FIELDPROBESYSTEM

The SAR measurements were conducted with the dosimetric probe EX3DV4(manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

4.2.1EX3DV4 PROBE SPECIFICATION

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
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:± 0.2dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Distance from probe tip to dipole centers: 1.0 mm

EX3DV4 E-field Probe

4.2.2E-FIELD PROBE CALIBRATION

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\mathbf{SAR} = \mathbf{C}\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

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

Where: σ = Simulated tissue conductivity,

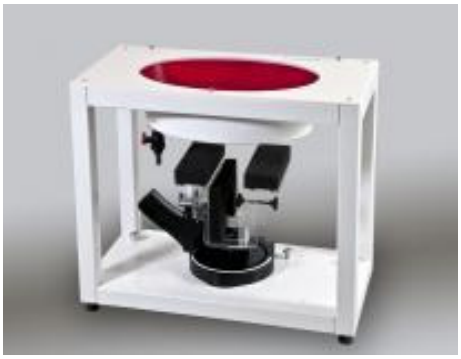
ρ = Tissue density (kg/m3).

4.2.3OTHER TEST EQUIPMENT

4.2.3.1. Device Holder for Transmitters

Construction: Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices (e.g., laptops, cameras, etc.) It is light weight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin SAM, ELI4and SAM v6.0Phantoms.
Material: POM, Acrylic glass, Foam

4.2.3.2 Phantom

Model	ELI4 Phantom	
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.	
Shell Thickness	2±0.1 mm	
Filling Volume	Approx. 30 liters	
Dimensions	Length: 600 mm ; Width: 190mm Height: adjustable feet	
Aailable	Special	

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.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length:1000mm; Width: 500mm Height: adjustable feet	
Aailable	Special	

4.2.4SCANNING PROCEDURE

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.

The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

- Area Scan

The “area scan” measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement.

Standard grid spacing for head measurements is 15 mm in x- and y- dimension(⩽2GHz) , 12 mm in x- and y- dimension(2-4 GHz) and 10mm in x- and y- dimension(4-6GHz). If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation.

- Zoom Scan

A “zoom scan” measures the field in a volume around the 2D peak SAR value acquired in the previous “coarse” scan. This is a fine grid with maximum scan spatial resolution: Δx_{zoom}, Δy_{zoom}⩽ 2GHz -⩽8mm, 2-4GHz -⩽5 mm and 4-6 GHz-⩽4mm; Δz_{zoom}⩽3GHz -⩽5 mm, 3-4 GHz-⩽4mm and 4-6GHz-⩽2mm where the robot additionally moves the probe along the z-axis away from the bottom of the Phantom. DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in Appendix B. Test results relevant for the specified standard (see chapter 1.4.)are shown in table form form in chapter 7.2.

A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 2 mm steps. This measurement shows the continuity of the liquid and can - depending in the field strength – also show the liquid depth.

The following table summarizes the area scan and zoom scan resolutions per FCC KDB 865664D01:

Frequency	Maximun Area Scan resolution (Δx_{area}, Δy_{area})	Maximun Zoom Scan spatial resolution (Δx_{Zoom}, Δy_{Zoom})	Maximun Zoom Scan spatial resolution			Minimum zoom scan volume (x,y,z)
			Uniform Grid	Graded Grad		
			$\Delta z_{Zoom}(n)$	$\Delta z_{Zoom}(1)$*	$\Delta z_{Zoom}(n>1)$*	
≤2GHz	≤15mm	≤8mm	≤5mm	≤4mm	≤1.5*$\Delta z_{Zoom}(n-1)$	≥30mm
2-3GHz	≤12mm	≤5mm	≤5mm	≤4mm	≤1.5*$\Delta z_{Zoom}(n-1)$	≥30mm
3-4GHz	≤12mm	≤5mm	≤4mm	≤3mm	≤1.5*$\Delta z_{Zoom}(n-1)$	≥28mm
4-5GHz	≤10mm	≤4mm	≤3mm	≤2.5mm	≤1.5*$\Delta z_{Zoom}(n-1)$	≥25mm
5-6GHz	≤10mm	≤4mm	≤2mm	≤2mm	≤1.5*$\Delta z_{Zoom}(n-1)$	≥22mm

4.2.5SPATIAL PEAK SAR EVALUATION

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of 5 x 5 x 7 points(with 8mm horizontal resolution) or 7 x 7 x 7 points(with 5mm horizontal resolution) or 8 x 8 x 7 points(with 4mm horizontal resolution). The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting “Graph Evaluated”.
- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.
- All neighboring volumes are evaluated until no neighboring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY5 uses the advanced extrapolation option which is able to compansate boundary effects on E-field probes.

4.2.6DATA STORAGE AND EVALUATION

4.2.5.1Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

4.4.2 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	Sensitivity	Normi, a_{i0}, a_{i1}, a_{i2}
	Conversion factor	$ConvF_i$
	Diode compression point	Dcp_i
Device parameters:	Frequency	f
	Crest factor	cf
Media parameters:	Conductivity	
	Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multi meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)^2] for E-field Probes

ConvF = sensitivity enhancement in solution

aij = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_X^2 + E_Y^2 + E_Z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot})^2 \cdot \sigma / (\rho \cdot 1000)$$

With SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m
= conductivity in [mho/m] or [Siemens/m]
= equivalent tissue density in g/cm^3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \text{ or } P_{pwe} = H_{tot}^2 \cdot 37.7$$

With P_{pwe} = equivalent power density of a plane wave in mW/cm^2

E_{tot} = total field strength in V/m

H_{tot} = total magnetic field strength in A/m

5. SYSTEM VERIFICATION PROCEDURE

5.1 TISSUE VERIFICATION

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectic parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within ± 5% of the target values.

The following materials are used for producing the tissue-equivalent materials.

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
Head 750	0.2	-	0.2	1.5	56.0	-	42.1	-
Head 835	0.2	-	0.2	1.5	57.0	-	41.1	-
Head 1750	-	47.0	-	0.4	-	-	52.6	-
Head 1900	-	44.5	-	0.2	-	-	55.3	-
Head 2450	-	45.0	-	0.1	-	-	54.9	-
Head 2600	-	45.1	-	0.1	-	-	54.8	-

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
Body 750	0.2	-	0.2	0.8	48.8	-	50.0	-
Body 835	0.2	-	0.2	0.9	48.5	-	50.2	-
Body 1750	-	31.0	-	0.2	-	-	68.8	-
Body 1900	-	29.5	-	0.3	-	-	70.2	-
Body 2450	-	31.4	-	0.1	-	-	68.5	-
Body 2600	-	31.8	-	0.1	-	-	68.1	-

Salt: 99+% Pure Sodium Chloride; Sugar: 98+% Pure Sucrose; Water: De-ionized, 16M + resistivity
HEC: Hydroxyethyl Cellulose; DGBE: 99+% Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy)ethanol]
Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

Tissue Verification									
Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (εr)	Targeted Conductivity (σ)	Targeted Permittivity (εr)	Deviation Conductivity (σ) (%)	Deviation Permittivity (εr) (%)	Date
Head	750	22.5	0.901	40.838	0.89	41.9	1.24	-2.53	Apr. 06, 2016
Head	835	22.3	0.899	42.250	0.90	41.5	-0.07	1.81	Apr. 02, 2016
Head	1750	22.5	1.328	41.550	1.37	40.1	-3.07	3.62	Apr. 05, 2016
Head	1900	22.3	1.408	39.890	1.40	40.0	0.57	-0.27	Apr. 03, 2016
Head	2450	22.4	1.851	39.150	1.80	39.2	2.83	-0.13	May 03, 2016
Head	2600	22.5	1.992	38.240	1.96	39.0	1.63	-1.95	Apr. 01, 2016
Body	750	22.3	0.952	55.350	0.96	55.5	-0.83	-0.27	Apr. 06, 2016
Body	835	22.4	0.968	55.186	0.97	55.2	-0.21	-0.03	Apr. 11, 2016
Body	1750	22.5	1.463	51.680	1.49	53.4	-1.81	-3.22	Apr. 10, 2016
Body	1900	22.4	1.539	53.391	1.52	53.3	1.25	0.17	Apr. 07, 2016
Body	1900	22.2	1.531	52.984	1.52	53.3	0.72	-0.59	Apr. 11, 2016
Body	2450	22.4	1.954	51.730	1.95	52.7	0.21	-1.84	May 03, 2016
Body	2600	22.5	2.216	52.309	2.16	52.5	2.59	-0.36	Apr. 07, 2016

Note:
1)The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.
2)KDB 865664 was ensured to be applied for probe calibration frequencies greater than or equal to 50MHz of the EUT frequencies.
3)The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies. The SAR test plots may slightly differ from the table above since the DASY rounds to three significant digits.

5.2 SYSTEM CHECK

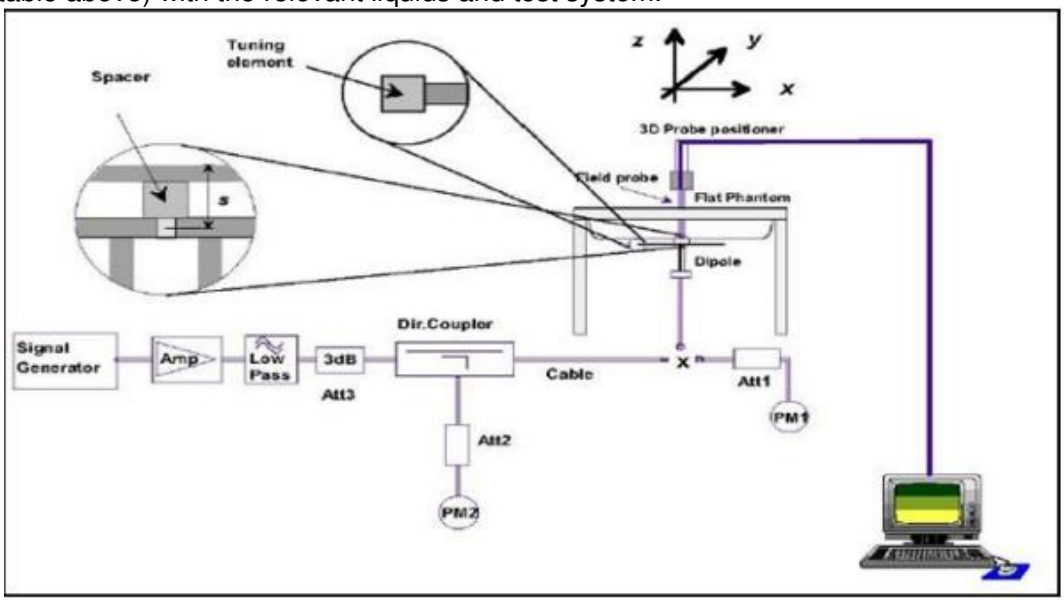
The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The system check is performed with tissue equivalent material according to IEEE P1528 (described above). The following table shows system check results for all frequency bands and tissue liquids used during the tests.

System Check	Date	Frequency (MHz)	Targeted SAR-1g (W/kg)	Measured SAR-1g (W/kg)	normalized SAR-1g (W/kg)	Deviation (%)	Dipole S/N
Head	Apr. 06, 2016	750	8.27	2.05	8.20	-0.85	1095
Head	Apr. 02, 2016	835	9.50	2.35	9.40	-1.05	4d160
Head	Apr. 05, 2016	1750	36.60	8.94	35.76	-2.30	1101
Head	Apr. 03, 2016	1900	39.70	9.61	38.44	-3.17	5d179
Head	May 03, 2016	2450	52.00	13.50	54.00	3.85	919
Head	Apr. 01, 2016	2600	56.80	14.50	58.00	2.11	1067
Body	Apr. 06, 2016	750	8.65	2.15	8.60	-0.58	1095
Body	Apr. 11, 2016	835	9.62	2.36	9.44	-1.87	4d160
Body	Apr. 10, 2016	1750	35.70	8.89	35.56	-0.39	1101
Body	Apr. 07, 2016	1900	39.60	9.84	39.36	-0.61	5d179
Body	Apr. 11, 2016	1900	39.60	9.93	39.72	0.30	5d179
Body	May 03, 2016	2450	51.10	13.20	52.80	3.33	919
Body	Apr. 07, 2016	2600	54.10	13.55	54.20	0.18	1067

5.3 SYSTEM CHECK PROCEDURE

The system check is performed by using a system check dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 250 mW(below 5GHz) or 100mW(above 5GHz). To adjust this power a power meter is used. The power sensor is connected to the cable before the system check to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system check to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test.

System check results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system.



6.SAR MEASUREMENT VARIABILITY AND UNCERTAINTY

6.1SAR MEASUREMENT VARIABILITY

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The 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.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ⩾ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only 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 (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ⩾1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

The detailed repeated measurement results are shown in Section 8.2.

7. OPERATIONAL CONDITIONS DURING TEST

7.1 SAR TEST CONFIGURATION

7.1.1 GSM TEST CONFIGURATION

SAR tests for GSM850 and GSM1900, a communication link is set up with a base station by air link. Using 8960 Series the power lever is set to “5”and “0” in SAR of GSM850 and GSM1900. The tests in the band of GSM850 and GSM1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.
When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot.

The allowed power reduction in the multi-slot configuration is as following:

Number of timeslots in uplink assignment		Reduction of maximum output power (dB)		
Band	Time Slots	GPRS (GMSK)	EGPRS (GMSK)	EGPRS (8PSK)
GSM850	1 TX slot	0	0	6.5
	2 TX slots	2	2	8.5
	3 TX slots	4	4	10.5
	4 TX slots	6	6	12.5
GSM1900	1 TX slot	0	0	4.5
	2 TX slots	2	2	6.5
	3 TX slots	4	4	8.5
	4 TX slots	6	6	10.5

7.1.2 UMTS TEST CONFIGURATION

1. Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the procedures description in section 5.2 of 3GPP TS 34.121,using the appropriate RMC or AMR with TPC(transmit power control) set to all “1s” for UMTS/HSDPA or applying the required inner loop power control procedure to maintain maximum output power while HSUPA is active. Result for all applicable physical channel configurations(DPCCH,DPDCHn and spreading codes, HSDPA, HSPA)
Should be tabulated in the SAR report .All configuration that are not supported by the DUT or cannot be measured due to technical or equipment limitation should be clearly identified.

2. WCDMA

(1).Head SAR Measurements
SAR for Head exposure configurations in voice mode is measured using a 12.2 kbps RMC with TPC bits configured to all “1s”. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than ¼ dB higher than that measured in 12.2 kbps RMC. Otherwise SAR is measured on the maximum output channel in 12.2 kbps AMR with 3.4kbps SRB(signalling radio bearer) using the exposure configuration that results in the highest SAR in12.2kbps RMC for that RF channel.

(2).Body SAR Measurements
SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits configured to all “1s”. SAR for other spreading codes and multiple DPDCHn, when supported by the EUT, are not required when the maximum average outputs of each RF channel, for each spreading code and DPDCHn configuration, are less than ¼ dB higher than those measured in 12.2 kbps RMC.

3. HSDPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements"" procedures of 3G device. In addition, body SAR is also measured for HSDPA when the maximum average outputs of each RF channel with HSDPA active is at ¼ dB higher than that measured without HSDPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.
HSDPA should be configured according to UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HAPRQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. The β_c andβ_d gain factors for DPCCH and DPDCH were set according to the values in the below table,β_{hs} for HS-DPCCH is set automatically to the correct value when Δ ACK,Δ NACK, Δ CQI = 8. The variation of theβ_c /β_d ratio causes a power reduction at sub-tests 2 - 4.

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

Note 1: △ACK, △NACK and △CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
Note 2 : CM=1 for β_c/β_d= 12/15, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH,DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
Note 3 : For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Settings of required H-Set 1 QPSK acc. to 3GPP 34.121

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

HSDPA UE category

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum HS-DSCH Transport Block Bits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

4. HSUPA

SAR for Body exposure configurations is measured according to the “Body SAR Measurements” procedures of 3G device. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤¼ 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 primary mode and the adjusted SAR is ≤ 1.2W/kg, SAR measurement is not required for the secondary mode.

Per KDB941225 D01v03r01, the 3G SAR test reduction procedures is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures for the highest reported body exposure SAR configuration in 12.2 kbps RMC.

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSDPA should be configured according to the values indicated below as well as other applicable procedures described in the “UMTS Handset“ and „Release 5 HSDPA Data Device” sections of 3G device.

Subtests for UMTS Release 6 HSUPA

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

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

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

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

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

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

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

HSUPA UE category

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

5. DC-HSDPA

In DC-HSDPA implementation of this device, the uplink parameters are the same as HSDPA. No additional channels and modulations (16 QAM, and 64 QAM) are supported in uplink. The difference is only in the downlink parameters, where two carriers are supported. HSDPA settings were used on uplink.

For Rel. 8 DC-HSDPA apply the four subtests from HSDPA Release 5 except use fixed reference channel H-Set 12 for DC-HSDPA. And we can apply the same SAR test exclusion criteria used for Rel. 6 HSPA for Rel. 7 HSPA+ and Rel. 8 DC-HSDPA. That is, if the HSPA, HSPA+, or the DC-HSDPA maximum output is not more than 0.25 dB higher than UMTS, SAR measurement for those modes is not required.

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Levels for HSDPA connection setup

Parameter During Connection setup	**Unit**	**Value**
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13
The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.
The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI"s
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Note:
1.The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2.Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

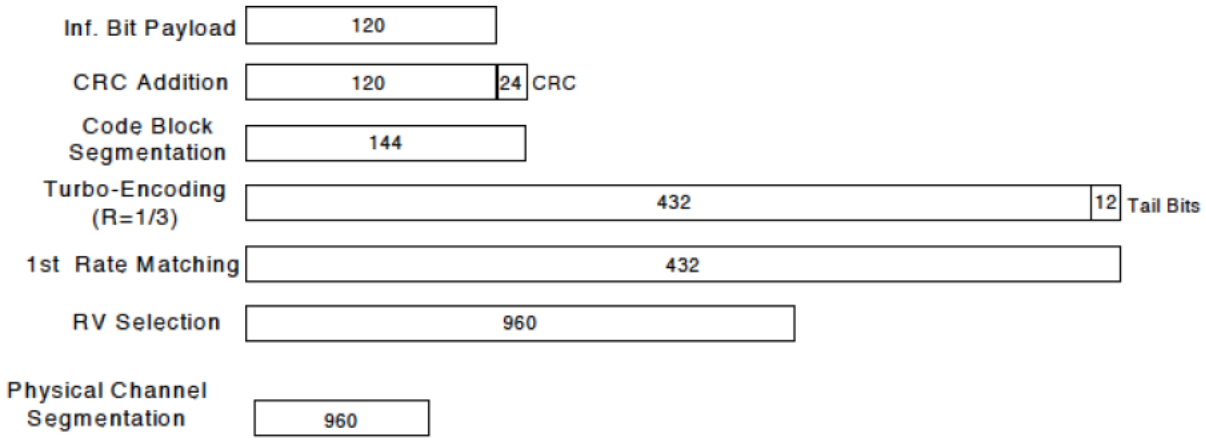


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

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

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
Note 2: CM=1 for β_c/β_d= 12/15, β_{hs}/β_c = 24/15. For all other combinations of DPDCH,DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to β_c = 11/15 and β_d = 15/15

Up commands are set continuously to set the UE to Max power.

Note:
1.The Dual Carriers transmission only applies to HSDPA physical channels
2.The Dual Carriers belong to the same Node and are on adjacent carriers.
3.The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4.The Dual Carriers operate in the same frequency band .
5.The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6.The device doesn‟t support carrier aggregation for it just can operate in Release 8.

7.1.3 LTE TEST CONFIGURATION

SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices v02r05. The CMW500 Wide Band Radio Communication Tester was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR test were performed with the same number of RB and RB offsets transmitting on all TTI frames(Maximum TTI)

1. Spectrum Plots for RB configurations

A properly configured base station simulator was used for LTE output power measurements and SAR testing. Therefore, spectrum plots for RB configurations were not required to be included in this report.

2. MPR

When MPR is implemented permanently within the UE, regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.
The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101:

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

3. A-MPR

A-MPR(Additional MPR) has been disabled for all SAR tests by using Network Signalling Value of “NS_01”on the base station simulator.

4. LTE procedures for SAR testing

A) Largest channel bandwidth standalone SAR test requirements

i) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for 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 for 1 RB allocation; 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.

ii) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in i) are applied to measure the SAR for QPSK with 50% RB allocation.

iii) QPSK with 100% RB allocation

For 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 in i) and ii) 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.

iv) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

B) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ 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.

7.1.4 WIFI TEST CONFIGURATION

For WLAN SAR testing, WLAN engineering testing software installed on the DUT can provide continuous transmitting RF signal.

Mode	802.11b	802.11g	802.11n HT20	802.11n HT40
Power Setting	15	14	14	14
Duty cycle	100%			
Crest factor	1			

For the 802.11b SAR tests, a communication link is set up with the test mode software for WiFi mode test. The Absolute Radio Frequency Channel Number(ARFCN) is allocated to 1 ,6 and 11 respectively in the case of 2450 MHz. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate.

7.1.4.1 2.4G SAR Test Requirements

✧ **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

✧ **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied. SAR is not required for the following 2.4 GHz OFDM conditions.

1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction. The PAG requirements can be excluded per KDB 388624 D02.

The following tables summarize the key power reduction information. The detailed full power and reduced tune-up specifications and conducted power measurement results are provided in Section 8.1.11 of this report.

2G&3G&4G antenna + WiFi antenna simultaneous transmission		
Brand	Power Reduction Amount (dB)	
	Bottom antenna + WiFi	Top Antenna + WiFi
WiFi 2.4G 802.11b	3.5	3.5
WiFi 2.4G 802.11g	3	3
WiFi 2.4G 802.11n HT20	2	2
WiFi 2.4G 802.11n HT40	1.5	1.5

7.2 TEST POSITION

7.2.1 Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

7.2.2 Body

The length of the diagonal of the mobile phone is 157mm.
The location of the antennas inside mobile phone is shown as below picture:

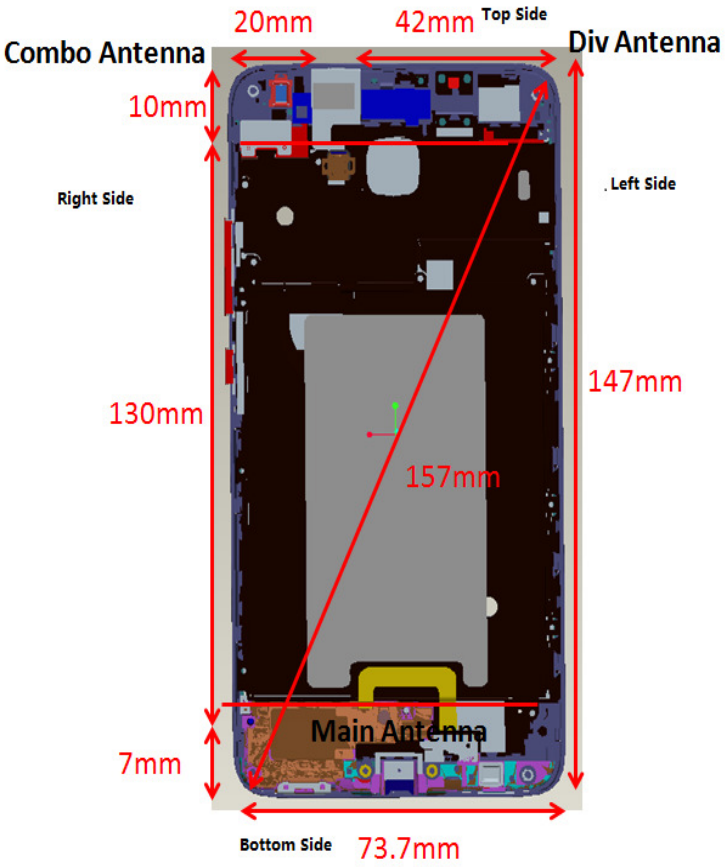


Table 7.2.2 Hotspot Side For SAR Testing

Mode (Bottom Ant)	Exposure Condition	Front Side	Rear Side	Left Side	Right Side	Top Side	Bottom Side
GSM850/1900	Hotspot	YES	YES	YES	YES	NO	YES
UMTS Band 2/4/5	Hotspot	YES	YES	YES	YES	NO	YES
LTE Band 2/4/5/7/12/17	Hotspot	YES	YES	YES	YES	NO	YES
2.4GWiFi	Hotspot	YES	YES	No	YES	YES	NO

Mode (Top Ant)	Exposure Condition	Front Side	Rear Side	Left Side	Right Side	Top Side	Bottom Side
GSM850/1900	Hotspot	YES	YES	YES	YES	YES	NO
UMTS Band 2/4/5	Hotspot	YES	YES	YES	YES	YES	NO
LTE Band 2/4/5/7/12/17	Hotspot	YES	YES	YES	YES	YES	NO

Note: Per KDB 941225 D06, particular DUT edges were not required to be evaluated for Hotspot SAR if the antenna-to-edge distance is greater than 2.5cm.

8.TEST RESULT

8.1CONDUCTED POWER RESULTS

8.1.1CONDUCTED POWER MEASUREMENTS OF GSM850

GSM850(Top Ant)		Tune-up	Max Burst Average Power (dBm)			Tune-up	Max Frame Average Power (dBm)		
			128CH	190CH	251CH		128CH	190CH	251CH
			824.2MHz	836.6MHz	848.8MHz		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		33.50	32.48	32.50	32.52	24.31	23.29	23.31	23.33
GPRS/EDGE (GMSK)	1 Tx Slot	33.50	32.49	32.54	32.53	24.31	23.30	23.35	23.34
	2 Tx Slots	31.50	30.39	30.52	30.46	**25.37**	24.26	24.39	24.33
	3 Tx Slots	29.50	28.35	28.36	28.39	25.08	23.93	23.94	23.97
	4 Tx Slots	27.50	26.35	26.37	26.39	24.32	23.17	23.19	23.21
EDGE (8PSK)	1 Tx Slot	27.00	26.10	26.21	26.14	17.81	16.91	17.02	16.95
	2 Tx Slots	25.00	23.79	24.07	24.03	18.87	17.66	17.94	17.90
	3 Tx Slots	23.00	21.95	22.00	21.92	18.58	17.53	17.58	17.50
	4 Tx Slots	21.00	19.49	19.70	19.72	17.82	16.31	16.52	16.54

Note:
1) The conducted power of GSM850 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) Per KDB941225 D01v03r01, the bolded GPRS 2Tx mode was selected for SAR testing according to the highest frame –averaged output power table.
4) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log(Burst-averaged power mW x Slot used/8)

GSM850(Bottom Ant)		Tune-up	Max Burst Average Power (dBm)			Tune-up	Max Frame Average Power (dBm)		
			128CH	190CH	251CH		128CH	190CH	251CH
			824.2MHz	836.6MHz	848.8MHz		824.2MHz	836.6MHz	848.8MHz
GSM (CS)		33.50	32.60	32.62	32.64	24.31	23.41	23.43	23.45
GPRS/EDGE (GMSK)	1 Tx Slot	33.50	32.61	32.66	32.65	24.31	23.42	23.47	23.46
	2 Tx Slots	31.50	30.51	30.64	30.58	**25.37**	24.38	24.51	24.45
	3 Tx Slots	29.50	28.47	28.48	28.51	25.08	24.05	24.06	24.09
	4 Tx Slots	27.50	26.47	26.49	26.51	24.32	23.29	23.31	23.33
EDGE (8PSK)	1 Tx Slot	27.00	26.22	26.33	26.26	17.81	17.03	17.14	17.07
	2 Tx Slots	25.00	23.91	24.19	24.15	18.87	17.78	18.06	18.02
	3 Tx Slots	23.00	22.07	22.12	22.04	18.58	17.65	17.70	17.62
	4 Tx Slots	21.00	19.61	19.82	19.84	17.82	16.43	16.64	16.66

Note:
1) The conducted power of GSM850 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) Per KDB941225 D01v03r01, the bolded GPRS 2Tx mode was selected for SAR testing according to the highest frame –averaged output power table.
4) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log(Burst-averaged power mW x Slot used/8)

8.1.2CONDUCTED POWER MEASUREMENTS OF GSM1900

GSM1900(Top Ant)		Tune-up	Max Burst Average Power (dBm)			Tune-up	Max Frame Average Power (dBm)		
			512CH	661CH	810CH		512CH	661CH	810CH
			1850.2MHz	1880MHz	1909.8MHz		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		30.50	29.54	29.52	29.38	21.31	20.35	20.33	20.19
GPRS/EDGE (GMSK)	1 Tx Slot	30.50	29.53	29.51	29.54	21.31	20.34	20.32	20.35
	2 Tx Slots	28.50	27.39	27.54	27.53	**22.37**	21.26	21.41	21.40
	3 Tx Slots	26.50	25.33	25.40	25.59	22.08	20.91	20.98	21.17
	4 Tx Slots	24.50	23.31	23.38	23.59	21.32	20.13	20.20	20.41
EDGE (8PSK)	1 Tx Slot	26.00	24.90	24.99	25.02	16.81	15.71	15.80	15.83
	2 Tx Slots	24.00	22.73	22.76	23.11	17.87	16.60	16.63	16.98
	3 Tx Slots	22.00	21.01	20.74	20.93	17.58	16.59	16.32	16.51
	4 Tx Slots	20.00	18.67	18.73	18.61	16.82	15.49	15.55	15.43

Note:
1) The conducted power of GSM1900 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) Per KDB941225 D01v03r01, the bolded GPRS 4Tx mode was selected for SAR testing according to the highest frame –averaged output power table.
4) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log(Burst-averaged power mW x Slot used/8)

GSM1900(Bottom Ant)		Tune-up	Max Burst Average Power (dBm)			Tune-up	Max Frame Average Power (dBm)		
			512CH	661CH	810CH		512CH	661CH	810CH
			1850.2MHz	1880MHz	1909.8MHz		1850.2MHz	1880MHz	1909.8MHz
GSM (CS)		30.50	29.66	29.64	29.50	21.31	20.47	20.45	20.31
GPRS/EDGE (GMSK)	1 Tx Slot	30.50	29.65	29.63	29.66	21.31	20.46	20.44	20.47
	2 Tx Slots	28.50	27.51	27.66	27.65	**22.37**	21.38	21.53	21.52
	3 Tx Slots	26.50	25.45	25.52	25.71	22.08	21.03	21.10	21.29
	4 Tx Slots	24.50	23.43	23.50	23.71	21.32	20.25	20.32	20.53
EDGE (8PSK)	1 Tx Slot	26.00	25.02	25.11	25.14	16.81	15.83	15.92	15.95
	2 Tx Slots	24.00	22.85	22.88	23.23	17.87	16.72	16.75	17.10
	3 Tx Slots	22.00	21.13	20.86	21.05	17.58	16.71	16.44	16.63
	4 Tx Slots	20.00	18.79	18.85	18.73	16.82	15.61	15.67	15.55

Note:
1) The conducted power of GSM1900 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) Per KDB941225 D01v03r01, the bolded GPRS 4Tx mode was selected for SAR testing according to the highest frame –averaged output power table.
4) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log(Burst-averaged power mW x Slot used/8)

8.1.3CONDUCTED POWER MEASUREMENTS OF UMTS1900 Band 2

UMTS1900 (Band 2) Top Ant		Tune-up	SAR Conducted Power (dBm)		
			9262CH	9400CH	9538CH
			1852.4	1880	1907.6
WCDMA	12.2kbps RMC	24.00	23.39	23.43	23.41
	64kbps RMC	24.00	23.35	23.22	23.25
	144kbps RMC	24.00	23.33	23.39	23.38
	384kbps RMC	24.00	23.34	23.20	23.28
HSDPA	Subtest 1	24.00	23.38	23.31	23.37
	Subtest 2	24.00	23.43	23.28	23.36
	Subtest 3	23.50	22.93	22.85	22.97
	Subtest 4	23.50	22.86	22.80	22.90
HSUPA	Subtest 1	24.00	22.71	22.95	22.69
	Subtest 2	22.00	20.59	20.81	20.65
	Subtest 3	22.50	21.67	21.98	21.68
	Subtest 4	22.00	20.75	20.88	20.70
	Subtest 5	24.00	23.25	23.29	23.28
DC-HSDPA	Subtest 1	24.00	23.38	23.31	23.37
	Subtest 2	24.00	23.43	23.28	23.36
	Subtest 3	23.50	22.93	22.85	22.97
	Subtest 4	23.50	22.86	22.80	22.90

UMTS1900 (Band 2) Bottom Ant		Tune-up	SAR Conducted Power (dBm)		
			9262CH	9400CH	9538CH
			1852.4	1880	1907.6
WCDMA	12.2kbps RMC	24.00	23.52	23.56	23.54
	64kbps RMC	24.00	23.48	23.35	23.38
	144kbps RMC	24.00	23.46	23.52	23.51
	384kbps RMC	24.00	23.47	23.33	23.41
HSDPA	Subtest 1	24.00	23.41	23.34	23.40
	Subtest 2	24.00	23.46	23.31	23.39
	Subtest 3	23.50	22.96	22.88	23.00
	Subtest 4	23.50	22.89	22.83	22.93
HSUPA	Subtest 1	24.00	22.74	22.98	22.72
	Subtest 2	22.00	20.62	20.84	20.68
	Subtest 3	22.50	21.70	21.61	21.71
	Subtest 4	22.00	20.78	20.91	20.73
	Subtest 5	24.00	23.53	23.72	23.51
DC-HSDPA	Subtest 1	24.00	23.41	23.34	23.40
	Subtest 2	24.00	23.46	23.31	23.39
	Subtest 3	23.50	22.96	22.88	23.00
	Subtest 4	23.50	22.89	22.83	22.93

Note:
1) The conducted power of UMTS Band 2 is measured with RMS detector.
2) Note: Per KDB941225 D01v03r01, When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤¼ 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.
3) HSPA+
Since 16QAM is not used for uplink, the uplink category and release is same as HSUPA,i.e,CAT6 Rel 6.Therefore,the RF conducted power is not measured.

8.1.4CONDUCTED POWER MEASUREMENTS OF UMTS1700 Band 4

UMTS 1700 (Band 4) Top Ant		Tune-up	SAR Conducted Power (dBm)		
			1312CH	1413CH	1513CH
			1712.4	1732.6	1752.6
WCDMA	12.2kbps RMC	24.00	23.33	23.39	23.35
	64kbps RMC	24.00	23.21	23.27	23.32
	144kbps RMC	24.00	23.31	23.38	23.33
	384kbps RMC	24.00	23.16	23.27	23.21
HSDPA	Subtest 1	24.00	23.24	23.32	23.27
	Subtest 2	24.00	23.22	23.26	23.25
	Subtest 3	23.50	22.78	22.81	22.73
	Subtest 4	23.50	22.75	22.79	22.76
HSUPA	Subtest 1	24.00	22.38	22.12	22.54
	Subtest 2	21.50	20.45	20.01	20.52
	Subtest 3	23.00	21.63	21.50	21.54
	Subtest 4	22.00	20.54	20.09	20.60
	Subtest 5	24.00	23.20	22.93	23.39
DC-HSDPA	Subtest 1	24.00	23.24	23.32	23.27
	Subtest 2	24.00	23.22	23.26	23.25
	Subtest 3	23.50	22.78	22.81	22.73
	Subtest 4	23.50	22.75	22.79	22.76

UMTS 1700 (Band 4) Bottom Ant		Tune-up	SAR Conducted Power (dBm)		
			1312CH	1413CH	1513CH
			1712.4	1732.6	1752.6
WCDMA	12.2kbps RMC	24.00	23.46	23.52	23.48
	64kbps RMC	24.00	23.34	23.40	23.45
	144kbps RMC	24.00	23.44	23.51	23.46
	384kbps RMC	24.00	23.29	23.40	23.34
HSDPA	Subtest 1	24.00	23.27	23.35	23.30
	Subtest 2	24.00	23.25	23.29	23.28
	Subtest 3	23.50	22.81	22.84	22.76
	Subtest 4	23.50	22.78	22.82	22.79
HSUPA	Subtest 1	24.00	22.41	22.15	22.57
	Subtest 2	21.50	20.48	20.04	20.55
	Subtest 3	23.00	21.66	21.53	21.57
	Subtest 4	22.00	20.57	20.12	20.63
	Subtest 5	24.00	23.23	22.96	23.42
DC-HSDPA	Subtest 1	24.00	23.27	23.35	23.30
	Subtest 2	24.00	23.25	23.29	23.28
	Subtest 3	23.50	22.81	22.84	22.76
	Subtest 4	23.50	22.78	22.82	22.79

Note:
1) The conducted power of UMTS Band 4 is measured with RMS detector.
2)Note: Per KDB941225 D01v03r01, When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤¼ 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.
3) HSPA+
Since 16QAM is not used for uplink, the uplink category and release is same as HSUPA,i.e,CAT6 Rel 6.Therefore,the RF conducted power is not measured.

8.1.5CONDUCTED POWER MEASUREMENTS OF UMTS850 Band 5

UMTS 850 (Band 5) Top Ant		Tune-up	SAR Conducted Power (dBm)		
			4132CH	4182CH	4233CH
			826.4	836.4	846.6
WCDMA	12.2kbps RMC	24.50	23.68	23.73	23.70
	64kbps RMC	24.50	23.64	23.68	23.68
	144kbps RMC	24.50	23.58	23.59	23.67
	384kbps RMC	24.50	23.61	23.64	23.69
HSDPA	Subtest 1	24.50	23.58	23.63	23.63
	Subtest 2	24.50	23.57	23.59	23.65
	Subtest 3	24.00	23.01	23.00	23.06
	Subtest 4	24.00	22.99	22.97	23.03
HSUPA	Subtest 1	24.50	22.61	23.03	23.11
	Subtest 2	22.00	20.50	20.66	20.73
	Subtest 3	23.00	22.03	22.07	22.19
	Subtest 4	22.00	20.55	20.54	20.59
	Subtest 5	24.50	23.50	23.83	23.89
DC-HSDPA	Subtest 1	24.50	23.58	23.63	23.63
	Subtest 2	24.50	23.57	23.59	23.65
	Subtest 3	24.00	23.01	23.00	23.06
	Subtest 4	24.00	22.99	22.97	23.03

UMTS 850 (Band 5) Bottom Ant		Tune-up	SAR Conducted Power (dBm)		
			4132CH	4182CH	4233CH
			826.4	836.4	846.6
WCDMA	12.2kbps RMC	24.50	23.81	23.84	23.83
	64kbps RMC	24.50	23.77	23.81	23.81
	144kbps RMC	24.50	23.71	23.72	23.80
	384kbps RMC	24.50	23.74	23.77	23.82
HSDPA	Subtest 1	24.50	23.70	23.75	23.75
	Subtest 2	24.50	23.69	23.71	23.77
	Subtest 3	24.00	23.13	23.12	23.18
	Subtest 4	24.00	23.11	23.09	23.15
HSUPA	Subtest 1	24.50	22.73	23.15	23.23
	Subtest 2	22.00	20.62	20.78	20.85
	Subtest 3	23.00	22.15	22.19	22.31
	Subtest 4	22.00	20.67	20.86	20.91
	Subtest 5	24.50	23.62	23.25	23.51
DC-HSDPA	Subtest 1	24.50	23.70	23.75	23.75
	Subtest 2	24.50	23.69	23.71	23.77
	Subtest 3	24.00	23.13	23.12	23.18
	Subtest 4	24.00	23.11	23.09	23.15

Note:
1) The conducted power of UMTS Band 5 is measured with RMS detector.
2) Note: Per KDB941225 D01v03r01, When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤¼ 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.
3) HSPA+
Since 16QAM is not used for uplink, the uplink category and release is same as HSUPA,i.e,CAT6 Rel 6.Therefore,the RF conducted power is not measured.

8.1.6CONDUCTED POWER MEASUREMENTS OF LTE Band 2

1) Conducted power measurements of LTE Band 2 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18607	18900	19193
					1850.7	1880	1909.3
1.4MHz	QPSK	1	0	23.50	22.47	22.56	22.40
		1	2	23.50	22.54	22.60	22.38
		1	5	23.50	22.47	22.46	22.13
		3	0	23.50	21.51	21.50	21.60
		3	1	23.50	21.53	21.55	21.59
		3	3	23.50	21.53	21.53	21.91
		6	0	22.50	21.64	21.63	21.50
	16QAM	1	0	22.50	21.77	21.25	21.55
		1	2	22.50	21.62	21.48	21.54
		1	5	22.50	21.77	21.38	21.31
		3	0	22.50	20.60	20.65	20.52
		3	1	22.50	20.61	20.63	20.80
		3	3	22.50	20.60	20.62	20.61
		6	0	22.00	20.58	20.52	20.63
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18615	18900	19185
					1851.5	1880	1908.5
3MHz	QPSK	1	0	23.50	22.40	22.66	22.57
		1	7	23.50	22.66	22.69	22.55
		1	14	23.50	22.42	22.41	22.05
		8	0	22.50	21.67	21.66	21.71
		8	3	22.50	21.73	21.65	21.63
		8	7	22.50	21.70	21.58	21.53
		15	0	22.50	21.70	21.62	21.62
	16QAM	1	0	22.50	21.59	21.75	21.72
		1	7	22.50	21.83	21.80	21.71
		1	14	22.50	21.68	21.59	21.22
		8	0	22.00	20.54	20.65	20.73
		8	3	22.00	20.72	20.60	20.63
		8	7	22.00	20.59	20.68	20.87
		15	0	22.00	20.87	20.34	20.27

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18625	18900	19175
					1852.5	1880	1907.5
5MHz	QPSK	1	0	23.50	22.39	22.48	22.59
		1	12	23.50	22.72	22.62	22.52
		1	24	23.50	22.52	22.71	22.32
		12	0	22.50	21.22	21.20	21.32
		12	6	22.50	21.28	21.18	21.21
		12	13	22.50	21.24	21.07	21.03
		25	0	22.50	21.19	21.08	21.08
	16QAM	1	0	22.50	21.15	21.32	21.39
		1	12	22.50	21.51	21.49	21.37
		1	24	22.50	21.22	21.01	20.69
		12	0	22.00	20.67	20.79	20.53
		12	6	22.00	20.54	20.64	20.73
		12	13	22.00	20.61	20.84	20.54
		25	0	22.00	20.32	20.66	20.25
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18650	18900	19150
					1855	1880	1905
10MHz	QPSK	1	0	23.50	22.54	22.16	22.03
		1	24	23.50	22.26	22.21	22.29
		1	49	23.50	22.54	22.49	22.45
		25	0	22.50	21.25	21.14	21.30
		25	12	22.50	21.30	21.11	21.27
		25	25	22.50	21.22	20.97	21.02
		50	0	22.50	21.27	21.04	21.19
	16QAM	1	0	22.50	20.93	21.41	21.35
		1	24	22.50	21.38	21.47	21.65
		1	49	22.50	20.98	21.09	21.07
		25	0	22.00	20.59	20.60	20.66
		25	12	22.00	20.67	20.50	20.66
		25	25	22.00	20.60	20.68	20.54
		50	0	22.00	20.65	20.42	20.59

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18675	18900	19125
					1857.5	1880	1902.5
15MHz	QPSK	1	0	23.50	22.71	22.77	22.59
		1	37	23.50	22.22	22.19	22.23
		1	74	23.50	22.54	22.59	22.28
		36	0	22.50	21.25	21.59	21.28
		36	19	22.50	21.29	21.12	21.36
		36	39	22.50	21.08	20.91	21.07
		75	0	22.50	21.18	21.05	21.21
	16QAM	1	0	22.50	20.99	21.11	21.17
		1	37	22.50	21.52	21.44	21.50
		1	74	22.50	20.87	20.91	20.63
		36	0	22.00	20.51	20.51	20.55
		36	19	22.00	20.81	20.55	20.53
		36	39	22.00	20.99	20.60	20.54
		75	0	22.00	20.25	20.16	20.27
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18700	18900	19100
					1860	1880	1900
20MHz	QPSK	1	0	23.50	22.74	22.74	22.76
		1	50	23.50	22.77	22.84	22.83
		1	99	23.50	22.39	22.66	22.27
		50	0	22.50	21.75	21.56	21.68
		50	25	22.50	21.73	21.62	21.85
		50	50	22.50	21.49	21.38	21.46
		100	0	22.50	21.63	21.50	21.60
	16QAM	1	0	22.50	21.90	21.97	22.04
		1	50	22.50	22.01	21.99	22.02
		1	99	22.50	21.56	21.59	21.47
		50	0	22.00	20.57	20.63	20.64
		50	25	22.00	20.58	20.55	20.67
		50	50	22.00	20.61	20.85	20.66
		100	0	22.00	20.55	20.47	20.43

2) Conducted power measurements of LTE Band 2 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18607	18900	19193
					1850.7	1880	1909.3
1.4MHz	QPSK	1	0	23.50	22.61	22.70	22.54
		1	2	23.50	22.68	22.74	22.52
		1	5	23.50	22.61	22.60	22.27
		3	0	23.50	21.65	21.64	21.54
		3	1	23.50	21.67	21.69	21.71
		3	3	23.50	21.67	21.67	21.56
		6	0	22.50	21.78	21.77	21.64
	16QAM	1	0	22.50	21.91	21.39	21.69
		1	2	22.50	21.76	21.62	21.68
		1	5	22.50	21.91	21.52	21.45
		3	0	22.50	20.74	20.79	20.66
		3	1	22.50	20.75	20.77	20.62
		3	3	22.50	20.74	20.76	20.56
		6	0	22.00	20.72	20.66	20.63
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18615	18900	19185
					1851.5	1880	1908.5
3MHz	QPSK	1	0	23.50	22.54	22.80	22.71
		1	7	23.50	22.80	22.83	22.69
		1	14	23.50	22.56	22.55	22.19
		8	0	22.50	21.81	21.80	21.85
		8	3	22.50	21.87	21.79	21.77
		8	7	22.50	21.84	21.72	21.67
		15	0	22.50	21.84	21.76	21.76
	16QAM	1	0	22.50	21.73	21.89	21.86
		1	7	22.50	21.97	21.94	21.85
		1	14	22.50	21.82	21.73	21.36
		8	0	22.00	20.55	20.61	20.71
		8	3	22.00	20.61	20.58	20.57
		8	7	22.00	20.59	20.51	20.73
		15	0	22.00	20.49	20.48	20.41

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18625	18900	19175
					1852.5	1880	1907.5
5MHz	QPSK	1	0	23.50	22.53	22.62	22.73
		1	12	23.50	22.86	22.76	22.66
		1	24	23.50	22.66	22.85	22.46
		12	0	22.50	21.36	21.34	21.46
		12	6	22.50	21.42	21.32	21.35
		12	13	22.50	21.38	21.21	21.17
		25	0	22.50	21.33	21.22	21.22
	16QAM	1	0	22.50	21.29	21.46	21.53
		1	12	22.50	21.65	21.63	21.51
		1	24	22.50	21.36	21.15	20.83
		12	0	22.00	20.51	20.52	20.67
		12	6	22.00	20.58	20.74	20.58
		12	13	22.00	20.55	20.68	20.62
		25	0	22.00	20.46	20.41	20.39
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18650	18900	19150
					1855	1880	1905
10MHz	QPSK	1	0	23.50	22.68	22.30	22.17
		1	24	23.50	22.40	22.35	22.43
		1	49	23.50	22.68	22.63	22.59
		25	0	22.50	21.39	21.28	21.44
		25	12	22.50	21.44	21.25	21.41
		25	25	22.50	21.36	21.11	21.16
		50	0	22.50	21.41	21.18	21.33
	16QAM	1	0	22.50	21.07	21.55	21.49
		1	24	22.50	21.52	21.61	21.79
		1	49	22.50	21.12	21.23	21.21
		25	0	22.00	20.73	20.74	20.80
		25	12	22.00	20.81	20.64	20.80
		25	25	22.00	20.74	20.55	20.58
		50	0	22.00	20.79	20.56	20.73

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18675	18900	19125
					1857.5	1880	1902.5
15MHz	QPSK	1	0	23.50	22.85	22.91	22.73
		1	37	23.50	22.36	22.33	22.37
		1	74	23.50	22.68	22.73	22.42
		36	0	22.50	21.39	21.73	21.42
		36	19	22.50	21.43	21.26	21.50
		36	39	22.50	21.22	21.05	21.21
		75	0	22.50	21.32	21.19	21.35
	16QAM	1	0	22.50	21.13	21.25	21.31
		1	37	22.50	21.66	21.58	21.64
		1	74	22.50	21.01	21.05	20.77
		36	0	22.00	20.61	20.52	20.55
		36	19	22.00	20.58	20.57	20.56
		36	39	22.00	20.59	20.60	20.54
		75	0	22.00	20.39	20.30	20.41
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					18700	18900	19100
					1860	1880	1900
20MHz	QPSK	1	0	23.50	22.88	22.88	22.90
		1	50	23.50	22.91	22.98	22.97
		1	99	23.50	22.53	22.80	22.41
		50	0	22.50	21.89	21.70	21.82
		50	25	22.50	21.87	21.99	21.76
		50	50	22.50	21.63	21.52	21.60
		100	0	22.50	21.77	21.64	21.74
	16QAM	1	0	22.50	22.04	22.11	22.18
		1	50	22.50	22.15	22.13	22.16
		1	99	22.50	21.70	21.73	21.61
		50	0	22.00	20.71	20.64	20.76
		50	25	22.00	20.72	20.53	20.61
		50	50	22.00	20.55	20.53	20.51
		100	0	22.00	20.69	20.61	20.57

8.1.7CONDUCTED POWER MEASUREMENTS OF LTE Band 4

1) Conducted power measurements of LTE Band 4 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19957	20175	20393
					1710.7	1732.5	1754.3
1.4MHz	QPSK	1	0	24.00	23.18	23.15	23.23
		1	2	24.00	23.25	23.17	23.13
		1	5	24.00	23.14	23.05	23.17
		3	0	24.00	23.12	22.09	22.33
		3	1	24.00	23.13	22.08	22.30
		3	3	24.00	23.11	22.05	22.25
		6	0	23.00	22.17	22.16	22.25
	16QAM	1	0	23.00	22.35	22.42	22.41
		1	2	23.00	22.43	22.44	22.43
		1	5	23.00	22.35	22.33	22.18
		3	0	23.00	21.25	21.23	21.28
		3	1	23.00	21.28	21.22	21.22
		3	3	23.00	21.30	21.20	21.17
		6	0	22.00	21.32	21.12	21.32
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19965	20175	20385
					1711.5	1732.5	1753.5
3MHz	QPSK	1	0	24.00	22.99	23.10	23.20
		1	7	24.00	23.25	23.20	23.23
		1	14	24.00	23.06	22.91	23.04
		8	0	23.00	22.21	22.19	22.27
		8	3	23.00	22.27	22.14	22.30
		8	7	23.00	22.24	22.07	22.20
		15	0	23.00	22.21	22.12	22.32
	16QAM	1	0	23.00	22.16	22.26	22.51
		1	7	23.00	22.46	22.34	22.62
		1	14	23.00	22.33	22.05	22.15
		8	0	23.00	21.29	21.23	21.38
		8	3	23.00	21.34	21.21	21.39
		8	7	23.00	21.31	21.14	21.30
		15	0	22.00	21.29	21.13	21.35

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19975	20175	20375
					1712.5	1732.5	1752.5
5MHz	QPSK	1	0	24.00	22.95	23.43	23.52
		1	12	24.00	23.34	23.45	23.54
		1	24	24.00	23.05	23.06	23.08
		12	0	23.00	22.82	22.68	22.58
		12	6	23.00	22.66	22.68	22.52
		12	13	23.00	22.31	22.60	22.33
		25	0	23.00	22.78	22.58	22.39
	16QAM	1	0	23.00	22.83	22.77	22.68
		1	12	23.00	22.25	22.94	22.71
		1	24	23.00	22.19	22.49	22.02
		12	0	23.00	21.38	21.32	21.51
		12	6	23.00	21.66	21.35	21.54
		12	13	23.00	21.28	21.51	21.29
		25	0	22.00	21.28	21.27	21.38
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20000	20175	20350
					1715	1732.5	1750
10MHz	QPSK	1	0	24.00	23.50	23.48	23.51
		1	24	24.00	23.51	23.50	23.40
		1	49	24.00	23.44	23.41	23.42
		25	0	23.00	22.59	22.70	22.58
		25	12	23.00	22.98	22.58	22.56
		25	25	23.00	22.47	22.50	22.31
		50	0	23.00	22.39	22.52	22.45
	16QAM	1	0	23.00	22.69	22.82	22.62
		1	24	23.00	22.32	22.97	22.80
		1	49	23.00	22.63	22.66	22.02
		25	0	22.00	21.29	21.73	21.47
		25	12	22.00	21.65	21.59	21.51
		25	25	22.00	21.32	21.53	21.47
		50	0	22.00	21.43	21.57	21.51

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20025	20175	20325
					1717.5	1732.5	1747.5
15MHz	QPSK	1	0	24.00	22.94	23.61	23.52
		1	37	24.00	23.68	23.43	23.48
		1	74	24.00	23.64	23.60	23.35
		36	0	23.00	22.40	22.60	22.65
		36	19	23.00	22.55	22.67	22.63
		36	39	23.00	22.41	22.68	22.43
		75	0	23.00	22.45	22.68	22.53
	16QAM	1	0	23.00	22.76	22.94	22.57
		1	37	23.00	22.31	22.86	22.72
		1	74	23.00	22.82	22.56	22.04
		36	0	22.00	21.44	21.56	21.81
		36	19	22.00	21.60	21.74	21.42
		36	39	22.00	21.45	21.75	21.39
		75	0	22.00	21.51	21.69	21.85
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20050	20175	20300
					1720	1732.5	1745
20MHz	QPSK	1	0	24.00	23.48	23.61	23.53
		1	50	24.00	23.67	23.75	23.54
		1	99	24.00	23.25	22.18	23.51
		50	0	23.00	22.46	22.39	22.25
		50	25	23.00	22.79	22.15	22.28
		50	50	23.00	22.45	22.19	22.37
		100	0	23.00	22.46	22.30	22.38
	16QAM	1	0	23.00	22.07	21.92	22.09
		1	50	23.00	21.94	22.42	22.84
		1	99	23.00	22.49	22.53	22.13
		50	0	22.00	21.46	21.35	21.31
		50	25	22.00	21.56	21.13	21.34
		50	50	22.00	21.42	21.20	21.36
		100	0	22.00	21.46	21.25	21.39

2) Conducted power measurements of LTE Band 4 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19957	20175	20393
					1710.7	1732.5	1754.3
1.4MHz	QPSK	1	0	24.00	23.30	23.27	23.35
		1	2	24.00	23.37	23.29	23.25
		1	5	24.00	23.26	23.17	23.29
		3	0	24.00	23.24	22.21	22.45
		3	1	24.00	23.25	22.20	22.42
		3	3	24.00	23.23	22.17	22.37
		6	0	23.00	22.29	22.28	22.37
	16QAM	1	0	23.00	22.47	22.54	22.53
		1	2	23.00	22.55	22.56	22.55
		1	5	23.00	22.47	22.45	22.30
		3	0	23.00	21.37	21.35	21.40
		3	1	23.00	21.40	21.34	21.34
		3	3	23.00	21.42	21.32	21.29
		6	0	22.00	21.44	21.24	21.44
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19965	20175	20385
					1711.5	1732.5	1753.5
3MHz	QPSK	1	0	24.00	23.11	23.22	23.32
		1	7	24.00	23.37	23.32	23.35
		1	14	24.00	23.18	23.03	23.16
		8	0	23.00	22.33	22.31	22.39
		8	3	23.00	22.39	22.26	22.42
		8	7	23.00	22.36	22.19	22.32
		15	0	23.00	22.33	22.24	22.44
	16QAM	1	0	23.00	22.28	22.38	22.63
		1	7	23.00	22.58	22.46	22.74
		1	14	23.00	22.45	22.17	22.27
		8	0	23.00	21.41	21.35	21.50
		8	3	23.00	21.46	21.33	21.51
		8	7	23.00	21.43	21.26	21.42
		15	0	22.00	21.41	21.25	21.47

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					19975	20175	20375
					1712.5	1732.5	1752.5
5MHz	QPSK	1	0	24.00	23.07	23.55	23.64
		1	12	24.00	23.46	23.57	23.66
		1	24	24.00	23.17	23.18	23.20
		12	0	23.00	22.44	22.80	22.70
		12	6	23.00	22.78	22.80	22.64
		12	13	23.00	22.43	22.72	22.45
		25	0	23.00	22.90	22.70	22.51
	16QAM	1	0	23.00	22.95	22.89	22.80
		1	12	23.00	22.37	22.60	22.83
		1	24	23.00	22.31	22.61	22.14
		12	0	23.00	21.50	21.44	21.63
		12	6	23.00	21.78	21.47	21.66
		12	13	23.00	21.40	21.63	21.41
		25	0	22.00	21.40	21.39	21.50
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20000	20175	20350
					1715	1732.5	1750
10MHz	QPSK	1	0	24.00	23.62	23.60	23.63
		1	24	24.00	23.63	23.62	23.52
		1	49	24.00	23.56	23.53	23.54
		25	0	23.00	22.71	22.52	22.70
		25	12	23.00	22.10	22.70	22.68
		25	25	23.00	22.59	22.62	22.43
		50	0	23.00	22.51	22.64	22.57
	16QAM	1	0	23.00	22.81	22.94	22.74
		1	24	23.00	22.44	22.88	22.92
		1	49	23.00	22.75	22.78	22.14
		25	0	22.00	21.41	21.85	21.59
		25	12	22.00	21.77	21.71	21.63
		25	25	22.00	21.44	21.65	21.59
		50	0	22.00	21.55	21.69	21.63

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20025	20175	20325
					1717.5	1732.5	1747.5
15MHz	QPSK	1	0	24.00	23.06	23.73	23.64
		1	37	24.00	23.80	23.55	23.60
		1	74	24.00	23.76	23.72	23.47
		36	0	23.00	22.52	22.72	22.77
		36	19	23.00	22.67	22.79	22.75
		36	39	23.00	22.53	22.80	22.55
		75	0	23.00	22.57	22.80	22.65
	16QAM	1	0	23.00	22.88	22.58	22.69
		1	37	23.00	22.43	22.98	22.84
		1	74	23.00	22.94	22.68	22.16
		36	0	22.00	21.56	21.68	21.93
		36	19	22.00	21.72	21.86	21.54
		36	39	22.00	21.57	21.87	21.51
		75	0	22.00	21.63	21.81	21.97
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20050	20175	20300
					1720	1732.5	1745
20MHz	QPSK	1	0	24.00	23.60	23.73	23.65
		1	50	24.00	23.79	23.87	23.66
		1	99	24.00	23.37	22.30	23.63
		50	0	23.00	22.58	22.51	22.37
		50	25	23.00	22.91	22.27	22.40
		50	50	23.00	22.57	22.31	22.49
		100	0	23.00	22.58	22.42	22.50
	16QAM	1	0	23.00	22.19	22.04	22.21
		1	50	23.00	22.06	22.54	22.96
		1	99	23.00	22.61	22.65	22.25
		50	0	22.00	21.58	21.47	21.43
		50	25	22.00	21.68	21.25	21.46
		50	50	22.00	21.54	21.32	21.48
		100	0	22.00	21.58	21.37	21.51

8.1.8CONDUCTED POWER MEASUREMENTS OF LTE Band 5

1) Conducted power measurements of LTE Band 5 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20407	20525	20643
					824.7	836.5	848.3
1.4MHz	QPSK	1	0	24.00	23.29	23.31	23.20
		1	2	24.00	23.40	23.44	23.21
		1	5	24.00	23.47	23.28	23.06
		3	0	24.00	22.35	23.29	22.19
		3	1	24.00	22.32	23.36	22.16
		3	3	24.00	22.40	23.35	22.17
		6	0	23.00	22.18	22.22	22.14
	16QAM	1	0	23.00	22.40	22.44	22.27
		1	2	23.00	22.41	22.57	22.36
		1	5	23.00	22.43	22.41	22.15
		3	0	23.00	21.70	21.58	21.67
		3	1	23.00	21.72	21.65	21.65
		3	3	23.00	21.74	21.65	21.61
		6	0	22.50	21.66	21.39	21.46
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20415	20525	20635
					825.5	836.5	847.5
3MHz	QPSK	1	0	24.00	23.04	23.08	23.34
		1	7	24.00	23.53	23.34	23.24
		1	14	24.00	23.24	23.07	23.55
		8	0	23.00	22.13	22.10	22.19
		8	3	23.00	22.25	22.14	22.14
		8	7	23.00	22.19	22.10	22.03
		15	0	23.00	22.14	22.10	22.12
	16QAM	1	0	23.00	22.09	22.18	22.42
		1	7	23.00	22.52	22.52	22.40
		1	14	23.00	22.25	22.29	21.97
		8	0	22.50	21.66	21.49	21.72
		8	3	22.50	21.68	21.64	21.69
		8	7	22.50	21.62	21.68	21.56
		15	0	22.50	21.55	21.63	21.51

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20425	20525	20625
					826.5	836.5	846.5
5MHz	QPSK	1	0	24.00	23.01	23.07	23.21
		1	12	24.00	23.46	23.09	23.14
		1	24	24.00	23.10	23.16	23.12
		12	0	23.00	22.16	22.01	22.32
		12	6	23.00	22.31	22.11	22.25
		12	13	23.00	22.27	22.08	22.02
		25	0	23.00	22.26	22.06	22.11
	16QAM	1	0	23.00	22.22	22.16	22.57
		1	12	23.00	22.65	22.40	22.46
		1	24	23.00	22.28	22.11	22.22
		12	0	22.50	21.22	21.01	21.21
		12	6	22.50	21.34	21.12	21.11
		12	13	22.50	21.30	21.15	21.15
		25	0	22.50	21.29	21.06	21.07
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20450	20525	20600
					829	836.5	844
10MHz	QPSK	1	0	24.00	23.58	23.48	23.03
		1	24	24.00	23.66	23.77	23.67
		1	49	24.00	23.48	23.50	23.49
		25	0	23.00	22.66	22.73	22.52
		25	12	23.00	22.24	22.11	22.33
		25	25	23.00	21.97	22.62	21.99
		50	0	23.00	22.10	21.99	22.13
	16QAM	1	0	23.00	22.13	22.02	22.15
		1	24	23.00	22.73	22.28	22.57
		1	49	23.00	22.57	22.34	22.58
		25	0	22.50	21.12	21.88	21.15
		25	12	22.50	21.18	21.29	21.21
		25	25	22.50	21.55	21.55	21.46
		50	0	22.50	21.08	20.93	21.10

2) Conducted power measurements of LTE Band 5 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20407	20525	20643
					824.7	836.5	848.3
1.4MHz	QPSK	1	0	24.00	23.38	23.40	23.29
		1	2	24.00	23.49	23.53	23.30
		1	5	24.00	23.56	23.37	23.15
		3	0	24.00	22.44	23.38	22.28
		3	1	24.00	22.41	23.45	22.25
		3	3	24.00	22.49	23.44	22.26
		6	0	23.00	22.27	22.31	22.23
	16QAM	1	0	23.00	22.49	22.53	22.36
		1	2	23.00	22.50	22.66	22.45
		1	5	23.00	22.52	22.50	22.24
		3	0	23.00	21.79	21.67	21.76
		3	1	23.00	21.81	21.74	21.74
		3	3	23.00	21.83	21.74	21.70
		6	0	22.50	21.75	21.48	21.55
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20415	20525	20635
					825.5	836.5	847.5
3MHz	QPSK	1	0	24.00	23.13	23.17	23.43
		1	7	24.00	23.62	23.43	23.33
		1	14	24.00	23.33	23.16	23.64
		8	0	23.00	22.22	22.19	22.28
		8	3	23.00	22.34	22.23	22.23
		8	7	23.00	22.28	22.19	22.12
		15	0	23.00	22.23	22.19	22.21
	16QAM	1	0	23.00	22.18	22.27	22.51
		1	7	23.00	22.61	22.61	22.49
		1	14	23.00	22.34	22.38	22.06
		8	0	22.50	21.75	21.58	21.81
		8	3	22.50	21.77	21.73	21.78
		8	7	22.50	21.71	21.77	21.65
		15	0	22.50	21.64	21.72	21.60

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20425	20525	20625
					826.5	836.5	846.5
5MHz	QPSK	1	0	24.00	23.10	23.16	23.30
		1	12	24.00	23.55	23.18	23.23
		1	24	24.00	23.19	23.25	23.21
		12	0	23.00	22.25	22.10	22.41
		12	6	23.00	22.40	22.20	22.34
		12	13	23.00	22.36	22.17	22.11
		25	0	23.00	22.35	22.15	22.20
	16QAM	1	0	23.00	22.31	22.25	22.66
		1	12	23.00	22.74	22.49	22.55
		1	24	23.00	22.37	22.20	22.31
		12	0	22.50	21.31	21.10	21.30
		12	6	22.50	21.43	21.21	21.20
		12	13	22.50	21.39	21.24	21.24
		25	0	22.50	21.38	21.15	21.16
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20450	20525	20600
					829	836.5	844
10MHz	QPSK	1	0	24.00	23.67	23.57	23.12
		1	24	24.00	23.75	23.86	23.76
		1	49	24.00	23.57	23.59	23.58
		25	0	23.00	22.75	22.82	22.61
		25	12	23.00	22.33	22.20	22.42
		25	25	23.00	22.06	22.71	22.08
		50	0	23.00	22.19	22.08	22.22
	16QAM	1	0	23.00	22.22	22.11	22.24
		1	24	23.00	22.82	22.37	22.66
		1	49	23.00	22.66	22.43	22.67
		25	0	22.50	21.21	21.97	21.24
		25	12	22.50	21.27	21.08	21.30
		25	25	22.50	21.64	21.64	21.55
		50	0	22.50	21.17	21.02	21.19

8.1.9CONDUCTED POWER MEASUREMENTS OF LTE Band 7

1) Conducted power measurements of LTE Band 7 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20775	21100	21425
					2502.5	2535	2567.5
5MHz	QPSK	1	0	24.00	23.08	23.16	23.23
		1	12	24.00	23.18	23.30	23.26
		1	24	24.00	22.87	23.12	23.03
		12	0	23.00	22.27	21.96	22.02
		12	6	23.00	21.91	21.87	21.86
		12	13	23.00	22.18	21.90	22.08
		25	0	23.00	22.19	22.41	22.52
	16QAM	1	0	23.00	22.46	22.50	22.45
		1	12	23.00	22.55	21.85	21.78
		1	24	23.00	22.27	21.61	22.31
		12	0	23.00	21.18	21.08	21.11
		12	6	23.00	21.19	21.09	21.07
		12	13	23.00	21.14	21.02	21.03
		25	0	23.00	21.09	21.04	21.07
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20800	21100	21400
					2505	2535	2565
10MHz	QPSK	1	0	24.00	22.87	23.09	23.22
		1	24	24.00	23.20	23.00	22.98
		1	49	24.00	22.85	23.14	23.07
		25	0	23.00	21.85	21.86	21.84
		25	12	23.00	21.91	22.03	21.93
		25	25	23.00	22.14	21.96	21.92
		50	0	23.00	22.15	22.41	22.44
	16QAM	1	0	23.00	22.26	22.43	22.43
		1	24	23.00	22.42	22.00	22.14
		1	49	23.00	22.29	22.44	22.31
		25	0	23.00	21.18	21.01	21.17
		25	12	23.00	21.26	21.10	21.21
		25	25	23.00	21.10	21.01	21.08
		50	0	23.00	21.18	21.05	21.11

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20825	21100	21375
					2507.5	2535	2562.5
15MHz	QPSK	1	0	24.00	22.70	22.92	23.00
		1	37	24.00	23.16	23.28	23.19
		1	74	24.00	22.86	22.88	22.87
		36	0	23.00	22.15	22.03	22.02
		36	19	23.00	22.35	22.18	22.26
		36	39	23.00	22.25	22.34	22.29
		75	0	23.00	21.76	21.87	21.76
	16QAM	1	0	23.00	22.19	22.32	22.37
		1	37	23.00	22.66	22.71	22.78
		1	74	23.00	22.32	22.26	22.35
		36	0	23.00	21.05	22.06	21.99
		36	19	23.00	21.11	21.19	21.21
		36	39	23.00	21.02	21.13	21.13
		75	0	23.00	21.18	21.11	21.15
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20850	21100	21350
					2510	2535	2560
20MHz	QPSK	1	0	24.00	23.38	23.63	23.37
		1	50	24.00	22.78	22.92	22.98
		1	99	24.00	22.99	22.96	23.11
		50	0	23.00	22.28	22.40	22.26
		50	25	23.00	21.90	22.06	21.99
		50	50	23.00	21.78	21.80	21.94
		100	0	23.00	21.79	21.96	21.93
	16QAM	1	0	23.00	22.39	22.50	22.48
		1	50	23.00	22.31	22.37	22.30
		1	99	23.00	22.46	22.33	22.49
		50	0	23.00	21.19	21.19	21.04
		50	25	23.00	21.08	21.18	21.12
		50	50	23.00	21.18	21.18	21.11
		100	0	23.00	21.17	21.13	21.06

2) Conducted power measurements of LTE Band 7 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20775	21100	21425
					2502.5	2535	2567.5
5MHz	QPSK	1	0	24.00	23.14	23.22	23.29
		1	12	24.00	23.24	23.36	23.32
		1	24	24.00	22.93	23.18	23.09
		12	0	23.00	22.33	22.02	22.08
		12	6	23.00	21.97	21.93	21.92
		12	13	23.00	22.24	21.96	22.14
		25	0	23.00	22.25	22.47	22.58
	16QAM	1	0	23.00	22.52	22.56	22.51
		1	12	23.00	22.61	21.91	21.84
		1	24	23.00	22.33	21.67	22.37
		12	0	23.00	21.24	21.14	21.17
		12	6	23.00	21.25	21.15	21.13
		12	13	23.00	21.20	21.08	21.09
		25	0	23.00	21.15	21.10	21.13
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20800	21100	21400
					2505	2535	2565
10MHz	QPSK	1	0	24.00	22.93	23.15	23.28
		1	24	24.00	23.26	23.06	23.04
		1	49	24.00	22.91	23.20	23.13
		25	0	23.00	21.91	21.92	21.90
		25	12	23.00	21.97	22.09	21.99
		25	25	23.00	22.20	22.02	21.98
		50	0	23.00	22.21	22.47	22.50
	16QAM	1	0	23.00	22.32	22.49	22.49
		1	24	23.00	22.48	22.06	22.20
		1	49	23.00	22.35	22.50	22.37
		25	0	23.00	21.37	21.07	21.23
		25	12	23.00	21.02	21.16	21.27
		25	25	23.00	21.19	21.07	21.14
		50	0	23.00	21.38	21.11	21.17

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20825	21100	21375
					2507.5	2535	2562.5
15MHz	QPSK	1	0	24.00	22.76	22.98	23.06
		1	37	24.00	23.22	23.34	23.25
		1	74	24.00	22.92	22.94	22.93
		36	0	23.00	22.21	22.09	22.08
		36	19	23.00	22.41	22.24	22.32
		36	39	23.00	22.31	22.40	22.35
		75	0	23.00	21.82	21.93	21.82
	16QAM	1	0	23.00	22.25	22.38	22.43
		1	37	23.00	22.72	22.77	22.84
		1	74	23.00	22.38	22.32	22.41
		36	0	23.00	21.11	22.12	22.05
		36	19	23.00	21.17	21.25	21.27
		36	39	23.00	21.08	21.19	21.19
		75	0	23.00	21.04	21.17	21.21
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					20850	21100	21350
					2510	2535	2560
20MHz	QPSK	1	0	24.00	23.44	23.45	23.43
		1	50	24.00	22.84	22.98	23.04
		1	99	24.00	23.05	23.02	23.17
		50	0	23.00	22.34	22.48	22.32
		50	25	23.00	21.96	22.12	22.05
		50	50	23.00	21.84	21.86	22.00
		100	0	23.00	21.85	22.02	21.99
	16QAM	1	0	23.00	22.45	22.56	22.54
		1	50	23.00	22.37	22.43	22.36
		1	99	23.00	22.52	22.39	22.55
		50	0	23.00	21.05	21.25	21.10
		50	25	23.00	21.14	21.24	21.18
		50	50	23.00	21.04	21.04	21.17
		100	0	23.00	21.03	21.19	21.12

8.1.10CONDUCTED POWER MEASUREMENTS OF LTE Band 12

1) Conducted power measurements of LTE Band 12 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23017	23095	23173
					699.7	707.5	715.3
1.4MHz	QPSK	1	0	23.50	22.57	22.54	22.37
		1	2	23.50	22.94	22.59	22.40
		1	5	23.50	23.08	23.13	22.97
		3	0	23.50	21.99	22.14	22.02
		3	1	23.50	22.03	22.12	22.20
		3	3	23.50	22.37	22.23	22.29
		6	0	22.50	21.66	21.66	21.93
	16QAM	1	0	22.50	21.84	21.96	21.70
		1	2	22.50	21.97	22.07	21.59
		1	5	22.50	21.89	22.00	21.84
		3	0	22.50	21.71	21.64	21.80
		3	1	22.50	21.97	21.82	21.60
		3	3	22.50	21.92	21.84	21.94
		6	0	22.50	21.88	21.71	21.56
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23025	23095	23165
					700.5	707.5	714.5
3MHz	QPSK	1	0	23.50	22.54	22.71	22.64
		1	7	23.50	22.84	22.72	22.74
		1	14	23.50	22.88	22.66	22.78
		8	0	22.50	21.82	21.57	21.65
		8	3	22.50	21.73	21.57	21.51
		8	7	22.50	21.54	21.57	21.25
		15	0	22.50	21.58	21.56	21.40
	16QAM	1	0	22.50	21.95	21.80	21.89
		1	7	22.50	21.83	21.71	21.71
		1	14	22.50	21.70	21.88	21.27
		8	0	22.50	21.59	21.34	21.56
		8	3	22.50	21.61	21.38	21.46
		8	7	22.50	21.47	21.28	21.23
		15	0	22.50	21.39	21.25	21.27

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23035	23095	23155
					701.5	707.5	713.5
5MHz	QPSK	1	0	23.50	22.71	22.39	22.72
		1	12	23.50	22.82	22.78	23.04
		1	24	23.50	22.51	22.48	22.55
		12	0	22.50	21.77	21.65	21.78
		12	6	22.50	21.82	21.78	21.91
		12	13	22.50	21.67	21.76	21.63
		25	0	22.50	21.66	21.72	21.59
	16QAM	1	0	23.00	22.06	22.06	21.99
		1	12	23.00	22.28	22.52	22.37
		1	24	23.00	22.48	22.11	22.14
		12	0	22.50	21.95	21.67	21.83
		12	6	22.50	21.67	21.82	21.67
		12	13	22.50	21.76	21.89	21.64
		25	0	22.50	21.84	21.94	21.91
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23060	23095	23130
					704	707.5	711
10MHz	QPSK	1	0	23.50	22.90	22.98	22.87
		1	24	23.50	23.07	23.15	23.09
		1	49	23.50	23.13	23.06	23.13
		25	0	22.50	21.92	21.78	21.87
		25	12	22.50	22.19	22.19	22.29
		25	25	22.50	21.58	21.76	21.69
		50	0	22.50	21.76	21.73	21.80
	16QAM	1	0	23.00	22.27	22.20	21.84
		1	24	23.00	22.26	22.65	22.28
		1	49	23.00	22.68	22.55	22.71
		25	0	22.50	21.81	21.69	21.78
		25	12	22.50	21.78	21.84	21.84
		25	25	22.50	21.55	21.62	21.64
		50	0	22.50	21.68	21.63	21.68

2) Conducted power measurements of LTE Band 12 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23017	23095	23173
					699.7	707.5	715.3
1.4MHz	QPSK	1	0	23.50	22.64	22.55	22.44
		1	2	23.50	22.83	22.65	22.39
		1	5	23.50	22.72	22.59	22.19
		3	0	23.50	22.63	22.52	22.37
		3	1	23.50	22.72	22.58	22.30
		3	3	23.50	22.73	22.60	22.22
		6	0	22.50	21.72	21.65	21.34
	16QAM	1	0	22.50	21.86	21.83	21.72
		1	2	22.50	22.04	21.89	21.67
		1	5	22.50	21.94	21.81	21.42
		3	0	22.50	21.74	21.73	21.53
		3	1	22.50	21.83	21.77	21.50
		3	3	22.50	21.94	21.68	21.35
		6	0	22.50	21.79	21.57	21.41
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23025	23095	23165
					700.5	707.5	714.5
3MHz	QPSK	1	0	23.50	22.50	22.33	22.59
		1	7	23.50	22.83	22.74	22.67
		1	14	23.50	22.34	22.40	22.06
		8	0	22.50	21.76	21.57	21.71
		8	3	22.50	21.77	21.67	21.61
		8	7	22.50	21.59	21.54	21.36
		15	0	22.50	21.60	21.54	21.52
	16QAM	1	0	22.50	21.75	21.74	22.01
		1	7	22.50	22.10	22.07	22.07
		1	14	22.50	21.59	21.76	21.35
		8	0	22.50	21.76	21.53	21.78
		8	3	22.50	21.79	21.61	21.66
		8	7	22.50	21.65	21.51	21.40
		15	0	22.50	21.58	21.56	21.49

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23035	23095	23155
					701.5	707.5	713.5
5MHz	QPSK	1	0	23.50	22.64	22.64	22.66
		1	12	23.50	22.72	22.63	22.21
		1	24	23.50	22.59	22.69	22.35
		12	0	22.50	21.63	21.92	21.54
		12	6	22.50	21.67	21.53	22.15
		12	13	22.50	21.52	21.79	21.93
		25	0	22.50	21.94	21.99	21.91
	16QAM	1	0	23.00	22.09	22.16	22.23
		1	12	23.00	22.42	22.61	22.48
		1	24	23.00	21.83	22.17	21.67
		12	0	22.50	22.13	21.95	22.09
		12	6	22.50	22.17	22.05	22.19
		12	13	22.50	22.01	21.99	21.96
		25	0	22.50	21.90	21.95	21.96
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23060	23095	23130
					704	707.5	711
10MHz	QPSK	1	0	23.50	22.90	22.72	22.72
		1	24	23.50	22.92	22.98	22.95
		1	49	23.50	22.41	22.53	22.23
		25	0	22.50	21.87	21.81	21.93
		25	12	22.50	21.86	21.99	22.06
		25	25	22.50	21.61	21.72	21.77
		50	0	22.50	21.77	21.78	21.84
	16QAM	1	0	23.00	22.16	22.11	21.93
		1	24	23.00	22.26	22.57	22.49
		1	49	23.00	21.75	21.79	21.32
		25	0	22.50	21.85	21.80	21.88
		25	12	22.50	21.84	22.01	22.01
		25	25	22.50	21.62	21.73	21.70
		50	0	22.50	21.81	21.79	21.78

8.1.11CONDUCTED POWER MEASUREMENTS OF LTE Band 17

1) Conducted power measurements of LTE Band 17 Top Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23755	23790	23825
					706.5	710	713.5
5MHz	QPSK	1	0	24.00	23.25	23.21	23.19
		1	12	24.00	23.20	22.99	22.89
		1	24	24.00	23.15	23.27	23.08
		12	0	23.00	22.51	22.45	22.20
		12	6	23.00	22.19	22.26	22.16
		12	13	23.00	22.01	22.22	22.31
		25	0	23.00	22.11	22.05	22.08
	16QAM	1	0	23.00	22.60	22.62	22.04
		1	12	23.00	22.16	22.51	22.23
		1	24	23.00	21.84	22.02	22.01
		12	0	22.00	21.64	21.76	21.63
		12	6	22.00	21.09	21.16	21.12
		12	13	22.00	21.23	21.24	21.28
		25	0	22.00	21.26	21.17	21.11
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23780	23790	23800
					709	710	711
10MHz	QPSK	1	0	24.00	23.32	23.24	23.42
		1	24	24.00	23.55	23.58	23.53
		1	49	24.00	23.28	22.25	23.46
		25	0	23.00	22.62	22.63	22.60
		25	12	23.00	22.24	22.20	22.29
		25	25	23.00	21.98	22.00	21.98
		50	0	23.00	22.01	21.94	21.94
	16QAM	1	0	23.00	22.01	22.08	22.15
		1	24	23.00	22.29	22.33	22.29
		1	49	23.00	22.06	22.28	22.05
		25	0	22.00	21.60	21.63	21.59
		25	12	22.00	21.67	21.70	21.73
		25	25	22.00	21.51	21.52	21.42
		50	0	22.00	21.50	21.44	21.46

2) Conducted power measurements of LTE Band 17 Bottom Ant

Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23755	23790	23825
					706.5	710	713.5
5MHz	QPSK	1	0	24.00	23.46	23.42	23.40
		1	12	24.00	23.41	23.20	23.10
		1	24	24.00	23.36	23.48	23.29
		12	0	23.00	22.72	22.66	22.41
		12	6	23.00	22.40	22.47	22.37
		12	13	23.00	22.22	22.43	22.52
		25	0	23.00	22.32	22.26	22.29
	16QAM	1	0	23.00	22.81	22.83	22.25
		1	12	23.00	22.37	22.72	22.44
		1	24	23.00	22.05	22.23	22.22
		12	0	22.00	21.85	21.97	21.84
		12	6	22.00	21.30	21.37	21.33
		12	13	22.00	21.14	21.15	21.19
		25	0	22.00	21.47	21.38	21.32
Bandwidth	Modulation	RB size	RB offset	Tune-up	Low	Mid	High
					23780	23790	23800
					709	710	711
10MHz	QPSK	1	0	24.00	23.53	23.45	23.63
		1	24	24.00	23.76	23.79	23.74
		1	49	24.00	23.49	22.46	23.67
		25	0	23.00	22.83	22.84	22.81
		25	12	23.00	22.45	22.41	22.50
		25	25	23.00	22.19	22.21	22.19
		50	0	23.00	22.22	22.15	22.15
	16QAM	1	0	23.00	22.22	22.29	22.36
		1	24	23.00	22.50	22.54	22.50
		1	49	23.00	22.27	22.49	22.26
		25	0	22.00	21.81	21.84	21.80
		25	12	22.00	21.88	21.91	21.94
		25	25	22.00	21.72	21.73	21.63
		50	0	22.00	21.71	21.65	21.67

8.1.12CONDUCTED POWER MEASUREMENTS OF WiFi 2.4G

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Power Setting	Tune-up	Average Power (dBm)	SAR Test (Yes/No)
802.11b	1	2412	1	15	16.5	15.84	Yes
	6	2437		15	16.5	15.86	Yes
	11	2462		15	16.5	15.82	Yes
802.11g	1	2412	6	Not Required	15.5	Not Required	No
	6	2437		Not Required	15.5	Not Required	No
	11	2462		Not Required	15.5	Not Required	No
802.11n HT20	1	2412	6.5	Not Required	14.5	Not Required	No
	6	2437		Not Required	14.5	Not Required	No
	11	2462		Not Required	14.5	Not Required	No
802.11n HT40	3	2422	13.5	Not Required	14.0	Not Required	No
	6	2437		Not Required	14.0	Not Required	No
	9	2452		Not Required	14.0	Not Required	No

Note:

1) The Average conducted power of WiFi is measured with RMS detector.

2) Per KDB248227, for WiFi 2.4GHz, the highest measured maximum output power Channel for DSSS modes(802.11b)was selected for SAR measurement.SAR for OFDM modes(2.4GHz 802.11g/n) was not required When the highest reported SAR for DSSS is adjusted by the ratio of OFDM modes(802.11g/n)to DSSS modes(802.11b)specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

8.1.13CONDUCTED POWER MEASUREMENTS OF WIFI 2.4G WHEN SIMULTANEOUSLY TRANSMITTING WITH GSM&UMTS&LTE ANTENNA

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Power Setting	Tune-up	Average Power (dBm)	SAR Test (Yes/No)
802.11b	1	2412	1	12	13	12.63	No
	6	2437		12	13	11.08	No
	11	2462		12	13	12.88	No
802.11g	1	2412	6	Not Required	12.5	Not Required	No
	6	2437		Not Required	12.5	Not Required	No
	11	2462		Not Required	12.5	Not Required	No
802.11n HT20	1	2412	6.5	Not Required	12.5	Not Required	No
	6	2437		Not Required	12.5	Not Required	No
	11	2462		Not Required	12.5	Not Required	No
802.11n HT40	3	2422	13.5	Not Required	12.5	Not Required	No
	6	2437		Not Required	12.5	Not Required	No
	9	2452		Not Required	12.5	Not Required	No

Note:

1) The Average conducted power of WiFi is measured with RMS detector.

2) Per KDB248227, for WiFi 2.4GHz, the highest measured maximum output power Channel for DSSS modes(802.11b)was selected for SAR measurement.SAR for OFDM modes(2.4GHz 802.11g/n) was not required When the highest reported SAR for DSSS is adjusted by the ratio of OFDM modes(802.11g/n)to DSSS modes(802.11b)specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

8.1.14CONDUCTED POWER MEASUREMENTS OF BT

BT MHz	Tune Up	Average Conducted Power (dBm)		
		DH5	2DH5	3DH5
CH0	10.00	8.34	8.23	8.21
CH39	10.00	9.36	8.99	9.00
CH78	10.00	9.72	9.78	9.76

BT MHz	Tune Up	Average Conducted Power (dBm)		
		CH0	CH19	CH39
BT (4.1)	7.00	5.06	5.71	6.84

Note:
1) The conducted power of BT is measured with RMS detector.

8.2SAR TEST RESULTS

General Notes:

1) Per KDB447498 D01v06, all measurement SAR results are scaled to the maximum tune-up tolerance limit to demonstrate compliant.
2) Per KDB447498 D01v06, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:≤0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is≤100 MHz. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.
3) Per KDB865664 D01v01r04,for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤20%,and the measured SAR <1.45W/Kg, only one repeated measurement is required.
4) Per KDB941225 D06v02r01, the DUT Dimension is bigger than 9 cm x 5 cm, so 10mm is chosen as the test separation distance for Hotspot mode. When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
5) Per KDB648474 D04v01r03, SAR is evaluated without a headset connected to the device. When the standalone reported body-worn SAR is ≤1.2 W/kg, no additional SAR evaluations using a headset are required.
6) Per KDB865664 D02v01r02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is > 1.5 W/kg, or > 7.0 W/kg for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing.

GSM Notes:

1) Per KDB648474 D04v01r03, body-worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2) Per KDB941225 D01v03r01, 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.

UMTS Notes:

Per KDB941225 D01v03r01, When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤¼ 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.

LTE notes:

1) The LTE test configurations are determined according to KDB941225 D05 SAR for LTE Devices v02r05.The general test procedures used for SAR testing can be found in Section 7.1.3.
2) A-MPR was disabled for all SAR test by setting NS_01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames(maximum TTI)

WLAN Notes:

1. For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated(peak)SAR is used as the initial test position. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 for 2.4GHZ WIFI single transmission chain operations, the highest measured maximum output power Channel for DSSS was selected for SAR measurement.SAR for OFDM modes(2.4GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.1.4 for more information.

8.2.1SAR MEASUREMENT RESULT OF HEAD

1. Head SAR test results of GSM&UMTS

Test No.	Band	Mode	CH	Test Position	Ant	SIM	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T01	GSM850	GSM	190	Right Cheek	1	1	1	33.5	32.62	-0.04	0.276	0.338
T02	GSM850	GSM	190	Right Tilted	1	1	1	33.5	32.62	0.02	0.175	0.214
T03	GSM850	GSM	190	Left Cheek	1	1	1	33.5	32.62	-0.01	0.183	0.224
T04	GSM850	GSM	190	Left Tilted	1	1	1	33.5	32.62	0.04	0.151	0.185
T05	GSM850	GSM	190	Right Cheek	1	1	2	33.5	32.62	0.09	0.279	0.342
T06	GSM850	GSM	190	Right Cheek	1	1	3	33.5	32.62	0.08	0.292	0.358
T07	GSM850	GSM	190	Right Cheek	1	1	4	33.5	32.62	-0.03	0.287	0.351
T08	GSM850	GSM	190	Right Cheek	1	1	5	33.5	32.62	-0.08	**0.317**	0.388
T1001	GSM850	GSM	190	Right Cheek	1	2	5	33.5	32.62	-0.07	0.302	0.370
T09	GSM850	GSM	190	Right Cheek	2	1	1	33.5	32.5	-0.06	**0.496**	0.624
T10	GSM850	GSM	190	Right Tilted	2	1	1	33.5	32.5	0.05	0.356	0.448
T11	GSM850	GSM	190	Left Cheek	2	1	1	33.5	32.5	0.05	0.388	0.488
T12	GSM850	GSM	190	Left Tilted	2	1	1	33.5	32.5	-0.03	0.358	0.451
T13	GSM850	GSM	190	Right Cheek	2	1	2	33.5	32.5	-0.01	0.456	0.574
T14	GSM850	GSM	190	Right Cheek	2	1	3	33.5	32.5	0.01	0.448	0.564
T15	GSM850	GSM	190	Right Cheek	2	1	4	33.5	32.5	0.00	0.427	0.538
T16	GSM850	GSM	190	Right Cheek	2	1	5	33.5	32.5	0.04	0.433	0.545
T1002	GSM850	GSM	190	Right Cheek	2	2	1	33.5	32.5	-0.02	0.448	0.564
T17	GSM1900	GSM	661	Right Cheek	1	1	1	30.5	29.64	-0.05	0.145	0.177
T18	GSM1900	GSM	661	Right Tilted	1	1	1	30.5	29.64	0.01	0.106	0.129
T19	GSM1900	GSM	661	Left Cheek	1	1	1	30.5	29.64	0.07	**0.203**	0.247
T20	GSM1900	GSM	661	Left Tilted	1	1	1	30.5	29.64	-0.03	0.117	0.143
T21	GSM1900	GSM	661	Left Cheek	1	1	2	30.5	29.64	0.07	0.176	0.215
T22	GSM1900	GSM	661	Left Cheek	1	1	3	30.5	29.64	-0.02	0.181	0.221
T23	GSM1900	GSM	661	Left Cheek	1	1	4	30.5	29.64	0.05	0.172	0.210
T24	GSM1900	GSM	661	Left Cheek	1	1	5	30.5	29.64	-0.03	0.165	0.201
T1003	GSM1900	GSM	661	Left Cheek	1	2	1	30.5	29.64	-0.07	0.175	0.213
T25	GSM1900	GSM	661	Right Cheek	2	1	1	30.5	29.52	0.08	0.478	0.599
T26	GSM1900	GSM	661	Right Tilted	2	1	1	30.5	29.52	0.03	0.444	0.556
T27	GSM1900	GSM	661	Left Cheek	2	1	1	30.5	29.52	0.01	0.414	0.519
T28	GSM1900	GSM	661	Left Tilted	2	1	1	30.5	29.52	-0.02	0.358	0.449
T29	GSM1900	GSM	661	Right Cheek	2	1	2	30.5	29.52	-0.08	**0.621**	0.778
T30	GSM1900	GSM	661	Right Cheek	2	1	3	30.5	29.52	0.02	0.546	0.684
T31	GSM1900	GSM	661	Right Cheek	2	1	4	30.5	29.52	0.05	0.524	0.657
T32	GSM1900	GSM	661	Right Cheek	2	1	5	30.5	29.52	-0.04	0.530	0.664
T1004	GSM1900	GSM	661	Right Cheek	2	2	2	30.5	29.52	-0.06	0.591	0.741

T33	UMTS B2	RMC12.2K	9400	Right Cheek	1	1	1	24	23.56	0.02	0.244	0.270
T34	UMTS B2	RMC12.2K	9400	Right Tilted	1	1	1	24	23.56	0.03	0.132	0.146
T35	UMTS B2	RMC12.2K	9400	Left Cheek	1	1	1	24	23.56	0.09	**0.330**	0.365
T36	UMTS B2	RMC12.2K	9400	Left Tilted	1	1	1	24	23.56	-0.03	0.123	0.136
T37	UMTS B2	RMC12.2K	9400	Left Cheek	1	1	2	24	23.56	0.05	0.269	0.298
T38	UMTS B2	RMC12.2K	9400	Left Cheek	1	1	3	24	23.56	0.04	0.321	0.355
T39	UMTS B2	RMC12.2K	9400	Left Cheek	1	1	4	24	23.56	-0.05	0.323	0.357
T40	UMTS B2	RMC12.2K	9400	Left Cheek	1	1	5	24	23.56	-0.06	0.317	0.351
T41	UMTS B2	RMC12.2K	9400	Right Cheek	2	1	1	24	23.43	0.02	0.507	0.578
T42	UMTS B2	RMC12.2K	9400	Right Tilted	2	1	1	24	23.43	0.06	0.379	0.432
T43	UMTS B2	RMC12.2K	9400	Left Cheek	2	1	1	24	23.43	0.03	0.345	0.393
T44	UMTS B2	RMC12.2K	9400	Left Tilted	2	1	1	24	23.43	-0.02	0.286	0.326
T45	UMTS B2	RMC12.2K	9400	Right Cheek	2	1	2	24	23.43	0.01	**0.558**	0.636
T46	UMTS B2	RMC12.2K	9400	Right Cheek	2	1	3	24	23.43	0.05	0.486	0.554
T47	UMTS B2	RMC12.2K	9400	Right Cheek	2	1	4	24	23.43	-0.08	0.492	0.561
T48	UMTS B2	RMC12.2K	9400	Right Cheek	2	1	5	24	23.43	-0.04	0.486	0.554
T49	UMTS B4	RMC12.2K	1413	Right Cheek	1	1	1	24	23.52	0.01	0.261	0.292
T50	UMTS B4	RMC12.2K	1413	Right Tilted	1	1	1	24	23.52	0.03	0.179	0.200
T51	UMTS B4	RMC12.2K	1413	Left Cheek	1	1	1	24	23.52	0.09	0.348	0.389
T52	UMTS B4	RMC12.2K	1413	Left Tilted	1	1	1	24	23.52	-0.03	0.168	0.188
T53	UMTS B4	RMC12.2K	1413	Left Cheek	1	1	2	24	23.52	0.05	0.409	0.457
T54	UMTS B4	RMC12.2K	1413	Left Cheek	1	1	3	24	23.52	0.08	0.337	0.376
T55	UMTS B4	RMC12.2K	1413	Left Cheek	1	1	4	24	23.52	-0.04	0.393	0.439
T56	UMTS B4	RMC12.2K	1413	Left Cheek	1	1	5	24	23.52	0.08	**0.417**	0.466
T57	UMTS B4	RMC12.2K	1413	Right Cheek	2	1	1	24	23.39	-0.02	0.567	0.653
T58	UMTS B4	RMC12.2K	1413	Right Tilted	2	1	1	24	23.39	0.01	0.376	0.433
T59	UMTS B4	RMC12.2K	1413	Left Cheek	2	1	1	24	23.39	-0.03	0.395	0.455
T60	UMTS B4	RMC12.2K	1413	Left Tilted	2	1	1	24	23.39	0.05	0.268	0.308
T61	UMTS B4	RMC12.2K	1413	Right Cheek	2	1	2	24	23.39	0.02	**0.683**	0.786
T62	UMTS B4	RMC12.2K	1413	Right Cheek	2	1	3	24	23.39	0.06	0.465	0.535
T63	UMTS B4	RMC12.2K	1413	Right Cheek	2	1	4	24	23.39	-0.03	0.436	0.502
T64	UMTS B4	RMC12.2K	1413	Right Cheek	2	1	5	24	23.39	-0.08	0.442	0.509
T65	UMTS B5	RMC12.2K	4182	Right Cheek	1	1	1	24.5	23.84	-0.02	**0.247**	0.288
T66	UMTS B5	RMC12.2K	4182	Right Tilted	1	1	1	24.5	23.84	0.04	0.135	0.157
T67	UMTS B5	RMC12.2K	4182	Left Cheek	1	1	1	24.5	23.84	0.03	0.199	0.232
T68	UMTS B5	RMC12.2K	4182	Left Tilted	1	1	1	24.5	23.84	0.01	0.16	0.186
T69	UMTS B5	RMC12.2K	4182	Right Cheek	1	1	2	24.5	23.84	0.05	0.222	0.258
T70	UMTS B5	RMC12.2K	4182	Right Cheek	1	1	3	24.5	23.84	-0.02	0.227	0.264
T71	UMTS B5	RMC12.2K	4182	Right Cheek	1	1	4	24.5	23.84	-0.01	0.232	0.270
T72	UMTS B5	RMC12.2K	4182	Right Cheek	1	1	5	24.5	23.84	0.07	0.242	0.282
T73	UMTS B5	RMC12.2K	4182	Right Cheek	2	1	1	24.5	23.73	0.04	0.422	0.504

T74	UMTS B5	RMC12.2K	4182	Right Tilted	2	1	1	24.5	23.73	0.04	0.312	0.373
T75	UMTS B5	RMC12.2K	4182	Left Cheek	2	1	1	24.5	23.73	-0.02	0.394	0.470
T76	UMTS B5	RMC12.2K	4182	Left Tilted	2	1	1	24.5	23.73	0.02	0.331	0.395
T77	UMTS B5	RMC12.2K	4182	Right Cheek	2	1	2	24.5	23.73	-0.03	**0.581**	0.694
T78	UMTS B5	RMC12.2K	4182	Right Cheek	2	1	3	24.5	23.73	0.01	0.405	0.484
T79	UMTS B5	RMC12.2K	4182	Right Cheek	2	1	4	24.5	23.73	0.07	0.412	0.492
T80	UMTS B5	RMC12.2K	4182	Right Cheek	2	1	5	24.5	23.73	-0.04	0.409	0.488

2. Head SAR test results of LTE

Test No.	Band	Mode	CH	RB	Offset	Test Position	Ant	SIM	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T301	LTE B2	QPSK20M	18900	1	50	Right Cheek	1	1	1	23.5	22.98	0.05	0.205	0.231
T302	LTE B2	QPSK20M	18900	1	50	Right Tilted	1	1	1	23.5	22.98	-0.02	0.091	0.103
T303	LTE B2	QPSK20M	18900	1	50	Left Cheek	1	1	1	23.5	22.98	0.05	**0.274**	0.309
T304	LTE B2	QPSK20M	18900	1	50	Left Tilted	1	1	1	23.5	22.98	0.03	0.125	0.141
T305	LTE B2	QPSK20M	18900	50	25	Right Cheek	1	1	1	22.5	21.99	0.04	0.158	0.178
T306	LTE B2	QPSK20M	18900	50	25	Right Tilted	1	1	1	22.5	21.99	-0.06	0.073	0.082
T307	LTE B2	QPSK20M	18900	50	25	Left Cheek	1	1	1	22.5	21.99	0.05	0.235	0.264
T308	LTE B2	QPSK20M	18900	50	25	Left Tilted	1	1	1	22.5	21.99	0.01	0.102	0.115
T309	LTE B2	QPSK20M	18900	1	50	Left Cheek	1	1	2	23.5	22.98	0.03	0.245	0.276
T310	LTE B2	QPSK20M	18900	1	50	Left Cheek	1	1	3	23.5	22.98	-0.02	0.264	0.298
T311	LTE B2	QPSK20M	18900	1	50	Left Cheek	1	1	4	23.5	22.98	0.01	0.262	0.295
T312	LTE B2	QPSK20M	18900	1	50	Left Cheek	1	1	5	23.5	22.98	0.08	0.258	0.291
T313	LTE B2	QPSK20M	18900	1	50	Right Cheek	2	1	1	23.5	22.84	0.04	**0.457**	0.532
T314	LTE B2	QPSK20M	18900	1	50	Right Tilted	2	1	1	23.5	22.84	-0.03	0.326	0.380
T315	LTE B2	QPSK20M	18900	1	50	Left Cheek	2	1	1	23.5	22.84	0.02	0.207	0.241
T316	LTE B2	QPSK20M	18900	1	50	Left Tilted	2	1	1	23.5	22.84	0.05	0.241	0.281
T317	LTE B2	QPSK20M	19100	50	25	Right Cheek	2	1	1	22.5	21.85	0.06	0.381	0.443
T318	LTE B2	QPSK20M	19100	50	25	Right Tilted	2	1	1	22.5	21.85	0.01	0.284	0.330
T319	LTE B2	QPSK20M	19100	50	25	Left Cheek	2	1	1	22.5	21.85	0.02	0.249	0.289
T320	LTE B2	QPSK20M	19100	50	25	Left Tilted	2	1	1	22.5	21.85	-0.08	0.211	0.245
T321	LTE B2	QPSK20M	18900	1	50	Right Cheek	2	1	2	23.5	22.84	-0.03	0.429	0.499
T322	LTE B2	QPSK20M	18900	1	50	Right Cheek	2	1	3	23.5	22.84	-0.09	0.436	0.508
T323	LTE B2	QPSK20M	18900	1	50	Right Cheek	2	1	4	23.5	22.84	0.01	0.431	0.502
T324	LTE B2	QPSK20M	18900	1	50	Right Cheek	2	1	5	23.5	22.84	-0.05	0.442	0.515
T325	LTE B4	QPSK20M	20175	1	50	Right Cheek	1	1	1	24	23.87	0.01	0.247	0.255
T326	LTE B4	QPSK20M	20175	1	50	Right Tilted	1	1	1	24	23.87	0.03	0.153	0.158
T327	LTE B4	QPSK20M	20175	1	50	Left Cheek	1	1	1	24	23.87	-0.09	0.349	0.360
T328	LTE B4	QPSK20M	20175	1	50	Left Tilted	1	1	1	24	23.87	-0.02	0.143	0.147
T329	LTE B4	QPSK20M	20050	50	25	Right Cheek	1	1	1	23	22.91	-0.06	0.127	0.130
T330	LTE B4	QPSK20M	20050	50	25	Right Tilted	1	1	1	23	22.91	0.08	0.088	0.090
T331	LTE B4	QPSK20M	20050	50	25	Left Cheek	1	1	1	23	22.91	0.06	0.234	0.239
T332	LTE B4	QPSK20M	20050	50	25	Left Tilted	1	1	1	23	22.91	-0.01	0.103	0.105
T333	LTE B4	QPSK20M	20175	1	50	Left Cheek	1	1	2	24	23.87	0.08	0.355	0.366
T334	LTE B4	QPSK20M	20175	1	50	Left Cheek	1	1	3	24	23.87	0.03	0.389	0.401
T335	LTE B4	QPSK20M	20175	1	50	Left Cheek	1	1	4	24	23.87	-0.05	0.354	0.365
T336	LTE B4	QPSK20M	20175	1	50	Left Cheek	1	1	5	24	23.87	-0.02	**0.397**	0.409
T337	LTE B4	QPSK20M	20175	1	50	Right Cheek	2	1	1	24	23.75	0.05	0.263	0.279
T338	LTE B4	QPSK20M	20175	1	50	Right Tilted	2	1	1	24	23.75	0.01	0.232	0.246
T339	LTE B4	QPSK20M	20175	1	50	Left Cheek	2	1	1	24	23.75	0.03	0.243	0.257
T340	LTE B4	QPSK20M	20175	1	50	Left Tilted	2	1	1	24	23.75	-0.05	0.165	0.175

T341	LTE B4	QPSK20M	20050	50	25	Right Cheek	2	1	1	23	22.79	0.04	0.246	0.258
T342	LTE B4	QPSK20M	20050	50	25	Right Tilted	2	1	1	23	22.79	-0.03	0.176	0.185
T343	LTE B4	QPSK20M	20050	50	25	Left Cheek	2	1	1	23	22.79	0.05	0.232	0.243
T344	LTE B4	QPSK20M	20050	50	25	Left Tilted	2	1	1	23	22.79	0.04	0.143	0.150
T345	LTE B4	QPSK20M	20175	1	50	Right Cheek	2	1	2	24	23.75	-0.02	**0.315**	0.334
T346	LTE B4	QPSK20M	20175	1	50	Right Cheek	2	1	3	24	23.75	-0.03	0.306	0.324
T347	LTE B4	QPSK20M	20175	1	50	Right Cheek	2	1	4	24	23.75	-0.05	0.302	0.320
T348	LTE B4	QPSK20M	20175	1	50	Right Cheek	2	1	5	24	23.75	-0.06	0.311	0.329
T349	LTE B5	QPSK10M	20525	1	24	Right Cheek	1	1	1	24	23.86	0.07	0.16	0.165
T350	LTE B5	QPSK10M	20525	1	24	Right Tilted	1	1	1	24	23.86	0.03	0.095	0.098
T351	LTE B5	QPSK10M	20525	1	24	Left Cheek	1	1	1	24	23.86	0.02	0.112	0.116
T352	LTE B5	QPSK10M	20525	1	24	Left Tilted	1	1	1	24	23.86	-0.02	0.106	0.109
T353	LTE B5	QPSK10M	20525	25	0	Right Cheek	1	1	1	23	22.82	0.04	0.131	0.137
T354	LTE B5	QPSK10M	20525	25	0	Right Tilted	1	1	1	23	22.82	-0.01	0.079	0.082
T355	LTE B5	QPSK10M	20525	25	0	Left Cheek	1	1	1	23	22.82	0.01	0.098	0.102
T356	LTE B5	QPSK10M	20525	25	0	Left Tilted	1	1	1	23	22.82	0.05	0.089	0.093
T357	LTE B5	QPSK10M	20525	1	24	Right Cheek	1	1	2	24	23.86	0.07	**0.165**	0.170
T358	LTE B5	QPSK10M	20525	1	24	Right Cheek	1	1	3	24	23.86	0.07	0.161	0.166
T359	LTE B5	QPSK10M	20525	1	24	Right Cheek	1	1	4	24	23.86	-0.08	0.141	0.146
T360	LTE B5	QPSK10M	20525	1	24	Right Cheek	1	1	5	24	23.86	0.09	0.157	0.162
T361	LTE B5	QPSK10M	20525	1	24	Right Cheek	2	1	1	24	23.77	-0.08	0.737	0.777
T362	LTE B5	QPSK10M	20525	1	24	Right Tilted	2	1	1	24	23.77	0.02	0.591	0.623
T363	LTE B5	QPSK10M	20525	1	24	Left Cheek	2	1	1	24	23.77	0.01	0.670	0.706
T364	LTE B5	QPSK10M	20525	1	24	Left Tilted	2	1	1	24	23.77	-0.03	0.614	0.647
T365	LTE B5	QPSK10M	20525	25	0	Right Cheek	2	1	1	23	22.73	0.07	0.521	0.554
T366	LTE B5	QPSK10M	20525	25	0	Right Tilted	2	1	1	23	22.73	0.02	0.404	0.430
T367	LTE B5	QPSK10M	20525	25	0	Left Cheek	2	1	1	23	22.73	0.01	0.464	0.494
T368	LTE B5	QPSK10M	20525	25	0	Left Tilted	2	1	1	23	22.73	0.04	0.462	0.492
T369	LTE B5	QPSK10M	20525	1	24	Right Cheek	2	1	2	24	23.75	-0.01	**0.872**	0.924
T370	LTE B5	QPSK10M	20525	1	24	Right Cheek	2	1	3	24	23.75	-0.01	0.727	0.770
T371	LTE B5	QPSK10M	20525	1	24	Right Cheek	2	1	4	24	23.75	0.08	0.728	0.771
T372	LTE B5	QPSK10M	20525	1	24	Right Cheek	2	1	5	24	23.75	0.09	0.733	0.776
T373	LTE B5	QPSK10M	20450	1	24	Right Cheek	2	1	2	24	23.66	0.02	0.812	0.878
T374	LTE B5	QPSK10M	20600	1	24	Right Cheek	2	1	2	24	23.67	0.03	0.823	0.888
T375	LTE B5	QPSK10M	20525	1	24	Right Cheek (1st Repeat)	2	1	2	24	23.75	-0.01	0.867	0.918
T951	LTE B5	QPSK10M	20600	50	0	Right Cheek	2	1	2	23	22.13	0.03	0.517	0.632
T376	LTE B7	QPSK20M	21100	1	0	Right Cheek	1	1	1	24	23.45	0.01	0.523	0.594
T377	LTE B7	QPSK20M	21100	1	0	Right Tilted	1	1	1	24	23.45	0.06	0.133	0.151
T378	LTE B7	QPSK20M	21100	1	0	Left Cheek	1	1	1	24	23.45	-0.01	0.227	0.258
T379	LTE B7	QPSK20M	21100	1	0	Left Tilted	1	1	1	24	23.45	-0.03	0.229	0.260
T380	LTE B7	QPSK20M	21100	50	0	Right Cheek	1	1	1	23	22.48	0.04	0.373	0.420
T381	LTE B7	QPSK20M	21100	50	0	Right Tilted	1	1	1	23	22.48	0.02	0.094	0.106
T382	LTE B7	QPSK20M	21100	50	0	Left Cheek	1	1	1	23	22.48	0.07	0.159	0.179
T383	LTE B7	QPSK20M	21100	50	0	Left Tilted	1	1	1	23	22.48	-0.06	0.164	0.185
T384	LTE B7	QPSK20M	21100	1	0	Right Cheek	1	1	2	24	23.45	0.03	0.519	0.589
T385	LTE B7	QPSK20M	21100	1	0	Right Cheek	1	1	3	24	23.45	0.05	0.611	0.693

T386	LTE B7	QPSK20M	21100	1	0	Right Cheek	1	1	4	24	23.45	-0.08	0.593	0.673
T387	LTE B7	QPSK20M	21100	1	0	Right Cheek	1	1	5	24	23.45	0.02	**0.621**	0.705
T388	LTE B7	QPSK20M	21100	1	0	Right Cheek	2	1	1	24	23.63	0.02	0.721	0.785
T389	LTE B7	QPSK20M	21100	1	0	Right Tilted	2	1	1	24	23.63	-0.03	0.719	0.783
T390	LTE B7	QPSK20M	21100	1	0	Left Cheek	2	1	1	24	23.63	0.01	0.456	0.497
T391	LTE B7	QPSK20M	21100	1	0	Left Tilted	2	1	1	24	23.63	0.06	0.52	0.566
T392	LTE B7	QPSK20M	21100	50	0	Right Cheek	2	1	1	23	22.4	0.04	0.451	0.518
T393	LTE B7	QPSK20M	21100	50	0	Right Tilted	2	1	1	23	22.4	-0.02	0.499	0.573
T394	LTE B7	QPSK20M	21100	50	0	Left Cheek	2	1	1	23	22.4	-0.08	0.352	0.404
T395	LTE B7	QPSK20M	21100	50	0	Left Tilted	2	1	1	23	22.4	0.03	0.367	0.421
T396	LTE B7	QPSK20M	21100	1	0	Right Cheek	2	1	2	24	23.63	0.06	**0.724**	0.788
T397	LTE B7	QPSK20M	21100	1	0	Right Cheek	2	1	3	24	23.63	0.07	0.701	0.763
T398	LTE B7	QPSK20M	21100	1	0	Right Cheek	2	1	4	24	23.63	-0.01	0.677	0.737
T399	LTE B7	QPSK20M	21100	1	0	Right Cheek	2	1	5	24	23.63	0.05	0.708	0.771
T400	LTE B12	QPSK10M	23095	1	24	Right Cheek	1	1	1	23.5	22.98	-0.05	**0.098**	0.110
T401	LTE B12	QPSK10M	23095	1	24	Right Tilted	1	1	1	23.5	22.98	0.02	0.064	0.072
T402	LTE B12	QPSK10M	23095	1	24	Left Cheek	1	1	1	23.5	22.98	0.03	0.077	0.087
T403	LTE B12	QPSK10M	23095	1	24	Left Tilted	1	1	1	23.5	22.98	-0.04	0.063	0.071
T404	LTE B12	QPSK10M	23130	25	12	Right Cheek	1	1	1	22.5	22.06	-0.05	0.092	0.102
T405	LTE B12	QPSK10M	23130	25	12	Right Tilted	1	1	1	22.5	22.06	-0.07	0.068	0.075
T406	LTE B12	QPSK10M	23130	25	12	Left Cheek	1	1	1	22.5	22.06	0.03	0.090	0.100
T407	LTE B12	QPSK10M	23130	25	12	Left Tilted	1	1	1	22.5	22.06	0.05	0.067	0.074
T408	LTE B12	QPSK10M	23095	1	24	Right Cheek	1	1	2	23.5	22.98	0.08	0.095	0.107
T409	LTE B12	QPSK10M	23095	1	24	Right Cheek	1	1	3	23.5	22.98	-0.09	0.093	0.105
T410	LTE B12	QPSK10M	23095	1	24	Right Cheek	1	1	4	23.5	22.98	0.06	0.094	0.106
T411	LTE B12	QPSK10M	23095	1	24	Right Cheek	1	1	5	23.5	22.98	-0.01	0.088	0.099
T412	LTE B12	QPSK10M	23095	1	24	Right Cheek	2	1	1	23.5	23.15	0.05	**0.596**	0.646
T413	LTE B12	QPSK10M	23095	1	24	Right Tilted	2	1	1	23.5	23.15	0.02	0.545	0.591
T414	LTE B12	QPSK10M	23095	1	24	Left Cheek	2	1	1	23.5	23.15	0.03	0.481	0.521
T415	LTE B12	QPSK10M	23095	1	24	Left Tilted	2	1	1	23.5	23.15	0.01	0.321	0.348
T416	LTE B12	QPSK10M	23130	25	12	Right Cheek	2	1	1	22.5	22.29	-0.02	0.553	0.580
T417	LTE B12	QPSK10M	23130	25	12	Right Tilted	2	1	1	22.5	22.29	-0.06	0.445	0.467
T418	LTE B12	QPSK10M	23130	25	12	Left Cheek	2	1	1	22.5	22.29	-0.01	0.359	0.377
T419	LTE B12	QPSK10M	23130	25	12	Left Tilted	2	1	1	22.5	22.29	0.09	0.455	0.478
T420	LTE B12	QPSK10M	23095	1	24	Right Cheek	2	1	2	23.5	23.15	0.06	0.529	0.573
T421	LTE B12	QPSK10M	23095	1	24	Right Cheek	2	1	3	23.5	23.15	0.04	0.519	0.563
T422	LTE B12	QPSK10M	23095	1	24	Right Cheek	2	1	4	23.5	23.15	-0.02	0.584	0.633
T423	LTE B12	QPSK10M	23095	1	24	Right Cheek	2	1	5	23.5	23.15	0.05	0.525	0.569
T424	LTE B17	QPSK10M	23790	1	24	Right Cheek	1	1	1	24	23.79	0.04	**0.123**	0.129
T425	LTE B17	QPSK10M	23790	1	24	Right Tilted	1	1	1	24	23.79	0.01	0.088	0.092
T426	LTE B17	QPSK10M	23790	1	24	Left Cheek	1	1	1	24	23.79	0.05	0.119	0.125
T427	LTE B17	QPSK10M	23790	1	24	Left Tilted	1	1	1	24	23.79	0.03	0.092	0.097

T428	LTE B17	QPSK10M	23790	25	0	Right Cheek	1	1	1	23	22.84	0.02	0.077	0.080
T429	LTE B17	QPSK10M	23790	25	0	Right Tilted	1	1	1	23	22.84	-0.03	0.055	0.057
T430	LTE B17	QPSK10M	23790	25	0	Left Cheek	1	1	1	23	22.84	-0.01	0.079	0.082
T431	LTE B17	QPSK10M	23790	25	0	Left Tilted	1	1	1	23	22.84	-0.08	0.061	0.063
T432	LTE B17	QPSK10M	23790	1	24	Right Cheek	1	1	2	24	23.79	0.06	0.118	0.124
T433	LTE B17	QPSK10M	23790	1	24	Right Cheek	1	1	3	24	23.79	0.02	0.116	0.122
T434	LTE B17	QPSK10M	23790	1	24	Right Cheek	1	1	4	24	23.79	0.04	0.112	0.118
T435	LTE B17	QPSK10M	23790	1	24	Right Cheek	1	1	5	24	23.79	0.09	0.114	0.120
T436	LTE B17	QPSK10M	23790	1	24	Right Cheek	2	1	1	24	23.58	0	**1.020**	1.124
T437	LTE B17	QPSK10M	23790	1	24	Right Tilted	2	1	1	24	23.58	0.03	0.569	0.627
T438	LTE B17	QPSK10M	23790	1	24	Left Cheek	2	1	1	24	23.58	0.04	0.626	0.690
T439	LTE B17	QPSK10M	23790	1	24	Left Tilted	2	1	1	24	23.58	-0.02	0.551	0.607
T440	LTE B17	QPSK10M	23790	25	0	Right Cheek	2	1	1	23	22.63	0.06	0.464	0.505
T441	LTE B17	QPSK10M	23790	25	0	Right Tilted	2	1	1	23	22.63	-0.02	0.422	0.460
T442	LTE B17	QPSK10M	23790	25	0	Left Cheek	2	1	1	23	22.63	-0.06	0.360	0.392
T443	LTE B17	QPSK10M	23790	25	0	Left Tilted	2	1	1	23	22.63	0.08	0.324	0.353
T444	LTE B17	QPSK10M	23780	1	24	Right Cheek	2	1	1	24	23.55	0.01	0.979	1.086
T445	LTE B17	QPSK10M	23800	1	24	Right Cheek	2	1	1	24	23.53	-0.03	0.894	0.996
T446	LTE B17	QPSK10M	23790	1	24	Right Cheek	2	1	2	24	23.58	0.08	0.993	1.094
T447	LTE B17	QPSK10M	23790	1	24	Right Cheek	2	1	3	24	23.58	0.04	0.849	0.935
T448	LTE B17	QPSK10M	23790	1	24	Right Cheek	2	1	4	24	23.58	0.03	0.817	0.900
T449	LTE B17	QPSK10M	23790	1	24	Right Cheek	2	1	5	24	23.58	0.04	0.844	0.930
T450	LTE B17	QPSK10M	23780	50	0	Right Cheek	2	1	1	23	22.01	-0.05	0.485	0.609
T451	LTE B17	QPSK10M	23790	1	24	Right Cheek (1st Repeat)	2	1	1	24	23.58	0.06	0.991	1.092

3. Head SAR test results of WIFI

Test No.	Band	CH	Test Position	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T900	802.11b	6	Right Cheek	1	16.5	15.86	0.05	0.202	0.234
T901	802.11b	6	Right Tilted	1	16.5	15.86	0.03	0.187	0.217
T902	802.11b	6	Left Cheek	1	16.5	15.86	0.02	0.593	0.687
T903	802.11b	6	Left Tilted	1	16.5	15.86	-0.07	0.553	0.641
T904	802.11b	6	Left Cheek	2	16.5	15.82	0.03	0.705	0.824
T905	802.11b	6	Left Cheek	3	16.5	15.82	-0.05	0.532	0.622
T906	802.11b	6	Left Cheek	4	16.5	15.82	0.04	0.564	0.660
T907	802.11b	6	Left Cheek	5	16.5	15.82	0.05	0.581	0.679
T908	802.11b	1	Left Cheek	2	16.5	15.84	0.02	0.595	0.693
T909	802.11b	11	Left Cheek	2	16.5	15.82	-0.03	**0.724**	0.847

Note: Per KDB248227D01, the highest SAR measured for the initial test position or initial test configuration should be used to determine SAR test exclusion according to the sum of 1-g SAR and SAR peak to location ratio provisions in KDB 447498. In addition, a test lab may also choose to perform standalone SAR measurements for test positions and 802.11 configurations that are not required by the initial test position or initial test configuration procedures and apply the results to determine simultaneous transmission SAR test exclusion, according to sum of 1-g and SAR peak to location ratio requirements to reduce the number of simultaneous transmission SAR measurements.

8.2.2SAR MEASUREMENT RESULT OF BODY-WORN

1. Body-worn SAR test results of GSM&UMTS

Test No.	Band	Mode	CH	Test Position	Separation Distance(cm)	Ant	SIM	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T101	GSM850	GSM	190	Front Face	1.5	1	1	1	33.5	32.62	0.02	0.306	0.375
T102	GSM850	GSM	190	Rear Face	1.5	1	1	1	33.5	32.62	0.05	0.315	0.386
T103	GSM850	GSM	190	Rear Face	1.5	1	1	2	33.5	32.62	0.01	0.320	0.392
T104	GSM850	GSM	190	Rear Face	1.5	1	1	3	33.5	32.62	-0.06	0.323	0.396
T105	GSM850	GSM	190	Rear Face	1.5	1	1	4	33.5	32.62	0.03	**0.326**	0.399
T106	GSM850	GSM	190	Rear Face	1.5	1	1	5	33.5	32.62	-0.05	0.318	0.389
T1005	GSM850	GSM	190	Rear Face	1.5	1	2	4	33.5	32.62	0.07	0.304	0.372
T116	GSM850	GSM	190	Front Face	1.5	2	1	1	33.5	32.5	0.03	0.056	0.070
T117	GSM850	GSM	190	Rear Face	1.5	2	1	1	33.5	32.5	0.05	0.042	0.053
T118	GSM850	GSM	190	Front Face	1.5	2	1	2	33.5	32.5	0.09	0.065	0.082
T119	GSM850	GSM	190	Front Face	1.5	2	1	3	33.5	32.5	0.04	0.061	0.077
T120	GSM850	GSM	190	Front Face	1.5	2	1	4	33.5	32.5	0.05	0.063	0.079
T121	GSM850	GSM	190	Front Face	1.5	2	1	5	33.5	32.5	0.01	**0.067**	0.084
T1007	GSM850	GSM	190	Front Face	1.5	2	2	5	33.5	32.5	0.04	0.063	0.079
T131	GSM1900	GSM	661	Front Face	1.5	1	1	1	30.5	29.64	0.09	0.097	0.118
T132	GSM1900	GSM	661	Rear Face	1.5	1	1	1	30.5	29.64	0.05	0.089	0.108
T133	GSM1900	GSM	661	Front Face	1.5	1	1	2	30.5	29.64	-0.03	0.092	0.112
T134	GSM1900	GSM	661	Front Face	1.5	1	1	3	30.5	29.64	-0.04	0.095	0.116
T135	GSM1900	GSM	661	Front Face	1.5	1	1	4	30.5	29.64	0.01	**0.106**	0.129
T136	GSM1900	GSM	661	Front Face	1.5	1	1	5	30.5	29.64	0.03	0.094	0.115
T1009	GSM1900	GSM	661	Front Face	1.5	1	2	4	30.5	29.64	-0.01	0.098	0.119
T146	GSM1900	GSM	661	Front Face	1.5	2	1	1	30.5	29.52	0.09	**0.025**	0.031
T147	GSM1900	GSM	661	Rear Face	1.5	2	1	1	30.5	29.52	-0.01	0.023	0.029
T148	GSM1900	GSM	661	Front Face	1.5	2	1	2	30.5	29.52	-0.03	0.024	0.030
T149	GSM1900	GSM	661	Front Face	1.5	2	1	3	30.5	29.52	0.06	0.023	0.029
T150	GSM1900	GSM	661	Front Face	1.5	2	1	4	30.5	29.52	0.08	0.024	0.030
T151	GSM1900	GSM	661	Front Face	1.5	2	1	5	30.5	29.52	0.04	0.021	0.026
T1011	GSM1900	GSM	661	Front Face	1.5	2	2	1	30.5	29.52	0.06	0.024	0.030
T161	UMTS B2	RMC12.2K	9400	Front Face	1.5	1	1	1	24	23.56	-0.04	0.164	0.181
T162	UMTS B2	RMC12.2K	9400	Rear Face	1.5	1	1	1	24	23.56	0.04	0.159	0.176
T163	UMTS B2	RMC12.2K	9400	Front Face	1.5	1	1	2	24	23.56	0.05	0.181	0.200
T164	UMTS B2	RMC12.2K	9400	Front Face	1.5	1	1	3	24	23.56	-0.03	0.183	0.203
T165	UMTS B2	RMC12.2K	9400	Front Face	1.5	1	1	4	24	23.56	-0.06	**0.187**	0.207

T166	UMTS B2	RMC12.2K	9400	Front Face	1.5	1	1	5	24	23.56	0.01	0.184	0.204
T176	UMTS B2	RMC12.2K	9400	Front Face	1.5	2	1	1	24	23.43	0.03	0.036	0.041
T177	UMTS B2	RMC12.2K	9400	Rear Face	1.5	2	1	1	24	23.43	-0.02	**0.050**	0.057
T178	UMTS B2	RMC12.2K	9400	Rear Face	1.5	2	1	2	24	23.43	0.02	0.042	0.048
T179	UMTS B2	RMC12.2K	9400	Rear Face	1.5	2	1	3	24	23.43	-0.03	0.041	0.047
T180	UMTS B2	RMC12.2K	9400	Rear Face	1.5	2	1	4	24	23.43	-0.06	0.046	0.052
T181	UMTS B2	RMC12.2K	9400	Rear Face	1.5	2	1	5	24	23.43	-0.01	0.045	0.051
T191	UMTS B4	RMC12.2K	1413	Front Face	1.5	1	1	1	24	23.52	0.01	0.179	0.200
T192	UMTS B4	RMC12.2K	1413	Rear Face	1.5	1	1	1	24	23.52	0.04	**0.278**	0.310
T193	UMTS B4	RMC12.2K	1413	Rear Face	1.5	1	1	2	24	23.52	-0.03	0.272	0.304
T194	UMTS B4	RMC12.2K	1413	Rear Face	1.5	1	1	3	24	23.52	-0.08	0.270	0.302
T195	UMTS B4	RMC12.2K	1413	Rear Face	1.5	1	1	4	24	23.52	-0.06	0.268	0.299
T196	UMTS B4	RMC12.2K	1413	Rear Face	1.5	1	1	5	24	23.52	0.04	0.275	0.307
T206	UMTS B4	RMC12.2K	1413	Front Face	1.5	2	1	1	24	23.39	-0.02	0.025	0.029
T207	UMTS B4	RMC12.2K	1413	Rear Face	1.5	2	1	1	24	23.39	0.07	**0.039**	0.045
T208	UMTS B4	RMC12.2K	1413	Rear Face	1.5	2	1	2	24	23.39	-0.03	0.035	0.040
T209	UMTS B4	RMC12.2K	1413	Rear Face	1.5	2	1	3	24	23.39	0.05	0.037	0.043
T210	UMTS B4	RMC12.2K	1413	Rear Face	1.5	2	1	4	24	23.39	0.03	0.032	0.037
T211	UMTS B4	RMC12.2K	1413	Rear Face	1.5	2	1	5	24	23.39	0.04	0.036	0.041
T221	UMTS B5	RMC12.2K	4182	Front Face	1.5	1	1	1	24.5	23.84	0.02	0.328	0.382
T222	UMTS B5	RMC12.2K	4182	Rear Face	1.5	1	1	1	24.5	23.84	0.03	0.350	0.407
T223	UMTS B5	RMC12.2K	4182	Rear Face	1.5	1	1	2	24.5	23.84	-0.05	0.360	0.419
T224	UMTS B5	RMC12.2K	4182	Rear Face	1.5	1	1	3	24.5	23.84	0.01	**0.362**	0.421
T225	UMTS B5	RMC12.2K	4182	Rear Face	1.5	1	1	4	24.5	23.84	-0.04	0.361	0.420
T226	UMTS B5	RMC12.2K	4182	Rear Face	1.5	1	1	5	24.5	23.84	-0.02	0.358	0.417
T236	UMTS B5	RMC12.2K	4182	Front Face	1.5	2	1	1	24.5	23.73	0.01	0.083	0.099
T237	UMTS B5	RMC12.2K	4182	Rear Face	1.5	2	1	1	24.5	23.73	0.03	0.070	0.084
T238	UMTS B5	RMC12.2K	4182	Front Face	1.5	2	1	2	24.5	23.73	0.06	0.096	0.115
T239	UMTS B5	RMC12.2K	4182	Front Face	1.5	2	1	3	24.5	23.73	-0.02	0.092	0.110
T240	UMTS B5	RMC12.2K	4182	Front Face	1.5	2	1	4	24.5	23.73	-0.05	0.094	0.112
T241	UMTS B5	RMC12.2K	4182	Front Face	1.5	2	1	5	24.5	23.73	-0.02	**0.101**	0.121

2. Body-worn SAR test results of LTE

Test No.	Band	Mode	CH	RB Size	RB Offset	Test Position	Separation Distance(cm)	Ant	SIM	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T501	LTE B2	QPSK20M	18900	1	50	Front Face	1.5	1	1	1	23.5	22.98	0.07	0.124	0.140
T502	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	1	1	1	23.5	22.98	0.08	**0.157**	0.177
T503	LTE B2	QPSK20M	18900	50	25	Front Face	1.5	1	1	1	22.5	21.99	-0.02	0.136	0.153
T504	LTE B2	QPSK20M	18900	50	25	Rear Face	1.5	1	1	1	22.5	21.99	0.03	0.122	0.137
T505	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	1	1	2	23.5	22.98	-0.05	0.144	0.162
T506	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	1	1	3	23.5	22.98	-0.06	0.156	0.176
T507	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	1	1	4	23.5	22.98	-0.01	0.153	0.172
T508	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	1	1	5	23.5	22.98	0.08	0.154	0.174
T523	LTE B2	QPSK20M	18900	1	50	Front Face	1.5	2	1	1	23.5	22.84	-0.01	0.033	0.038
T524	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	2	1	1	23.5	22.84	-0.07	0.042	0.049
T525	LTE B2	QPSK20M	19100	50	25	Front Face	1.5	2	1	1	22.5	21.85	-0.03	0.029	0.034
T526	LTE B2	QPSK20M	19100	50	25	Rear Face	1.5	2	1	1	22.5	21.85	0.02	0.024	0.028
T527	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	2	1	2	23.5	22.84	0.01	**0.052**	0.061
T528	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	2	1	3	23.5	22.84	0.09	0.460	0.535
T529	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	2	1	4	23.5	22.84	0.05	0.050	0.058
T530	LTE B2	QPSK20M	18900	1	50	Rear Face	1.5	2	1	5	23.5	22.84	-0.04	0.049	0.057
T545	LTE B4	QPSK20M	20175	1	50	Front Face	1.5	1	1	1	24	23.87	0.02	0.223	0.230
T546	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	1	1	1	24	23.87	-0.06	**0.301**	0.310
T547	LTE B4	QPSK20M	20050	50	25	Front Face	1.5	1	1	1	23	22.91	-0.05	0.162	0.165
T548	LTE B4	QPSK20M	20175	50	25	Rear Face	1.5	1	1	1	23	22.91	-0.01	0.220	0.225
T549	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	1	1	2	24	23.87	0.04	0.289	0.298
T550	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	1	1	3	24	23.87	0.01	0.298	0.313
T551	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	1	1	4	24	23.87	0.03	0.285	0.294
T552	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	1	1	5	24	23.87	-0.02	0.300	0.309
T567	LTE B4	QPSK20M	20175	1	50	Front Face	1.5	2	1	1	24	23.75	0.01	0.028	0.030
T568	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	2	1	1	24	23.75	0.05	**0.038**	0.041
T569	LTE B4	QPSK20M	20050	50	25	Front Face	1.5	2	1	1	23	22.79	-0.03	0.022	0.023
T570	LTE B4	QPSK20M	20050	50	25	Rear Face	1.5	2	1	1	23	22.79	-0.06	0.030	0.031
T571	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	2	1	2	24	23.75	0.02	0.018	0.019
T572	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	2	1	3	24	23.75	0.05	0.010	0.011

T573	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	2	1	4	24	23.75	-0.07	0.018	0.019
T574	LTE B4	QPSK20M	20175	1	50	Rear Face	1.5	2	1	5	24	23.75	0.03	0.020	0.021
T589	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	1	1	1	24	23.86	0.03	0.181	0.187
T590	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	1	1	1	24	23.86	0.01	0.246	0.254
T591	LTE B5	QPSK10M	20525	25	0	Front Face	1.5	1	1	1	23	22.82	0.05	0.152	0.158
T592	LTE B5	QPSK10M	20525	25	0	Rear Face	1.5	1	1	1	23	22.82	-0.02	0.156	0.163
T593	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	1	1	2	24	23.86	0.01	**0.263**	0.272
T594	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	1	1	3	24	23.86	-0.03	0.253	0.261
T595	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	1	1	4	24	23.86	-0.05	0.243	0.251
T596	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	1	1	5	24	23.86	-0.01	0.242	0.250
T611	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	2	1	1	24	23.77	0.02	0.059	0.062
T612	LTE B5	QPSK10M	20525	1	24	Rear Face	1.5	2	1	1	24	23.77	0.03	0.047	0.050
T613	LTE B5	QPSK10M	20525	25	0	Front Face	1.5	2	1	1	23	22.73	-0.02	0.046	0.049
T614	LTE B5	QPSK10M	20525	25	0	Rear Face	1.5	2	1	1	23	22.73	-0.06	0.043	0.046
T615	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	2	1	2	24	23.77	0.01	**0.070**	0.073
T616	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	2	1	3	24	23.77	0.02	0.065	0.069
T617	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	2	1	4	24	23.77	0.06	0.062	0.065
T618	LTE B5	QPSK10M	20525	1	24	Front Face	1.5	2	1	5	24	23.77	0.04	0.067	0.071
T633	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	1	1	1	24	23.45	0.02	0.293	0.333
T634	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	1	1	1	24	23.45	-0.01	0.338	0.384
T635	LTE B7	QPSK20M	21100	50	0	Front Face	1.5	1	1	1	23	22.48	-0.02	0.284	0.320
T636	LTE B7	QPSK20M	21100	50	0	Rear Face	1.5	1	1	1	23	22.48	-0.05	0.305	0.344
T637	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	1	1	2	24	23.45	-0.01	**0.378**	0.429
T638	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	1	1	3	24	23.45	0.01	0.352	0.400
T639	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	1	1	4	24	23.45	0.03	0.374	0.424
T640	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	1	1	5	24	23.45	0.08	0.364	0.413
T661	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	2	1	1	24	23.63	0.01	**0.051**	0.055
T662	LTE B7	QPSK20M	21100	1	0	Rear Face	1.5	2	1	1	24	23.63	0.02	0.042	0.046
T663	LTE B7	QPSK20M	21100	50	0	Front Face	1.5	2	1	1	23	22.4	-0.03	0.048	0.055
T664	LTE B7	QPSK20M	21100	50	0	Rear Face	1.5	2	1	1	23	22.4	-0.05	0.039	0.045
T665	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	2	1	2	24	23.63	-0.06	0.049	0.053
T666	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	2	1	3	24	23.63	0.04	0.043	0.047

T667	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	2	1	4	24	23.63	0.01	0.047	0.051
T668	LTE B7	QPSK20M	21100	1	0	Front Face	1.5	2	1	5	24	23.63	0.05	0.045	0.049
T683	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	1	1	1	23.5	22.98	0.01	0.116	0.131
T684	LTE B12	QPSK10M	23095	1	24	Rear Face	1.5	1	1	1	23.5	22.98	0.03	0.102	0.115
T685	LTE B12	QPSK10M	23130	25	12	Front Face	1.5	1	1	1	22.5	22.06	-0.03	0.103	0.114
T686	LTE B12	QPSK10M	23130	25	12	Rear Face	1.5	1	1	1	22.5	22.06	-0.08	0.098	0.108
T687	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	1	1	2	23.5	22.98	0.02	**0.119**	0.134
T688	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	1	1	3	23.5	22.98	-0.02	0.117	0.132
T689	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	1	1	4	23.5	22.98	0.04	0.115	0.130
T690	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	1	1	5	23.5	22.98	0.05	0.113	0.127
T705	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	2	1	1	23.5	23.15	0.01	**0.070**	0.075
T706	LTE B12	QPSK10M	23095	1	24	Rear Face	1.5	2	1	1	23.5	23.15	0	0.069	0.075
T707	LTE B12	QPSK10M	23130	25	12	Front Face	1.5	2	1	1	22.5	22.29	0.03	0.049	0.051
T708	LTE B12	QPSK10M	23130	25	12	Rear Face	1.5	2	1	1	22.5	22.29	0.04	0.036	0.038
T709	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	2	1	2	23.5	23.15	0.03	0.068	0.074
T710	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	2	1	3	23.5	23.15	0.06	0.067	0.073
T711	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	2	1	4	23.5	23.15	-0.02	0.059	0.064
T712	LTE B12	QPSK10M	23095	1	24	Front Face	1.5	2	1	5	23.5	23.15	-0.01	0.065	0.070
T727	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	1	1	1	24	23.79	0	0.138	0.145
T728	LTE B17	QPSK10M	23790	1	24	Rear Face	1.5	1	1	1	24	23.79	0.02	0.137	0.144
T729	LTE B17	QPSK10M	23790	25	0	Front Face	1.5	1	1	1	23	22.84	-0.06	0.096	0.100
T730	LTE B17	QPSK10M	23790	25	0	Rear Face	1.5	1	1	1	23	22.84	0.04	0.085	0.088
T731	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	1	1	2	24	23.79	0.06	**0.140**	0.147
T732	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	1	1	3	24	23.79	-0.05	0.137	0.144
T733	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	1	1	4	24	23.79	-0.03	0.138	0.145
T734	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	1	1	5	24	23.79	-0.08	0.135	0.142
T749	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	2	1	1	24	23.58	0.02	0.105	0.116
T750	LTE B17	QPSK10M	23790	1	24	Rear Face	1.5	2	1	1	24	23.58	0.04	0.074	0.082
T751	LTE B17	QPSK10M	23790	25	0	Front Face	1.5	2	1	1	23	22.63	0.03	0.068	0.074
T752	LTE B17	QPSK10M	23790	25	0	Rear Face	1.5	2	1	1	23	22.63	-0.02	0.058	0.063
T753	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	2	1	2	24	23.58	-0.08	**0.148**	0.163
T754	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	2	1	3	24	23.58	0.01	0.138	0.152

T755	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	2	1	4	24	23.58	0.08	0.139	0.153
T756	LTE B17	QPSK10M	23790	1	24	Front Face	1.5	2	1	5	24	23.58	0.05	0.130	0.143

3. Body-worn SAR test results of WIFI

Test No.	Band	CH	Test Position	Separation Distance(cm)	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T920	802.11b	6	Front Face	1.5	1	16.5	15.86	0.05	0.051	0.059
T921	802.11b	6	Rear Face	1.5	1	16.5	15.86	0.04	0.045	0.052
T922	802.11b	6	Front Face	1.5	2	16.5	15.86	0.06	**0.057**	0.066
T923	802.11b	6	Front Face	1.5	3	16.5	15.86	0.02	0.041	0.048
T924	802.11b	6	Front Face	1.5	4	16.5	15.86	0.04	0.054	0.063
T925	802.11b	6	Front Face	1.5	5	16.5	15.86	0.06	0.049	0.057

Note: Per KDB248227D01, the highest SAR measured for the initial test position or initial test configuration should be used to determine SAR test exclusion according to the sum of 1-g SAR and SAR peak to location ratio provisions in KDB 447498. In addition, a test lab may also choose to perform standalone SAR measurements for test positions and 802.11 configurations that are not required by the initial test position or initial test configuration procedures and apply the results to determine simultaneous transmission SAR test exclusion, according to sum of 1-g and SAR peak to location ratio requirements to reduce the number of simultaneous transmission SAR measurements.

8.2.3SAR MEASUREMENT RESULT OF HOTSPOT

1. Hotspot SAR test results of GSM&UMTS

Test No.	Band	Mode	CH	Test Position	Separation Distance(cm)	Ant	SIM	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T107	GSM850	GPRS 2TX	190	Front Face	1	1	1	1	31.5	30.64	0.01	0.279	0.340
T108	GSM850	GPRS 2TX	190	Rear Face	1	1	1	1	31.5	30.64	0.03	0.356	0.434
T109	GSM850	GPRS 2TX	190	Left Side	1	1	1	1	31.5	30.64	-0.06	0.127	0.155
T110	GSM850	GPRS 2TX	190	Right Side	1	1	1	1	31.5	30.64	-0.04	0.309	0.377
T111	GSM850	GPRS 2TX	190	Bottom Side	1	1	1	1	31.5	30.64	-0.05	0.142	0.173
T112	GSM850	GPRS 2TX	190	Rear Face	1	1	1	2	31.5	30.64	0.00	**0.362**	0.441
T113	GSM850	GPRS 2TX	190	Rear Face	1	1	1	3	31.5	30.64	0.03	0.354	0.432
T114	GSM850	GPRS 2TX	190	Rear Face	1	1	1	4	31.5	30.64	0.04	0.360	0.439
T115	GSM850	GPRS 2TX	190	Rear Face	1	1	1	5	31.5	30.64	0.04	0.359	0.438
T1006	GSM850	GPRS 2TX	190	Rear Face	1	1	2	2	31.5	30.64	0.02	0.347	0.423
T122	GSM850	GPRS 2TX	190	Front Face	1	2	1	1	31.5	30.52	0.01	0.106	0.133
T123	GSM850	GPRS 2TX	190	Rear Face	1	2	1	1	31.5	30.52	0.03	0.078	0.098
T124	GSM850	GPRS 2TX	190	Left Side	1	2	1	1	31.5	30.52	0.05	0.040	0.050
T125	GSM850	GPRS 2TX	190	Right Side	1	2	1	1	31.5	30.52	0.06	0.044	0.055
T126	GSM850	GPRS 2TX	190	Top Side	1	2	1	1	31.5	30.52	0.07	0.041	0.051
T127	GSM850	GPRS 2TX	190	Front Face	1	2	1	2	31.5	30.52	-0.01	0.139	0.174
T128	GSM850	GPRS 2TX	190	Front Face	1	2	1	3	31.5	30.52	-0.03	0.135	0.169
T129	GSM850	GPRS 2TX	190	Front Face	1	2	1	4	31.5	30.52	-0.05	0.137	0.172
T130	GSM850	GPRS 2TX	190	Front Face	1	2	1	5	31.5	30.52	0.02	**0.142**	0.178
T1008	GSM850	GPRS 2TX	190	Front Face	1	2	2	5	31.5	30.52	0.05	0.135	0.169
T137	GSM1900	GPRS 2TX	661	Front Face	1	1	1	1	28.5	27.66	0.01	0.221	0.268
T138	GSM1900	GPRS 2TX	661	Rear Face	1	1	1	1	28.5	27.66	0.03	0.183	0.222
T139	GSM1900	GPRS 2TX	661	Left Side	1	1	1	1	28.5	27.66	0.05	0.150	0.182
T140	GSM1900	GPRS 2TX	661	Right Side	1	1	1	1	28.5	27.66	-0.02	0.058	0.070
T141	GSM1900	GPRS 2TX	661	Bottom Side	1	1	1	1	28.5	27.66	-0.08	0.170	0.206
T142	GSM1900	GPRS 2TX	661	Front Face	1	1	1	2	28.5	27.66	-0.03	0.238	0.289
T143	GSM1900	GPRS 2TX	661	Front Face	1	1	1	3	28.5	27.66	0.02	0.232	0.282
T144	GSM1900	GPRS 2TX	661	Front Face	1	1	1	4	28.5	27.66	-0.04	**0.240**	0.291
T145	GSM1900	GPRS 2TX	661	Front Face	1	1	1	5	28.5	27.66	0.01	0.236	0.286
T1010	GSM1900	GPRS 2TX	661	Front Face	1	1	2	4	28.5	27.66	-0.03	0.238	0.289
T152	GSM1900	GPRS 2TX	661	Front Face	1	2	1	1	28.5	27.54	0.07	**0.061**	0.076
T153	GSM1900	GPRS 2TX	661	Rear Face	1	2	1	1	28.5	27.54	0.02	0.042	0.052
T154	GSM1900	GPRS 2TX	661	Left Side	1	2	1	1	28.5	27.54	-0.03	0.024	0.030
T155	GSM1900	GPRS 2TX	661	Right Side	1	2	1	1	28.5	27.54	-0.05	0.020	0.025
T156	GSM1900	GPRS 2TX	661	Top Side	1	2	1	1	28.5	27.54	-0.06	0.021	0.026
T157	GSM1900	GPRS 2TX	661	Front Face	1	2	1	2	28.5	27.54	0.01	0.048	0.060
T158	GSM1900	GPRS 2TX	661	Front Face	1	2	1	3	28.5	27.54	0.06	0.059	0.074
T159	GSM1900	GPRS 2TX	661	Front Face	1	2	1	4	28.5	27.54	0.08	0.060	0.075
T160	GSM1900	GPRS 2TX	661	Front Face	1	2	1	5	28.5	27.54	0.04	0.056	0.070

T1012	GSM1900	GPRS 2TX	661	Front Face	1	2	2	1	28.5	27.54	0.01	0.059	0.074
T167	UMTS B2	RMC12.2K	9400	Front Face	1	1	1	1	24	23.56	0.01	0.413	0.457
T168	UMTS B2	RMC12.2K	9400	Rear Face	1	1	1	1	24	23.56	0.03	0.354	0.392
T169	UMTS B2	RMC12.2K	9400	Left Side	1	1	1	1	24	23.56	-0.05	0.296	0.328
T170	UMTS B2	RMC12.2K	9400	Right Side	1	1	1	1	24	23.56	-0.06	0.185	0.205
T171	UMTS B2	RMC12.2K	9400	Bottom Side	1	1	1	1	24	23.56	-0.01	0.425	0.470
T172	UMTS B2	RMC12.2K	9400	Bottom Side	1	1	1	2	24	23.56	0.05	0.457	0.506
T173	UMTS B2	RMC12.2K	9400	Bottom Side	1	1	1	3	24	23.56	0.06	0.453	0.501
T174	UMTS B2	RMC12.2K	9400	Bottom Side	1	1	1	4	24	23.56	0.09	**0.463**	0.512
T175	UMTS B2	RMC12.2K	9400	Bottom Side	1	1	1	5	24	23.56	0.04	0.449	0.497
T182	UMTS B2	RMC12.2K	9400	Front Face	1	2	1	1	24	23.43	0.02	0.072	0.082
T183	UMTS B2	RMC12.2K	9400	Rear Face	1	2	1	1	24	23.43	-0.06	**0.080**	0.091
T184	UMTS B2	RMC12.2K	9400	Left Side	1	2	1	1	24	23.43	-0.03	0.065	0.074
T185	UMTS B2	RMC12.2K	9400	Right Side	1	2	1	1	24	23.43	-0.04	0.066	0.075
T186	UMTS B2	RMC12.2K	9400	Top Side	1	2	1	1	24	23.43	-0.02	0.071	0.081
T187	UMTS B2	RMC12.2K	9400	Rear Face	1	2	1	2	24	23.43	0.05	0.078	0.089
T188	UMTS B2	RMC12.2K	9400	Rear Face	1	2	1	3	24	23.43	0.01	0.079	0.090
T189	UMTS B2	RMC12.2K	9400	Rear Face	1	2	1	4	24	23.43	0.03	0.075	0.086
T190	UMTS B2	RMC12.2K	9400	Rear Face	1	2	1	5	24	23.43	0.08	0.076	0.087
T197	UMTS B4	RMC12.2K	1413	Front Face	1	1	1	1	24	23.52	0.02	0.402	0.449
T198	UMTS B4	RMC12.2K	1413	Rear Face	1	1	1	1	24	23.52	-0.04	**0.407**	0.455
T199	UMTS B4	RMC12.2K	1413	Left Side	1	1	1	1	24	23.52	0.03	0.315	0.352
T200	UMTS B4	RMC12.2K	1413	Right Side	1	1	1	1	24	23.52	-0.05	0.177	0.198
T201	UMTS B4	RMC12.2K	1413	Bottom Side	1	1	1	1	24	23.52	-0.06	0.214	0.239
T202	UMTS B4	RMC12.2K	1413	Rear Face	1	1	1	2	24	23.52	-0.04	0.402	0.449
T203	UMTS B4	RMC12.2K	1413	Rear Face	1	1	1	3	24	23.52	0.02	0.396	0.442
T204	UMTS B4	RMC12.2K	1413	Rear Face	1	1	1	4	24	23.52	0.05	0.403	0.450
T205	UMTS B4	RMC12.2K	1413	Rear Face	1	1	1	5	24	23.52	0.06	0.398	0.445
T212	UMTS B4	RMC12.2K	1413	Front Face	1	2	1	1	24	23.39	-0.03	0.054	0.062
T213	UMTS B4	RMC12.2K	1413	Rear Face	1	2	1	1	24	23.39	-0.01	**0.075**	0.086
T214	UMTS B4	RMC12.2K	1413	Left Side	1	2	1	1	24	23.39	0.02	0.049	0.056
T215	UMTS B4	RMC12.2K	1413	Right Side	1	2	1	1	24	23.39	0.04	0.047	0.054
T216	UMTS B4	RMC12.2K	1413	Top Side	1	2	1	1	24	23.39	0.09	0.048	0.055
T217	UMTS B4	RMC12.2K	1413	Front Face	1	2	1	2	24	23.39	0.06	0.074	0.085
T218	UMTS B4	RMC12.2K	1413	Front Face	1	2	1	3	24	23.39	-0.01	0.072	0.083
T219	UMTS B4	RMC12.2K	1413	Front Face	1	2	1	4	24	23.39	-0.03	0.073	0.084
T220	UMTS B4	RMC12.2K	1413	Front Face	1	2	1	5	24	23.39	-0.04	0.069	0.079
T227	UMTS B5	RMC12.2K	4182	Front Face	1	1	1	1	24.5	23.84	0.02	0.269	0.313
T228	UMTS B5	RMC12.2K	4182	Rear Face	1	1	1	1	24.5	23.84	0.03	0.291	0.339
T229	UMTS B5	RMC12.2K	4182	Left Side	1	1	1	1	24.5	23.84	0.06	0.143	0.166
T230	UMTS B5	RMC12.2K	4182	Right Side	1	1	1	1	24.5	23.84	0.08	0.275	0.320
T231	UMTS B5	RMC12.2K	4182	Bottom Side	1	1	1	1	24.5	23.84	-0.02	0.170	0.198
T232	UMTS B5	RMC12.2K	4182	Rear Face	1	1	1	2	24.5	23.84	-0.01	**0.338**	0.393
T233	UMTS B5	RMC12.2K	4182	Rear Face	1	1	1	3	24.5	23.84	-0.06	0.331	0.385
T234	UMTS B5	RMC12.2K	4182	Rear Face	1	1	1	4	24.5	23.84	-0.08	0.335	0.390
T235	UMTS B5	RMC12.2K	4182	Rear Face	1	1	1	5	24.5	23.84	-0.01	0.336	0.391

T242	UMTS B5	RMC12.2K	4182	Front Face	1	2	1	1	24.5	23.73	0.02	0.115	0.137
T243	UMTS B5	RMC12.2K	4182	Rear Face	1	2	1	1	24.5	23.73	-0.03	0.077	0.092
T244	UMTS B5	RMC12.2K	4182	Left Side	1	2	1	1	24.5	23.73	-0.05	0.065	0.078
T245	UMTS B5	RMC12.2K	4182	Right Side	1	2	1	1	24.5	23.73	-0.04	0.059	0.070
T246	UMTS B5	RMC12.2K	4182	Top Side	1	2	1	1	24.5	23.73	0.02	0.061	0.073
T247	UMTS B5	RMC12.2K	4182	Front Face	1	2	1	2	24.5	23.73	0.06	0.138	0.165
T248	UMTS B5	RMC12.2K	4182	Front Face	1	2	1	3	24.5	23.73	0.08	0.140	0.167
T249	UMTS B5	RMC12.2K	4182	Front Face	1	2	1	4	24.5	23.73	0.01	0.139	0.166
T250	UMTS B5	RMC12.2K	4182	Front Face	1	2	1	5	24.5	23.73	0.04	**0.143**	0.171

2. Hotspot SAR test results of LTE

Test No.	Band	Mode	CH	RB Size	RB Offset	Test Position	Separation Distance(cm)	Ant	SIM	Battery	Tune up	Measured	Drift (dB)	SAR Value (W/kg)1-g	Reported SAR
T509	LTE B2	QPSK20M	18900	1	50	Front Face	1	1	1	1	23.5	22.98	0.03	**0.290**	0.327
T510	LTE B2	QPSK20M	18900	1	50	Rear Face	1	1	1	1	23.5	22.98	0.01	0.275	0.310
T511	LTE B2	QPSK20M	18900	1	50	Left Side	1	1	1	1	23.5	22.98	-0.03	0.192	0.216
T512	LTE B2	QPSK20M	18900	1	50	Right Side	1	1	1	1	23.5	22.98	0.04	0.066	0.074
T513	LTE B2	QPSK20M	18900	1	50	Bottom Side	1	1	1	1	23.5	22.98	0.06	0.229	0.258
T514	LTE B2	QPSK20M	18900	50	25	Front Face	1	1	1	1	22.5	21.99	-0.06	0.217	0.244
T515	LTE B2	QPSK20M	18900	50	25	Rear Face	1	1	1	1	22.5	21.99	-0.04	0.175	0.197
T516	LTE B2	QPSK20M	18900	50	25	Left Side	1	1	1	1	22.5	21.99	0.05	0.144	0.162
T517	LTE B2	QPSK20M	18900	50	25	Right Side	1	1	1	1	22.5	21.99	0.06	0.040	0.045
T518	LTE B2	QPSK20M	18900	50	25	Bottom Side	1	1	1	1	22.5	21.99	0.04	0.161	0.181
T519	LTE B2	QPSK20M	18900	1	50	Front Face	1	1	1	2	23.5	22.98	-0.06	0.285	0.321
T520	LTE B2	QPSK20M	18900	1	50	Front Face	1	1	1	3	23.5	22.98	0.01	0.287	0.324
T521	LTE B2	QPSK20M	18900	1	50	Front Face	1	1	1	4	23.5	22.98	0.03	0.288	0.325
T522	LTE B2	QPSK20M	18900	1	50	Front Face	1	1	1	5	23.5	22.98	0.04	0.283	0.319
T531	LTE B2	QPSK20M	18900	1	50	Front Face	1	2	1	1	23.5	22.84	0.03	**0.068**	0.079
T532	LTE B2	QPSK20M	18900	1	50	Rear Face	1	2	1	1	23.5	22.84	0.05	0.065	0.076
T533	LTE B2	QPSK20M	18900	1	50	Left Side	1	2	1	1	23.5	22.84	0.02	0.044	0.051
T534	LTE B2	QPSK20M	18900	1	50	Right Side	1	2	1	1	23.5	22.84	-0.03	0.042	0.049
T535	LTE B2	QPSK20M	18900	1	50	Top Side	1	2	1	1	23.5	22.84	0.04	0.039	0.045
T536	LTE B2	QPSK20M	19100	50	25	Front Face	1	2	1	1	22.5	21.85	0.06	0.045	0.052
T537	LTE B2	QPSK20M	19100	50	25	Rear Face	1	2	1	1	22.5	21.85	0.06	0.039	0.045
T538	LTE B2	QPSK20M	19100	50	25	Left Side	1	2	1	1	22.5	21.85	0.01	0.044	0.051
T539	LTE B2	QPSK20M	19100	50	25	Right Side	1	2	1	1	22.5	21.85	0.09	0.036	0.042
T540	LTE B2	QPSK20M	19100	50	25	Top Side	1	2	1	1	22.5	21.85	-0.03	0.040	0.046
T541	LTE B2	QPSK20M	18900	1	50	Front Face	1	2	1	2	23.5	22.84	0.05	0.063	0.073
T542	LTE B2	QPSK20M	18900	1	50	Front Face	1	2	1	3	23.5	22.84	0.06	0.066	0.077
T543	LTE B2	QPSK20M	18900	1	50	Front Face	1	2	1	4	23.5	22.84	0.04	0.064	0.075

T544	LTE B2	QPSK20 M	18900	1	50	Front Face	1	2	1	5	23.5	22.84	0.06	0.062	0.072
T553	LTE B4	QPSK20 M	20175	1	50	Front Face	1	1	1	1	24	23.87	0.01	0.392	0.404
T554	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	1	1	1	24	23.87	-0.09	**0.440**	0.453
T555	LTE B4	QPSK20 M	20175	1	50	Left Side	1	1	1	1	24	23.87	-0.03	0.330	0.340
T556	LTE B4	QPSK20 M	20175	1	50	Right Side	1	1	1	1	24	23.87	0.06	0.180	0.185
T557	LTE B4	QPSK20 M	20175	1	50	Bottom Side	1	1	1	1	24	23.87	-0.02	0.221	0.228
T558	LTE B4	QPSK20 M	20050	50	25	Front Face	1	1	1	1	23	22.91	-0.04	0.289	0.295
T559	LTE B4	QPSK20 M	20050	50	25	Rear Face	1	1	1	1	23	22.91	0.07	0.332	0.339
T560	LTE B4	QPSK20 M	20050	50	25	Left Side	1	1	1	1	23	22.91	0.05	0.248	0.253
T561	LTE B4	QPSK20 M	20050	50	25	Right Side	1	1	1	1	23	22.91	-0.02	0.137	0.140
T562	LTE B4	QPSK20 M	20050	50	25	Bottom Side	1	1	1	1	23	22.91	0.01	0.175	0.179
T563	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	1	1	2	24	23.87	-0.03	0.437	0.450
T564	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	1	1	3	24	23.87	-0.08	0.384	0.396
T565	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	1	1	4	24	23.87	0.03	0.421	0.434
T566	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	1	1	5	24	23.87	0.01	0.423	0.436
T575	LTE B4	QPSK20 M	20175	1	50	Front Face	1	2	1	1	24	23.75	0.01	0.056	0.059
T576	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	2	1	1	24	23.75	-0.07	**0.067**	0.071
T577	LTE B4	QPSK20 M	20175	1	50	Left Side	1	2	1	1	24	23.75	-0.02	0.050	0.053
T578	LTE B4	QPSK20 M	20175	1	50	Right Side	1	2	1	1	24	23.75	0.04	0.051	0.054
T579	LTE B4	QPSK20 M	20175	1	50	Top Side	1	2	1	1	24	23.75	0.03	0.049	0.052
T580	LTE B4	QPSK20 M	20050	50	25	Front Face	1	2	1	1	23	22.79	0.01	0.046	0.048
T581	LTE B4	QPSK20 M	20050	50	25	Rear Face	1	2	1	1	23	22.79	0.05	0.060	0.063
T582	LTE B4	QPSK20 M	20050	50	25	Left Side	1	2	1	1	23	22.79	-0.01	0.050	0.052
T583	LTE B4	QPSK20 M	20050	50	25	Right Side	1	2	1	1	23	22.79	0.06	0.042	0.044
T584	LTE B4	QPSK20 M	20050	50	25	Top Side	1	2	1	1	23	22.79	0.01	0.043	0.045
T585	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	2	1	2	24	23.75	0.08	0.044	0.047
T586	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	2	1	3	24	23.75	-0.02	0.044	0.047
T587	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	2	1	4	24	23.75	0.03	0.053	0.056
T588	LTE B4	QPSK20 M	20175	1	50	Rear Face	1	2	1	5	24	23.75	0.04	0.058	0.061
T597	LTE B5	QPSK10 M	20525	1	24	Front Face	1	1	1	1	24	23.86	0.02	0.242	0.250
T598	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	1	1	1	24	23.86	0.03	0.261	0.270
T599	LTE B5	QPSK10 M	20525	1	24	Left Side	1	1	1	1	24	23.86	0.01	0.121	0.125

T600	LTE B5	QPSK10 M	20525	1	24	Right Side	1	1	1	1	24	23.86	0.05	0.232	0.240
T601	LTE B5	QPSK10 M	20525	1	24	Bottom Side	1	1	1	1	24	23.86	-0.06	0.139	0.144
T602	LTE B5	QPSK10 M	20525	25	0	Front Face	1	1	1	1	23	22.82	-0.02	0.201	0.210
T603	LTE B5	QPSK10 M	20525	25	0	Rear Face	1	1	1	1	23	22.82	-0.05	0.229	0.239
T604	LTE B5	QPSK10 M	20525	25	0	Left Side	1	1	1	1	23	22.82	-0.01	0.103	0.107
T605	LTE B5	QPSK10 M	20525	25	0	Right Side	1	1	1	1	23	22.82	0.03	0.205	0.214
T606	LTE B5	QPSK10 M	20525	25	0	Bottom Side	1	1	1	1	23	22.82	0.08	0.101	0.105
T607	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	1	1	2	24	23.86	-0.01	**0.272**	0.281
T608	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	1	1	3	24	23.86	0.06	0.265	0.274
T609	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	1	1	4	24	23.86	0.02	0.261	0.270
T610	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	1	1	5	24	23.86	-0.04	0.268	0.277
T619	LTE B5	QPSK10 M	20525	1	24	Front Face	1	2	1	1	24	23.77	-0.01	0.098	0.103
T620	LTE B5	QPSK10 M	20525	1	24	Rear Face	1	2	1	1	24	23.77	0.03	0.045	0.047
T621	LTE B5	QPSK10 M	20525	1	24	Left Side	1	2	1	1	24	23.77	0.04	0.035	0.037
T622	LTE B5	QPSK10 M	20525	1	24	Right Side	1	2	1	1	24	23.77	-0.03	0.038	0.040
T623	LTE B5	QPSK10 M	20525	1	24	Top Side	1	2	1	1	24	23.77	-0.05	0.034	0.036
T624	LTE B5	QPSK10 M	20525	25	0	Front Face	1	2	1	1	23	22.73	-0.04	0.048	0.051
T625	LTE B5	QPSK10 M	20525	25	0	Rear Face	1	2	1	1	23	22.73	-0.03	0.031	0.033
T626	LTE B5	QPSK10 M	20525	25	0	Left Side	1	2	1	1	23	22.73	-0.04	0.032	0.034
T627	LTE B5	QPSK10 M	20525	25	0	Right Side	1	2	1	1	23	22.73	0.08	0.029	0.031
T628	LTE B5	QPSK10 M	20525	25	0	Top Side	1	2	1	1	23	22.73	0.07	0.028	0.030
T629	LTE B5	QPSK10 M	20525	1	24	Front Face	1	2	1	2	24	23.77	0.00	**0.109**	0.115
T630	LTE B5	QPSK10 M	20525	1	24	Front Face	1	2	1	3	24	23.77	0.02	0.106	0.112
T631	LTE B5	QPSK10 M	20525	1	24	Front Face	1	2	1	4	24	23.77	0.03	0.102	0.108
T632	LTE B5	QPSK10 M	20525	1	24	Front Face	1	2	1	5	24	23.77	0.05	0.107	0.113
T641	LTE B7	QPSK20 M	21100	1	0	Front Face	1	1	1	1	24	23.45	0.04	**0.957**	1.086
T642	LTE B7	QPSK20 M	21100	1	0	Rear Face	1	1	1	1	24	23.45	0.02	0.649	0.737
T643	LTE B7	QPSK20 M	21100	1	0	Left Side	1	1	1	1	24	23.45	-0.01	0.124	0.141
T644	LTE B7	QPSK20 M	21100	1	0	Right Side	1	1	1	1	24	23.45	-0.03	0.524	0.595
T645	LTE B7	QPSK20 M	21100	1	0	Bottom Side	1	1	1	1	24	23.45	-0.05	0.583	0.662
T646	LTE B7	QPSK20 M	21100	50	0	Front Face	1	1	1	1	23	22.48	0.06	0.654	0.737
T647	LTE B7	QPSK20 M	21100	50	0	Rear Face	1	1	1	1	23	22.48	0.05	0.473	0.533

T648	LTE B7	QPSK20 M	21100	50	0	Left Side	1	1	1	1	23	22.48	0.05	0.106	0.119
T649	LTE B7	QPSK20 M	21100	50	0	Right Side	1	1	1	1	23	22.48	0.04	0.435	0.490
T650	LTE B7	QPSK20 M	21100	50	0	Bottom Side	1	1	1	1	23	22.48	0.06	0.532	0.600
T651	LTE B7	QPSK20 M	20850	1	0	Front Face	1	1	1	1	24	23.44	0.05	0.862	0.981
T652	LTE B7	QPSK20 M	21350	1	0	Front Face	1	1	1	1	24	23.43	0.08	0.754	0.860
T653	LTE B7	QPSK20 M	21100	1	0	Front Face	1	1	1	2	24	23.45	0.03	0.951	1.079
T654	LTE B7	QPSK20 M	21100	1	0	Front Face	1	1	1	3	24	23.45	-0.06	0.926	1.051
T655	LTE B7	QPSK20 M	21100	1	0	Front Face	1	1	1	4	24	23.45	-0.03	0.948	1.076
T656	LTE B7	QPSK20 M	21100	1	0	Front Face	1	1	1	5	24	23.45	-0.01	0.946	1.074
T657	LTE B7	QPSK20 M	21100	1	0	Front Face（1st Repeat）	1	1	1	2	24	23.45	0.03	0.946	1.074
T658	LTE B7	QPSK20 M	21100	100	0	Front Face	1	1	1	1	23	22.02	0.05	0.536	0.672
T669	LTE B7	QPSK20 M	21100	1	0	Front Face	1	2	1	1	24	23.63	0.04	**0.141**	0.154
T670	LTE B7	QPSK20 M	21100	1	0	Rear Face	1	2	1	1	24	23.63	0.01	0.132	0.144
T671	LTE B7	QPSK20 M	21100	1	0	Left Side	1	2	1	1	24	23.63	-0.03	0.127	0.138
T672	LTE B7	QPSK20 M	21100	1	0	Right Side	1	2	1	1	24	23.63	-0.09	0.121	0.132
T673	LTE B7	QPSK20 M	21100	1	0	Top Side	1	2	1	1	24	23.63	-0.06	0.125	0.136
T674	LTE B7	QPSK20 M	21100	50	0	Front Face	1	2	1	1	23	22.4	-0.04	0.131	0.150
T675	LTE B7	QPSK20 M	21100	50	0	Rear Face	1	2	1	1	23	22.4	0.05	0.121	0.139
T676	LTE B7	QPSK20 M	21100	50	0	Left Side	1	2	1	1	23	22.4	0.08	0.119	0.137
T677	LTE B7	QPSK20 M	21100	50	0	Right Side	1	2	1	1	23	22.4	0.03	0.121	0.139
T678	LTE B7	QPSK20 M	21100	50	0	Top Side	1	2	1	1	23	22.4	0.02	0.123	0.141
T679	LTE B7	QPSK20 M	21100	1	0	Front Face	1	2	1	2	24	23.63	0.05	0.134	0.146
T680	LTE B7	QPSK20 M	21100	1	0	Front Face	1	2	1	3	24	23.63	0.04	0.135	0.147
T681	LTE B7	QPSK20 M	21100	1	0	Front Face	1	2	1	4	24	23.63	-0.01	0.136	0.148
T682	LTE B7	QPSK20 M	21100	1	0	Front Face	1	2	1	5	24	23.63	-0.03	0.139	0.151
T691	LTE B12	QPSK10 M	23095	1	24	Front Face	1	1	1	1	23.5	22.98	0.01	0.132	0.149
T692	LTE B12	QPSK10 M	23095	1	24	Rear Face	1	1	1	1	23.5	22.98	0.03	0.121	0.136
T693	LTE B12	QPSK10 M	23095	1	24	Left Side	1	1	1	1	23.5	22.98	-0.02	0.116	0.131
T694	LTE B12	QPSK10 M	23095	1	24	Right Side	1	1	1	1	23.5	22.98	-0.05	0.124	0.140
T695	LTE B12	QPSK10 M	23095	1	24	Bottom Side	1	1	1	1	23.5	22.98	-0.08	0.068	0.077
T696	LTE B12	QPSK10 M	23130	25	12	Front Face	1	1	1	1	22.5	22.06	0.07	0.116	0.128
T697	LTE B12	QPSK10 M	23130	25	12	Rear Face	1	1	1	1	22.5	22.06	0.09	0.102	0.113

T698	LTE B12	QPSK10 M	23130	25	12	Left Side	1	1	1	1	22.5	22.06	0.06	0.109	0.121
T699	LTE B12	QPSK10 M	23130	25	12	Right Side	1	1	1	1	22.5	22.06	0.04	0.123	0.136
T700	LTE B12	QPSK10 M	23130	25	12	Bottom Side	1	1	1	1	22.5	22.06	0.02	0.056	0.062
T701	LTE B12	QPSK10 M	23095	1	24	Front Face	1	1	1	2	23.5	22.98	0.00	**0.149**	0.168
T702	LTE B12	QPSK10 M	23095	1	24	Front Face	1	1	1	3	23.5	22.98	-0.03	0.142	0.160
T703	LTE B12	QPSK10 M	23095	1	24	Front Face	1	1	1	4	23.5	22.98	-0.02	0.144	0.162
T704	LTE B12	QPSK10 M	23095	1	24	Front Face	1	1	1	5	23.5	22.98	-0.05	0.148	0.167
T713	LTE B12	QPSK10 M	23095	1	24	Front Face	1	2	1	1	23.5	23.15	0.02	**0.107**	0.116
T714	LTE B12	QPSK10 M	23095	1	24	Rear Face	1	2	1	1	23.5	23.15	0.01	0.102	0.111
T715	LTE B12	QPSK10 M	23095	1	24	Left Side	1	2	1	1	23.5	23.15	0.02	0.079	0.086
T716	LTE B12	QPSK10 M	23095	1	24	Right Side	1	2	1	1	23.5	23.15	-0.03	0.061	0.066
T717	LTE B12	QPSK10 M	23095	1	24	Top Side	1	2	1	1	23.5	23.15	-0.08	0.053	0.057
T718	LTE B12	QPSK10 M	23130	25	12	Front Face	1	2	1	1	22.5	22.29	0.06	0.069	0.072
T719	LTE B12	QPSK10 M	23130	25	12	Rear Face	1	2	1	1	22.5	22.29	-0.02	0.051	0.054
T720	LTE B12	QPSK10 M	23130	25	12	Left Side	1	2	1	1	22.5	22.29	0.01	0.063	0.066
T721	LTE B12	QPSK10 M	23130	25	12	Right Side	1	2	1	1	22.5	22.29	-0.04	0.056	0.059
T722	LTE B12	QPSK10 M	23130	25	12	Top Side	1	2	1	1	22.5	22.29	0.01	0.053	0.056
T723	LTE B12	QPSK10 M	23095	1	24	Front Face	1	2	1	2	23.5	23.15	0.06	0.102	0.111
T724	LTE B12	QPSK10 M	23095	1	24	Front Face	1	2	1	3	23.5	23.15	0.02	0.098	0.106
T725	LTE B12	QPSK10 M	23095	1	24	Front Face	1	2	1	4	23.5	23.15	0.09	0.104	0.113
T726	LTE B12	QPSK10 M	23095	1	24	Front Face	1	2	1	5	23.5	23.15	0.07	0.096	0.104
T735	LTE B17	QPSK10 M	23790	1	24	Front Face	1	1	1	1	24	23.79	-0.04	**0.193**	0.203
T736	LTE B17	QPSK10 M	23790	1	24	Rear Face	1	1	1	1	24	23.79	0.03	0.166	0.174
T737	LTE B17	QPSK10 M	23790	1	24	Left Side	1	1	1	1	24	23.79	0.04	0.125	0.131
T738	LTE B17	QPSK10 M	23790	1	24	Right Side	1	1	1	1	24	23.79	0.06	0.161	0.169
T739	LTE B17	QPSK10 M	23790	1	24	Bottom Side	1	1	1	1	24	23.79	-0.03	0.028	0.029
T740	LTE B17	QPSK10 M	23790	25	0	Front Face	1	1	1	1	23	22.84	0.08	0.108	0.112
T741	LTE B17	QPSK10 M	23790	25	0	Rear Face	1	1	1	1	23	22.84	-0.03	0.095	0.099
T742	LTE B17	QPSK10 M	23790	25	0	Left Side	1	1	1	1	23	22.84	0.07	0.062	0.064
T743	LTE B17	QPSK10 M	23790	25	0	Right Side	1	1	1	1	23	22.84	0.03	0.080	0.083
T744	LTE B17	QPSK10 M	23790	25	0	Bottom Side	1	1	1	1	23	22.84	0.07	0.020	0.021
T745	LTE B17	QPSK10 M	23790	1	24	Front Face	1	1	1	2	24	23.79	-0.01	0.173	0.182
T746	LTE	QPSK10	23790	1	24	Front Face	1	1	1	3	24	23.79	0.06	0.185	0.194

	B17	M													
T747	LTE B17	QPSK10 M	23790	1	24	Front Face	1	1	1	4	24	23.79	-0.03	0.183	0.192
T748	LTE B17	QPSK10 M	23790	1	24	Front Face	1	1	1	5	24	23.79	-0.04	0.189	0.198
T757	LTE B17	QPSK10 M	23790	1	24	Front Face	1	2	1	1	24	23.58	0.04	0.182	0.200
T758	LTE B17	QPSK10 M	23790	1	24	Rear Face	1	2	1	1	24	23.58	0.01	0.124	0.137
T759	LTE B17	QPSK10 M	23790	1	24	Left Side	1	2	1	1	24	23.58	-0.03	0.086	0.095
T760	LTE B17	QPSK10 M	23790	1	24	Right Side	1	2	1	1	24	23.58	0.05	0.074	0.082
T761	LTE B17	QPSK10 M	23790	1	24	Top Side	1	2	1	1	24	23.58	-0.02	0.069	0.076
T762	LTE B17	QPSK10 M	23790	25	0	Front Face	1	2	1	1	23	22.63	0.01	0.093	0.101
T763	LTE B17	QPSK10 M	23790	25	0	Rear Face	1	2	1	1	23	22.63	0.08	0.068	0.074
T764	LTE B17	QPSK10 M	23790	25	0	Left Side	1	2	1	1	23	22.63	-0.03	0.086	0.094
T765	LTE B17	QPSK10 M	23790	25	0	Right Side	1	2	1	1	23	22.63	0.07	0.069	0.075
T766	LTE B17	QPSK10 M	23790	25	0	Top Side	1	2	1	1	23	22.63	-0.01	0.074	0.081
T767	LTE B17	QPSK10 M	23790	1	24	Front Face	1	2	1	2	24	23.58	-0.02	**0.237**	0.261
T768	LTE B17	QPSK10 M	23790	1	24	Front Face	1	2	1	3	24	23.58	-0.05	0.214	0.236
T769	LTE B17	QPSK10 M	23790	1	24	Front Face	1	2	1	4	24	23.58	0.02	0.209	0.230
T770	LTE B17	QPSK10 M	23790	1	24	Front Face	1	2	1	5	24	23.58	0.05	0.215	0.237

3. Hotspot SAR test results of WIFI

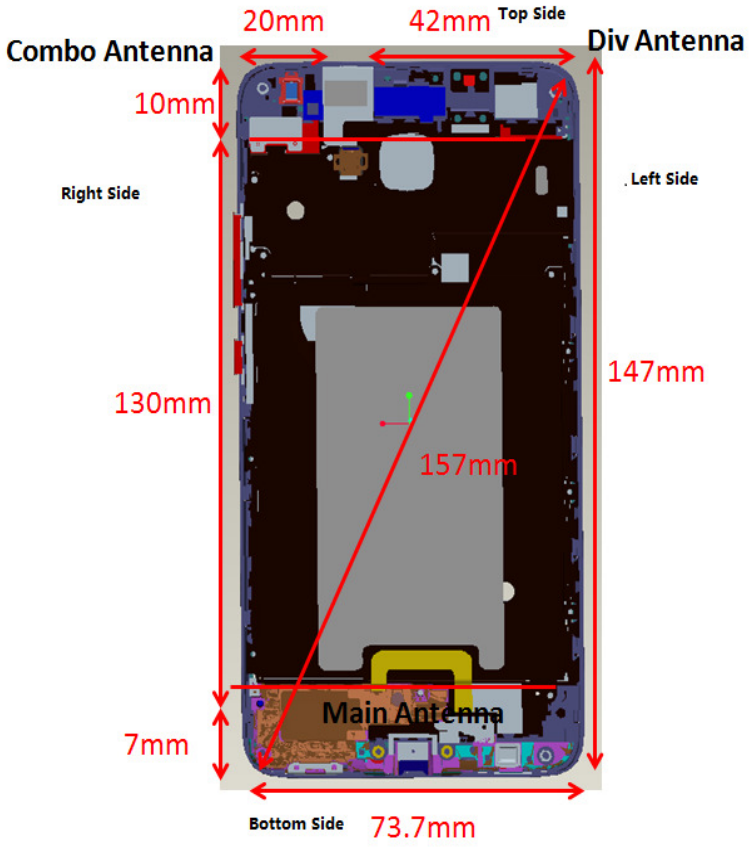
Test No.	Band	CH	Test Position	Separation Distance(cm)	Battery	Tune up	Measured	Drift(dB)	SAR Value (W/kg)1-g	Reported SAR
T911	802.11b	6	Front Face	1	1	16.5	15.86	0.03	0.091	0.105
T912	802.11b	6	Rear Face	1	1	16.5	15.86	0.06	0.077	0.089
T914	802.11b	6	Right Side	1	1	16.5	15.86	0.04	0.079	0.091
T915	802.11b	6	Top Side	1	1	16.5	15.86	0.06	0.084	0.098
T916	802.11b	6	Front Face	1	2	16.5	15.86	0.02	**0.102**	**0.118**
T917	802.11b	6	Front Face	1	3	16.5	15.86	0.07	0.086	0.100
T918	802.11b	6	Front Face	1	4	16.5	15.86	-0.04	0.097	0.112
T919	802.11b	6	Front Face	1	5	16.5	15.86	-0.08	0.094	0.109

Note: Per KDB248227D01, the highest SAR measured for the initial test position or initial test configuration should be used to determine SAR test exclusion according to the sum of 1-g SAR and SAR peak to location ratio provisions in KDB 447498. In addition, a test lab may also choose to perform standalone SAR measurements for test positions and 802.11 configurations that are not required by the initial test position or initial test configuration procedures and apply the results to determine simultaneous transmission SAR test exclusion, according to sum of 1-g and SAR peak to location ratio requirements to reduce the number of simultaneous transmission SAR measurements.

8.3 MULTIPLE TRANSMITTER EVALUATION

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to FCC KDB 447498D01 General RF Exposure Guidance v06.

The length of the diagonal of the mobile phone is 157mm.
The location of the antennas inside mobile phone is shown as below picture:



Note 1: The device supports the dynamic antenna switching function to optimize transmission efficiency for wide range frequency operations. It has two 2G/3G/4G Tx antennas (Top Antenna and Bottom Antenna). It can transmit from either Top Antenna or Bottom Antenna. The device is capable of switching between the Top Antenna and Bottom Antenna based on signal strength. The top Antenna and Bottom Antenna cannot transmit simultaneously. For SAR test, the Top Antenna and Bottom Antenna are set to the MAX transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions.

Note 2: The combo antenna is the BT/WiFi antenna.

Note 3: The top antenna (Second antenna) is Ant 2, and the bottom antenna (Main antenna) is Ant 1.

Note 4: The SIM 1 supports 2G/3G/LTE, the SIM 2 only supports 2G.

8.3.1STAND-ALONE SAR TEST EXCLUSION

Per FCC KDB 447498D01v06, the 1-g SAR and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance,mm)][√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

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

Standalone SAR test exclusion for BT

Mode	Position	P_{max} (dBm)*	P_{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
BT	Body-Worn	10	10	15	2.48	1.05	3	Yes

Note:

1)* - maximum possible output power declared by manufacturer

2) Held to ear configurations are not applicable to Bluetooth for this device.

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] • [√f(GHz)/x] W/kg for test separation distances≤50 mm,where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.
When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

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

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

Estimated SAR calculation

Mode	Position	P_{max} (dBm)*	P_{max} (mW)	Distance (mm)	f (GHz)	X	Estimated SAR (W/Kg)*
BT	Front	10	10	15	2.48	7.5	0.140
	Rear	10	10	15	2.48	7.5	0.140

Note: * - maximum possible output power declared by manufacturer

8.3.2STAND-ALONE SAR TEST EXCLUSION

Per FCC KDB 447498D01v06, SAR compliance for simultaneous transmission must be considered when the maximum duration of overlapping transmissions, including network hand-offs, is greater than 30 seconds. This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis.

The Simultaneous Transmission Possibilities of this device are as below:

No.	Configuration	Head	Body-worn	Hotspot
1	GSM (Voice) + WiFi 2.4G	Yes	Yes	N/A
2	GPRS/EDGE (DATA) + WiFi 2.4G	N/A	N/A	Yes
3	GSM(Voice) +BT	N/A	Yes	N/A
4	GPRS/EDGE(DATA)+BT	N/A	N/A	N/A
5	UMTS(Voice)+WiFi 2.4G	Yes	Yes	N/A
6	UMTS(DATA)+WiFi 2.4G	N/A	Yes	Yes
7	UMTS(Voice)+BT	N/A	Yes	N/A
8	UMTS(DATA)+BT	N/A	Yes	N/A
9	LTE(DATA)+WiFi 2.4G	Yes*	Yes*	Yes
10	LTE(DATA)+BT	N/A	Yes*	N/A

Note:
i)* VOIP 3rd party applications may possibly be installed and used by the end user.
ii) Wi-Fi 2.4G and Bluetooth share the same antenna and can't transmit simultaneously.
iii) The device has two 2G/3G/4G Tx antennas (Top Antenna and Bottom Antenna). It can transmit from either Top Antenna or Bottom Antenna, but they cannot transmit simultaneously.
iv) The device does not support DTM function.
v) Held to ear configurations are not applicable to Bluetooth and therefore were not considered for simultaneous transmission.

8.3.3 SAR SUMMATION SCENARIO

About BT/ WiFi and GSM/UMTS/LTE Top antenna

Test Position / Reported SAR_{1g}	Head				Body-Worn		Hotspot					
	Right Cheek	Right Tilted	Left Cheek	Left Tilted	Front	Rear	Front	Rear	Left	Right	Top	Bottom
GSM850	0.624	0.448	0.488	0.451	0.084	0.053	0.178	0.098	0.050	0.055	0.051	0.400
GSM1900	0.778	0.556	0.519	0.449	0.031	0.029	0.076	0.052	0.030	0.025	0.026	0.400
UMTS B2	0.636	0.432	0.393	0.326	0.041	0.057	0.082	0.091	0.074	0.075	0.081	0.400
UMTS B4	0.786	0.433	0.455	0.308	0.029	0.045	0.085	0.086	0.056	0.054	0.055	0.400
UMTS B5	0.694	0.373	0.470	0.395	0.121	0.084	0.171	0.092	0.078	0.070	0.073	0.400
LTE B2	0.532	0.380	0.289	0.281	0.038	0.061	0.079	0.076	0.051	0.049	0.045	0.400
LTE B4	0.334	0.246	0.257	0.175	0.030	0.041	0.059	0.071	0.053	0.054	0.052	0.400
LTE B5	0.924	0.623	0.706	0.647	0.073	0.050	0.115	0.047	0.037	0.040	0.036	0.400
LTE B7	0.788	0.783	0.497	0.566	0.055	0.046	0.154	0.144	0.138	0.139	0.141	0.400
LTE B12	0.646	0.591	0.521	0.478	0.075	0.075	0.116	0.111	0.086	0.066	0.057	0.400
LTE B17	1.124	0.627	0.690	0.607	0.163	0.082	0.261	0.137	0.095	0.082	0.081	0.400
BT	-	-	-	-	0.140	0.140	-	-	-	-	-	-
WiFi 2.4G	0.234	0.217	0.847	0.641	0.066	0.052	0.118	0.089	0.400	0.091	0.098	0.400
MAX∑SAR1g	**1.358**	**1.000**	**1.553**	**1.288**	**0.229**	**0.136**	**0.379**	**0.233**	**0.538**	**0.230**	**0.239**	**0.800**

MAX. $\sum SAR_{1g}$=1.553W/Kg<1.6 W/Kg,so the SAR to peak location separation ratio should not be considered.

About BT/ WiFi and GSM/UMTS/LTE Bottom antenna

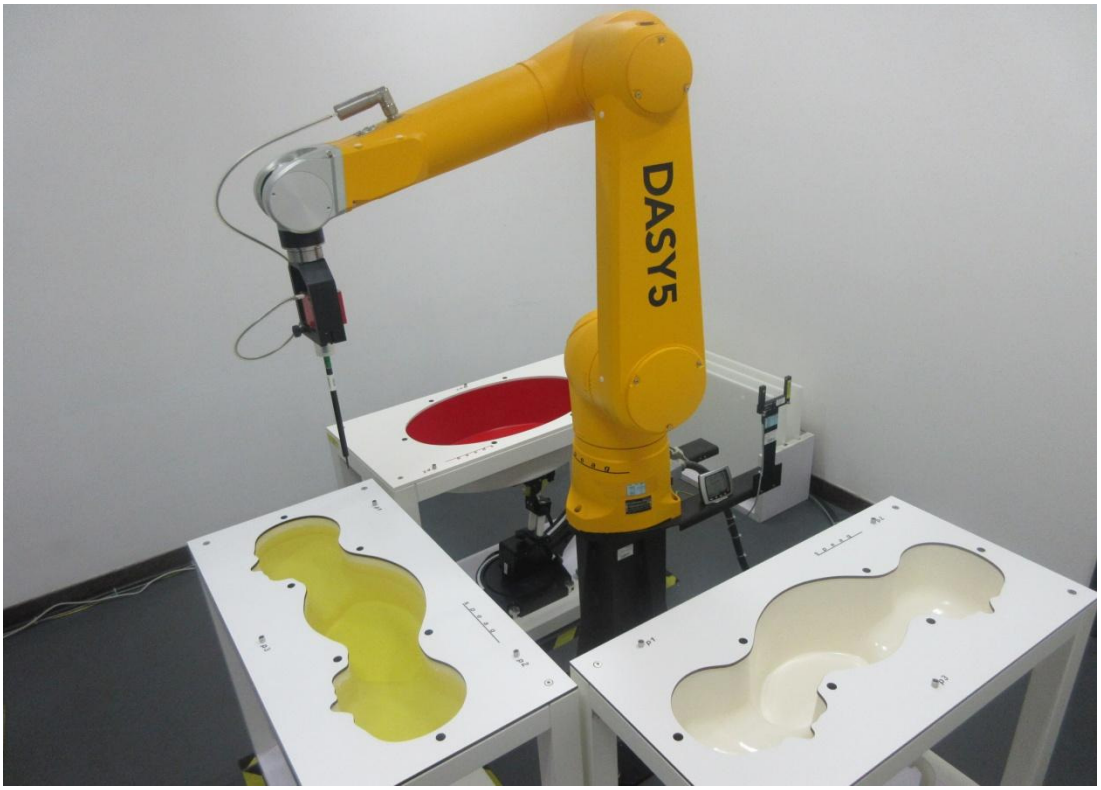
Test Position / Reported SAR_{1g}	Head				Body-Worn		Hotspot					
	Right Cheek	Right Tilted	Left Cheek	Left Tilted	Front	Rear	Front	Rear	Left	Right	Top	Bottom
GSM850	0.388	0.214	0.224	0.185	0.375	0.399	0.340	0.441	0.155	0.377	0.400	0.173
GSM1900	0.177	0.129	0.247	0.143	0.129	0.108	0.291	0.222	0.182	0.070	0.400	0.206
UMTS B2	0.270	0.146	0.365	0.136	0.207	0.176	0.457	0.392	0.328	0.205	0.400	0.512
UMTS B4	0.292	0.200	0.466	0.188	0.200	0.310	0.449	0.455	0.352	0.198	0.400	0.239
UMTS B5	0.288	0.157	0.232	0.186	0.382	0.421	0.313	0.393	0.166	0.320	0.400	0.198
LTE B2	0.231	0.103	0.309	0.141	0.176	0.177	0.327	0.310	0.216	0.074	0.400	0.258
LTE B4	0.255	0.158	0.409	0.147	0.230	0.310	0.404	0.453	0.340	0.185	0.400	0.228
LTE B5	0.170	0.098	0.116	0.109	0.187	0.272	0.250	0.281	0.125	0.240	0.400	0.144
LTE B7	0.705	0.151	0.258	0.260	0.333	0.429	1.086	0.737	0.141	0.595	0.400	0.662
LTE B12	0.110	0.075	0.100	0.074	0.134	0.115	0.168	0.136	0.131	0.140	0.400	0.077
LTE B17	0.129	0.092	0.125	0.097	0.147	0.144	0.203	0.174	0.131	0.169	0.400	0.029
BT	-	-	-	-	0.140	0.140	-	-	-	-	-	-
WiFi 2.4G	0.234	0.217	0.847	0.641	0.066	0.052	0.118	0.089	0.400	0.091	0.098	0.400
MAX∑SAR1g	**0.939**	**0.431**	**1.313**	**0.901**	**0.448**	**0.481**	**1.204**	**0.826**	**0.752**	**0.686**	**0.498**	**1.062**

MAX. $\sum SAR_{1g}$=1.204W/Kg<1.6 W/Kg,so the SAR to peak location separation ratio should not be considered.

APPENDIX

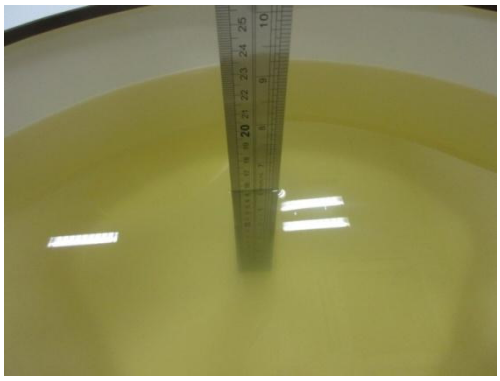
1. Test Layout

Specific Absorption Rate Test Layout

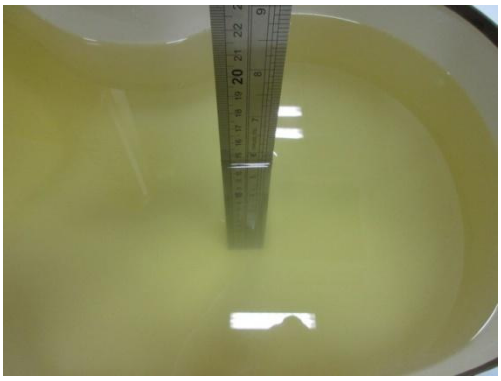


Liquid depth in the flat Phantom (≥15cm depth)

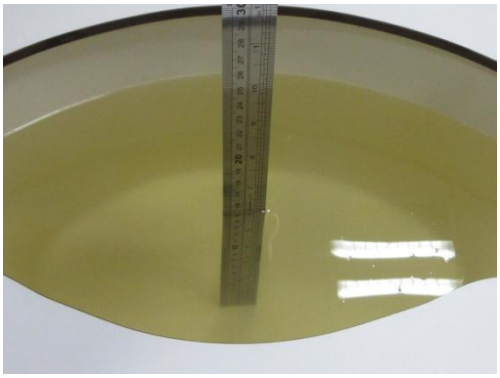
Body 750MHz (15.5cm)



Head 750MHz (15cm)

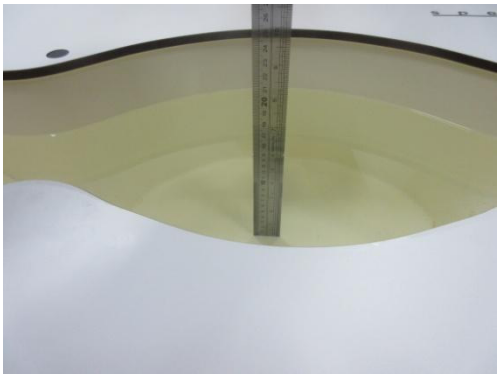


Body(835MHz) 15.5cm



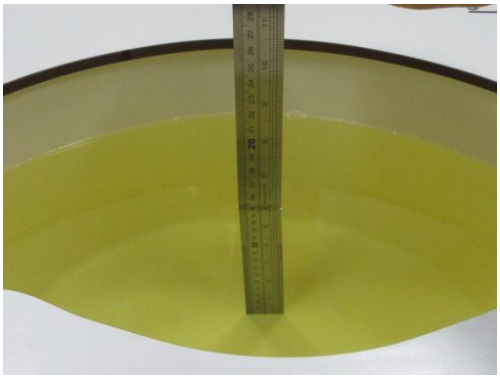
Head(835MHz) 15.9cm

Body(1750MHz) 15.4cm

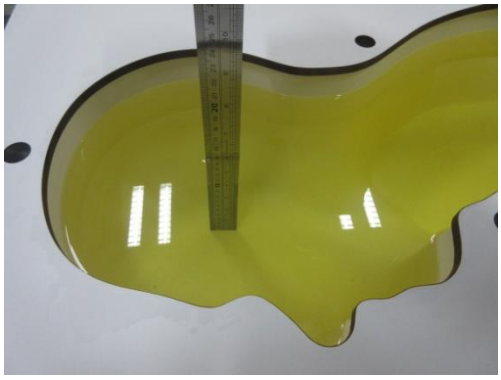


Head(1750MHz) 15.9cm

Body(1900MHz~2600 MHz) 15.5cm



Head (1900MHz~2600MHz) 15.1cm



Appendix A. SAR Plots of System Verification

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

Appendix B. SAR Plots of SAR Measurement

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

Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.

Appendix D. Photographs of the Test Set-Up

Photographs of the Test Set-up are shown as follows.