

FCC SAR Test Report

Report No. : SA180207C11

Applicant : ASUSTek COMPUTER INC.

Address : 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

Product : ASUS Phone

FCC ID : MSQZ01RD

Brand : ASUS

Model No. : ASUS_Z01RD / ASUS_Z01RS

Standards : FCC 47 CFR Part 2 (2.1093), IEEE C95.1:1992, IEEE Std 1528:2013
KDB 865664 D01 v01r04, KDB 865664 D02 v01r02
KDB 248227 D01 v02r02, KDB 447498 D01 v06, KDB 648474 D04 v01r03
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CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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Table of Contents

Release Control Record	3
1. Summary of Maximum SAR Value	4
2. Description of Equipment Under Test	5
3. SAR Measurement System	6
3.1 Definition of Specific Absorption Rate (SAR)	6
3.2 SPEAG DASY52 System	6
3.2.1 Robot.....	7
3.2.2 Probes.....	8
3.2.3 Data Acquisition Electronics (DAE)	8
3.2.4 Phantoms	9
3.2.5 Device Holder.....	10
3.2.6 System Validation Dipoles.....	10
3.2.7 Tissue Simulating Liquids.....	11
3.3 SAR System Verification	14
3.4 SAR Measurement Procedure	15
3.4.1 Area & Zoom Scan Procedure	15
3.4.2 Volume Scan Procedure.....	15
3.4.3 Power Drift Monitoring.....	16
3.4.4 Spatial Peak SAR Evaluation	16
3.4.5 SAR Averaged Methods	16
4. SAR Measurement Evaluation	17
4.1 EUT Configuration and Setting.....	17
4.2 EUT Testing Position	30
4.2.1 Head Exposure Conditions.....	30
4.2.2 Body-worn Accessory Exposure Conditions.....	32
4.2.3 Hotspot Mode Exposure Conditions	33
4.3 Tissue Verification	34
4.4 System Validation.....	35
4.5 System Verification.....	36
4.6 Maximum Output Power.....	37
4.6.1 Maximum Target Conducted Power	37
4.6.2 Measured Conducted Power Result.....	39
4.7 SAR Testing Results	51
4.7.1 SAR Test Reduction Considerations	51
4.7.2 SAR Results for Head Exposure Condition	64
4.7.3 SAR Results for Body-worn Exposure Condition (Test Separation Distance is 10 mm)	71
4.7.4 SAR Results for Hotspot Exposure Condition (Test Separation Distance is 10 mm).....	75
4.7.5 SAR Measurement Variability.....	82
4.7.6 Simultaneous Multi-band Transmission Evaluation	83
5. Calibration of Test Equipment.....	99
6. Measurement Uncertainty.....	100
7. Information on the Testing Laboratories	104

Appendix A. SAR Plots of System Verification
Appendix B. SAR Plots of SAR Measurement
Appendix C. Calibration Certificate for Probe and Dipole
Appendix D. Photographs of EUT and Setup

Release Control Record

Report No.	Reason for Change	Date Issued
SA180207C11	Initial release	Apr. 30, 2018

FCC SAR Test Report

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest SAR-1g Head (W/kg)	Highest SAR-1g Body-worn Tested at 10 mm (W/kg)	Highest SAR-1g Hotspot Tested at 10 mm (W/kg)
PCE	GSM850	1.16	0.28	0.28
	GSM1900	0.13	0.47	1.09
	WCDMA II	0.06	0.81	1.14
	WCDMA IV	1.08	0.89	1.18
	WCDMA V	1.08	0.20	0.20
	LTE 2	0.06	0.67	1.11
	LTE 4	0.90	0.75	1.19
	LTE 5	0.74	0.30	0.34
	LTE 7	1.13	0.35	0.40
	LTE 12 / 17	0.52	0.15	0.15
	LTE 26	0.90	0.22	0.22
	LTE 30	0.57	0.36	0.36
	LTE 38 / 41	1.11	0.35	0.40
DTS	2.4G WLAN	0.39	0.06	0.19
NII	5.3G WLAN	0.38	0.86	0.86
	5.6G WLAN	0.32	0.63	0.63
	5.8G WLAN	0.17	0.38	0.38
DSS	Bluetooth	0.09	0.00	0.04
DXX	NFC	N/A	N/A	N/A
Highest Simultaneous Transmission SAR		Head	Body-worn	Hotspot
		1.58	1.53	1.53

Note:

1. The SAR criteria (**Head & Body: SAR-1g 1.6 W/kg, and Extremity: SAR-10g 4.0 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.
2. This device supports both LTE band 12 and band 17. The frequency span of LTE band 12 can completely cover LTE band 17, and they has the same tune-up power. SAR was tested for LTE band 12 only.
3. This device supports both LTE band 41 and band 38. The frequency span of LTE band 41 can completely cover LTE band 38, and they has the same tune-up power. SAR was tested for LTE band 41 only.

FCC SAR Test Report

2. Description of Equipment Under Test

EUT Type	ASUS Phone
FCC ID	MSQZ01RD
Brand Name	ASUS
Model Name	ASUS_Z01RD / ASUS_Z01RS
EUT Configurations	EUT 1: EUT + CPU 1 + Rear Camera 1 + Front Camera 1 + UFS 3 + DDR 3 EUT 2: EUT + CPU 1 + Rear Camera 2 + Front Camera 2 + UFS 3 + DDR 3
Tx Frequency Bands (Unit: MHz)	GSM850 : 824.2 ~ 848.8 GSM1900 : 1850.2 ~ 1909.8 WCDMA Band II : 1852.4 ~ 1907.6 WCDMA Band IV : 1712.4 ~ 1752.6 WCDMA Band V : 826.4 ~ 846.6 LTE Band 2 : 1850.7 ~ 1909.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 4 : 1710.7 ~ 1754.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 5 : 824.7 ~ 848.3 (BW: 1.4M, 3M, 5M, 10M) LTE Band 7 : 2502.5 ~ 2567.5 (BW: 5M, 10M, 15M, 20M) LTE Band 12 : 699.7 ~ 715.3 (BW: 1.4M, 3M, 5M, 10M) LTE Band 17 : 706.5 ~ 713.5 (BW: 5M, 10M) LTE Band 26 : 814.7 ~ 848.3 (BW: 1.4M, 3M, 5M, 10M, 15M) LTE Band 29 : 717 ~ 728 (Rx only) LTE Band 30 : 2307.5 ~ 2312.5 (BW: 5M, 10M) LTE Band 38 : 2572.5 ~ 2617.5 (BW: 5M, 10M, 15M, 20M) LTE Band 41 : 2498.5 ~ 2687.5 (BW: 5M, 10M, 15M, 20M) LTE Band 46 : 5150 ~ 5925 (Rx only) WLAN : 2412 ~ 2472, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5720, 5745 ~ 5825 Bluetooth : 2402 ~ 2480 NFC : 13.56
Uplink Modulations	GSM & GPRS : GMSK EDGE : 8PSK WCDMA : QPSK LTE : QPSK, 16QAM, 64QAM 802.11b : DSSS 802.11a/g/n/ac : OFDM Bluetooth : GFSK, $\pi/4$ -DQPSK, 8-DPSK NFC : ASK
Maximum Tune-up Conducted Power (Unit: dBm)	Please refer to section 4.6.1 of this report
Antenna Type	Refer to Note as below
EUT Stage	Production Unit

Note:

- All models are listed as below.

Brand	Model	SKU	Difference
ASUS	ASUS_Z01RD	WW-5CA	Dual SIM
	ASUS_Z01RS	WW Operator-5CA	Single SIM

*The models have the same layout, circuit, and components, but different SIM card slot, therefore Z01RD was chosen for final test.

- The max. antenna gain of this EUT is listed as below.

Type	PIFA Antenna																
Band	GSM		WCDMA			LTE											
	850	1900	2	4	5	2	4	5	7	12	17	26	29	30	38	41	46
Gain (dBi)	-0.3	-1.8	-1.8	-2.1	-0.3	-1.8	-2.1	-0.3	-0.2	-5.5	-5.5	-0.3	-2.2	-4.5	-1.2	-0.2	0
Type	PIFA Antenna													Loop Antenna			
Band	WLAN 2.4G					WLAN 5G					BT			NFC			
	Gain (dBi)					Gain (dBi)					Gain (dBi)			Gain (dBi)			
Gain (dBi)	-2.4					0					-2.4			-			

- The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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

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

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

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

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

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

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

3.2 SPEAG DASY52 System

DASY52 system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY52 software defined. The DASY52 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC.

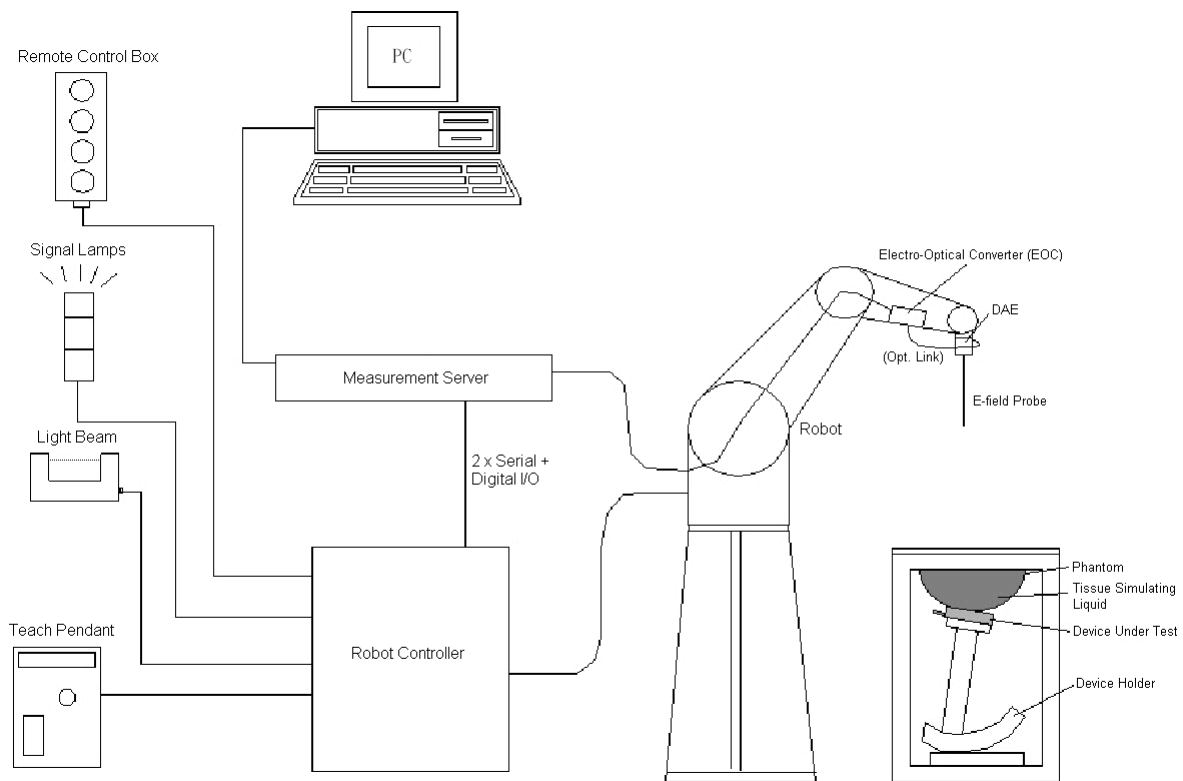


Fig-3.1 SPEAG DASY52 System Setup

3.2.1 Robot

The DASY52 systems use the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version of CS8c from Stäubli is used. The Stäubli robot series have many features that are important for our application:

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



Fig-3.2 SPEAG DASY52 System

FCC SAR Test Report

3.2.2 Probes

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

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

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

Model	ET3DV6	
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 2.3 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.4 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g to 100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (Tip: 16 mm) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm	

3.2.3 Data Acquisition Electronics (DAE)

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

FCC SAR Test Report

3.2.4 Phantoms

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

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

FCC SAR Test Report

3.2.5 Device Holder

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

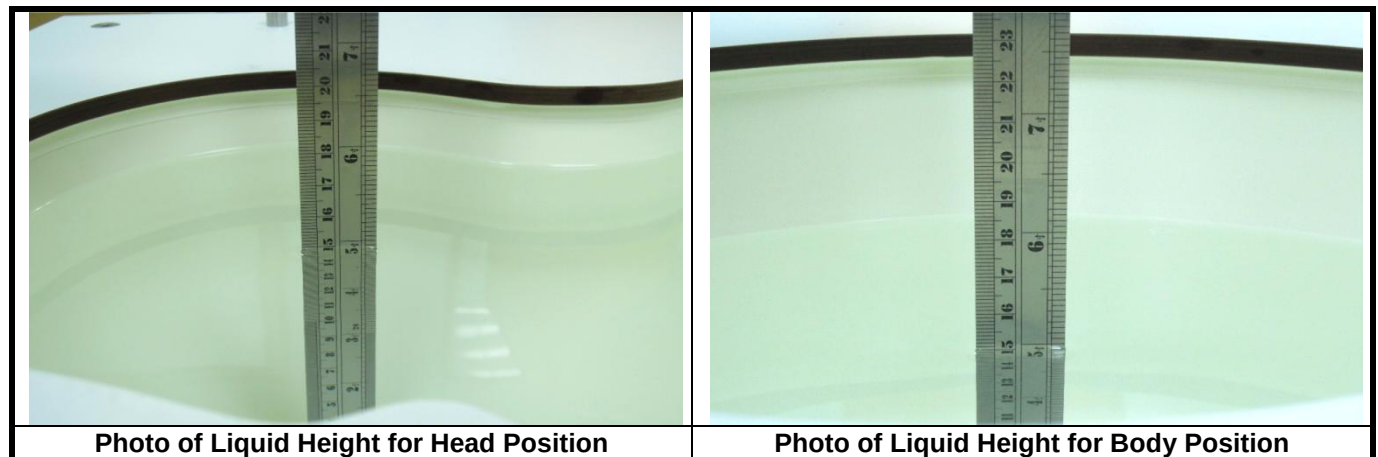
Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the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

3.2.6 System Validation Dipoles

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

3.2.7 Tissue Simulating Liquids

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



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

FCC SAR Test Report

Table-3.1 Targets of Tissue Simulating Liquid

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

FCC SAR Test Report

The following table gives the recipes for tissue simulating liquids.

Table-3.2 Recipes of Tissue Simulating Liquid

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5G	-	-	-	-	-	17.2	65.5	17.3
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	31.0	-	0.2	-	-	68.8	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-
B3500	-	28.8	-	0.1	-	-	71.1	-
B5G	-	-	-	-	-	10.7	78.6	10.7

3.3 SAR System Verification

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

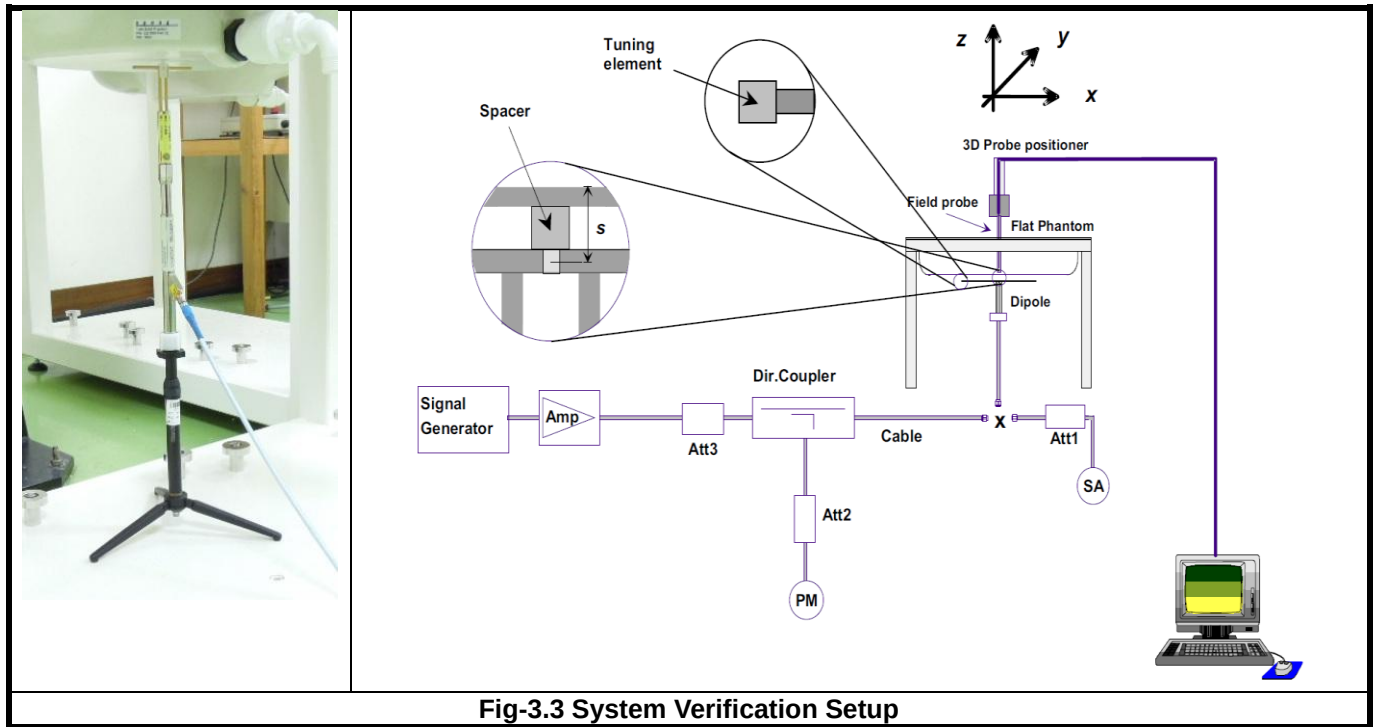


Fig-3.3 System Verification Setup

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

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

3.4 SAR Measurement Procedure

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

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

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

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

3.4.1 Area & Zoom Scan Procedure

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

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

Note:

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

3.4.2 Volume Scan Procedure

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

3.4.3 Power Drift Monitoring

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

3.4.4 Spatial Peak SAR Evaluation

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

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

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

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

3.4.5 SAR Averaged Methods

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

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

4. SAR Measurement Evaluation

4.1 EUT Configuration and Setting

<Connections between EUT and System Simulator>

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

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

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

1. This EUT is class B device
2. This EUT supports GPRS multi-slot class 10 (max. uplink: 2, max. downlink: 4, total timeslots: 5)
3. This EUT supports EDGE multi-slot class 10 (max. uplink: 2, max. downlink: 4, total timeslots: 5)

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

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

<Considerations Related to WCDMA for Setup and Testing>

WCDMA Handsets Head SAR

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

WCDMA Handsets Body-worn SAR

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

FCC SAR Test Report

Handsets with Release 5 HSDPA

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

Handsets with Release 6 HSUPA

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

Release 5 HSDPA Data Devices

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

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

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

FCC SAR Test Report

Release 6 HSUPA Data Devices

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

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	$\beta_{HS}^{(1)}$	β_{ec}	$\beta_{ed}^{(4)(5)}$	β_{ed} (SF)	β_{ed} (Codes)	CM ⁽²⁾ (dB)	MPR ⁽²⁾⁽⁶⁾ (dB)	AG ⁽⁵⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{HS} = 5/15 * \beta_c$.
Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.
Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

HSPA+ SAR Guidance

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

Sub-test	$\beta_c^{(3)}$	β_d	$\beta_{HS}^{(1)}$	β_{ec}	$\beta_{ed}^{(4)}$ (2xSF2)	$\beta_{ed}^{(4)}$ (2xSF4)	CM ⁽²⁾ (dB)	MPR ⁽²⁾ (dB)	AG ⁽⁴⁾ Index	E-TFCI ⁽⁵⁾	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

FCC SAR Test Report

DC-HSDPA SAR Guidance

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

<Considerations Related to LTE for Setup and Testing>

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

EUT Supported LTE Band and Channel Bandwidth						
LTE Band	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz
2	V	V	V	V	V	V
4	V	V	V	V	V	V
5	V	V	V	V		
7			V	V	V	V
12	V	V	V	V		
17			V	V		
26	V	V	V	V	V	
30			V	V		
38			V	V	V	V
41			V	V	V	V

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

Modulation	Channel Bandwidth / RB Configurations						LTE MPR Setting (dB)
	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	<= 5	<= 4	<= 8	<= 12	<= 16	<= 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	<= 5	<= 4	<= 8	<= 12	<= 16	<= 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3

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

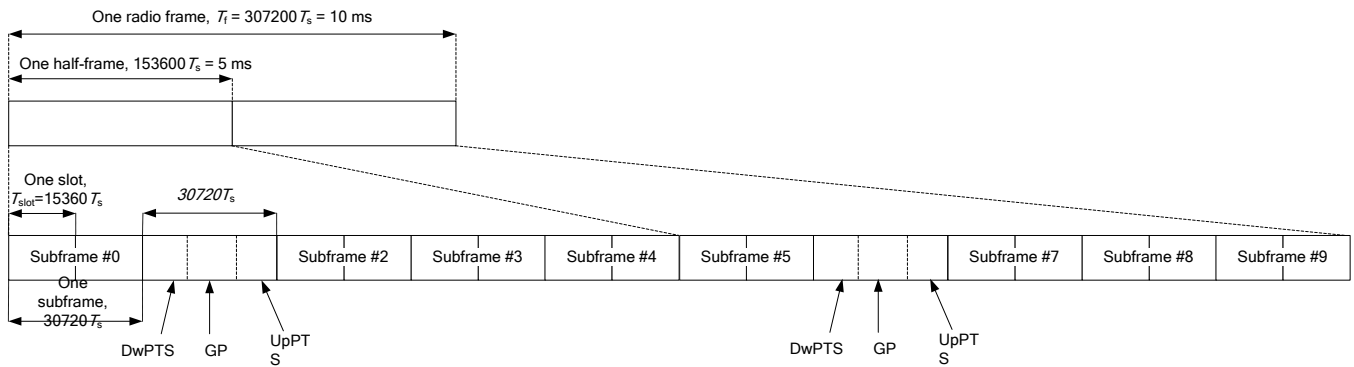
In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

FCC SAR Test Report

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

TDD-LTE Setup Configurations

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



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

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

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

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

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

FCC SAR Test Report

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

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

Considering the highest transmission duty cycle, TDD-LTE was tested using Uplink-Downlink Configuration 0 with 6 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 7 using extended cyclic prefix uplink. Therefore, SAR testing for TDD-LTE was performed at the maximum output power with highest transmission duty cycle of 63.33%.

LTE Downlink Carrier Aggregation (CA) Setup Configurations

LTE Carrier Aggregation (CA) was defined in 3GPP release 10 and higher. The LTE device in CA mode has one Primary Component Carrier (PCC) and one or more Secondary Component Carriers (SCC). PCC acts as the anchor carrier and can optionally cross-schedule data transmission on SCC. The RRC connection is only handled by one cell, the PCC for downlink and uplink communications. After making a data connection to the PCC, the LTE device adds the SCC on the downlink only. All uplink communications and acknowledgements remain identical to release 8 specifications on the PCC. The combinations of downlink carrier aggregation supported by this device are listed in below.

FCC SAR Test Report

LTE CA Configurations and Bandwidth Combination Sets defined for Intra-Band Contiguous CA

Downlink CA Configuration	Component carriers in order of increasing carrier frequency		Maximum Aggregated Bandwidth (MHz)	Bandwidth Combination Set
	Channel bandwidths for carrier-1 (MHz)	Channel bandwidths for carrier-2 (MHz)		
CA_2C	5	20	40	0
	10	15, 20		
	15	10, 15, 20		
	20	5, 10, 15, 20		
CA_7B	15	5	20	0
CA_7C	15	15	40	0
	20	20		
	10	20	40	1
	15	15, 20		
	20	10, 15, 20	40	2
	15	10, 15		
CA_41C	20	15, 20	40	0
	10	20		
	15	15, 20		
	20	10, 15, 20		
	5, 10	20	40	1
	15	15, 20		
	20	5, 10, 15, 20		
	10	15, 20	40	2
	15	10, 15, 20		
	20	10, 15, 20		
	10	20	40	3
	20	20		

LTE CA Configurations and Bandwidth Combination Sets defined for Intra-Band Non-Contiguous CA

Downlink CA Configuration	Component carriers in order of increasing carrier frequency		Maximum Aggregated Bandwidth (MHz)	Bandwidth Combination Set
	Channel bandwidths for carrier-1 (MHz)	Channel bandwidths for carrier-2 (MHz)		
CA_2A-2A	5, 10, 15, 20	5, 10, 15, 20	40	0
CA_4A-4A	5, 10, 15, 20	5, 10, 15, 20	40	0
	5, 10	5, 10	20	1
CA_7A-7A	5	15	40	0
	10	10, 15		
	15	15, 20		
	20	20		
	5, 10, 15, 20	5, 10, 15, 20	40	1
	5, 10, 15, 20	5, 10	30	2
CA_41A-41A	10, 15, 20	10, 15, 20	40	3
	10, 15, 20	10, 15, 20	40	0
	5, 10, 15, 20	5, 10, 15, 20	40	1

FCC SAR Test Report

LTE CA Configurations and Bandwidth Combination Sets defined for Inter-Band CA (Two Bands)

Downlink CA Configuration	LTE Bands	Channel Bandwidths for Carrier (MHz)	Maximum Aggregated Bandwidth (MHz)	Bandwidth Combination Set
CA_2A-5A	2	5, 10, 15, 20	30	0
	5	5, 10		
	2	5, 10	20	1
	5	5, 10		
CA_2A-2A-5A	2	Refer to CA_2A-2A (BCS0)	50	0
	5	5, 10		
CA_2C-5A	2	Refer to CA_2C (BCS0)	50	0
	5	5, 10		
CA_2A-12A	2	5, 10, 15, 20	30	0
	12	5, 10		
	2	5, 10, 15, 20	30	1
	12	3, 5, 10		
	2	5, 10	20	2
	12	5, 10		
CA_2A-2A-12A	2	Refer to CA_2A-2A (BCS0)	50	0
	12	5, 10		
CA_2C-12A	2	Refer to CA_2C (BCS0)	50	0
	12	5, 10		
CA_2C-17A	2	5, 10	20	0
	17	5, 10		
CA_2A-29A	2	5, 10	20	0
	29	3, 5, 10		
	2	5, 10	20	1
	29	5, 10		
	2	5, 10, 15, 20	30	2
	29	5, 10		
CA_2A-2A-29A	2	Refer to CA_2A-2A (BCS0)	50	0
	29	5, 10		
CA_2C-29A	2	Refer to CA_2C (BCS0)	50	0
	29	5, 10		
CA_2A-30A	2	5, 10, 15, 20	30	0
	30	5, 10		
CA_2A-2A-30A	2	Refer to CA_2A-2A (BCS0)	50	0
	30	5, 10		
CA_2C-30A	2	Refer to CA_2C (BCS0)	50	0
	30	5, 10		
CA_4A-5A	4	5, 10	20	0
	5	5, 10		
	4	5, 10, 15, 20	30	1
	5	5, 10		
CA_4A-4A-5A	4	Refer to CA_4A-4A (BCS0)	50	0
	5	5, 10		

FCC SAR Test Report

Downlink CA Configuration	LTE Bands	Channel Bandwidths for Carrier (MHz)	Maximum Aggregated Bandwidth (MHz)	Bandwidth Combination Set
CA_4A-12A	4	1.4, 3, 5, 10	20	0
	12	5, 10		
	4	1.4, 3, 5, 10, 15, 20	30	1
	12	5, 10		
	4	5, 10, 15, 20	30	2
	12	3, 5, 10		
	4	5, 10	20	3
	12	5, 10		
	4	5, 10, 15, 20	30	4
	12	5, 10		
	4	5, 10, 15	20	5
	12	5		
CA_4A-4A-12A	4	Refer to CA_4A-4A (BCS0)	50	0
	12	5, 10		
CA_4A-17A	4	5, 10	20	0
	17	5, 10		
CA_4A-29A	4	5, 10	20	0
	29	3, 5, 10		
	4	5, 10	20	1
	29	5, 10		
	4	5, 10, 15, 20	30	2
	29	5, 10		
CA_4A-4A-29A	4	Refer to CA_4A-4A (BCS0)	50	0
	29	5, 10		
CA_4A-30A	4	5, 10, 15, 20	30	0
	30	5, 10		
CA_4A-4A-30A	4	Refer to CA_4A-4A (BCS0)	50	0
	30	5, 10		
CA_5A-7A	5	1.4, 3, 5, 10	30	0
	7	10, 15, 20		
	5	5, 10	30	1
	7	10, 15, 20		
CA_5A-30A	5	5, 10	20	0
	30	5, 10		
CA_29A-30A	29	5, 10	20	0
	30	5, 10		

FCC SAR Test Report

LTE CA Configurations and Bandwidth Combination Sets defined for Inter-Band CA (Three Bands)

Downlink CA Configuration	LTE Bands	Channel Bandwidths for Carrier (MHz)	Maximum Aggregated Bandwidth (MHz)	Bandwidth Combination Set
CA_2A-5A-30A	2	5, 10, 15, 20	40	0
	5	5, 10		
	30	5, 10		
CA_2A-12A-30A	2	5, 10, 15, 20	40	0
	12	5, 10		
	30	5, 10		
CA_2A-29A-30A	2	5, 10, 15, 20	40	0
	29	5, 10		
	30	5, 10		
CA_4A-5A-30A	4	5, 10, 15, 20	40	0
	5	5, 10		
	30	5, 10		
CA_4A-12A-30A	4	5, 10, 15, 20	40	0
	12	5, 10		
	30	5, 10		
CA_4A-29A-30A	4	5, 10, 15, 20	40	0
	29	5, 10		
	30	5, 10		

FCC SAR Test Report

<SAR Test Exclusion Evaluations for LTE Downlink CA>

According to Nov 2017 TCB Workshop, SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number of component carriers (CCs) supported by the product implementation. The downlink Carrier Aggregation configurations are tabulated in separate columns. DL CA would be listed in the columns corresponding to Intra Band contiguous, Intra Band Non-contiguous, 2bands/2CCs, 2bands/3CCs and 3bands/3CCs. The CA/CC combinations in each columns are sorted so that frequency bands listed in subsequent columns on each row are ascending subsets, as illustrated below; i.e., columns to the right correspond to increasing number of frequency bands and CCs.

	Intra Band		Inter Band		
	Contiguous	Non-Contiguous	2 Bands / 2CC	2 Bands / 3CC	3 Bands / 3CC
Configure		CA_2A-2A	CA_2A-5A	CA_2A-2A-5A	CA_2A-5A-30A
			CA_2A-30A	CA_2A-2A-30A	
			CA_5A-30A		
			CA_2A-12A	CA_2A-2A-12A	CA_2A-12A-30A
			CA_2A-29A	CA_2A-2A-29A	CA_2A-29A-30A
		CA_4A-4A	CA_4A-5A	CA_4A-4A-5A	CA_4A-5A-30A
			CA_4A-12A	CA_4A-4A-12A	CA_4A-12A-30A
			CA_4A-29A	CA_4A-4A-29A	CA_4A-29A-30A
			CA_4A-30A	CA_4A-4A-30A	
			CA_29A-30A		
	CA_2C			CA_2C-5A	
				CA_2C-12A	
				CA_2C-29A	
				CA_2C-30A	
			CA_2A-17A		
			CA_4A-17A		
		CA_7A-7A	CA_5A-7A		
		CA_41A-41A			
	CA_7B				
	CA_7C				
	CA_41C				

FCC SAR Test Report

LTE CA Configurations and Bandwidth Combination Sets defined for Inter-Band CA (4*4 MIMO)

2CA 4x4 MIMO						
Downlink CA Configuration	Component carriers in order of increasing carrier frequency				Maximum Aggregated Bandwidth [MHz]	Bandwidth Combination Set
	Channel bandwidths for carrier-1 [MHz]	Channel bandwidths for carrier-2 [MHz]	Channel bandwidths for carrier-3 [MHz]	Channel bandwidths for carrier-4 [MHz]		
CA_7C	15	15			40	0
	20	20				
	10	20			40	1
	15	15, 20				
	20	10, 15, 20				
	15	10, 15			40	2
	20	15, 20				

<Considerations Related to WLAN for Setup and Testing>

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

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

Initial Test Configuration

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

Subsequent Test Configuration

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

SAR Test Configuration and Channel Selection

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

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

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

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

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

<Considerations Related to Bluetooth for Setup and Testing>

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

4.2 EUT Testing Position

According to KDB 648474 D04, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

4.2.1 Head Exposure Conditions

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

1. Define two imaginary lines on the handset
 - (a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.
 - (b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
 - (c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

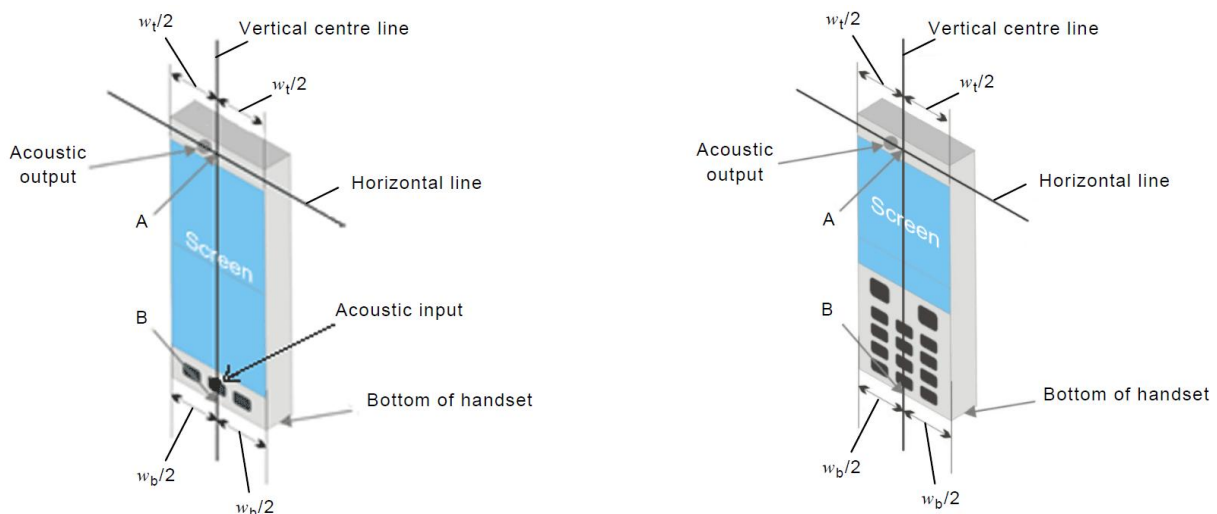


Fig-4.1 Illustration for Handset Vertical and Horizontal Reference Lines

FCC SAR Test Report

2. Cheek Position

- To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig-4.2).

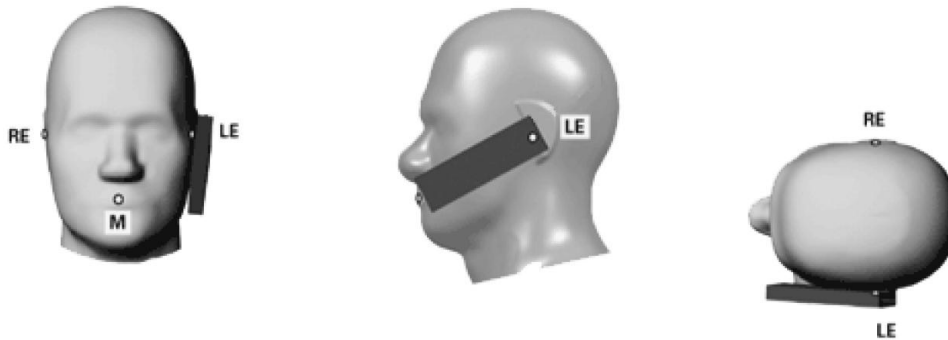


Fig-4.2 Illustration for Cheek Position

3. Tilted Position

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

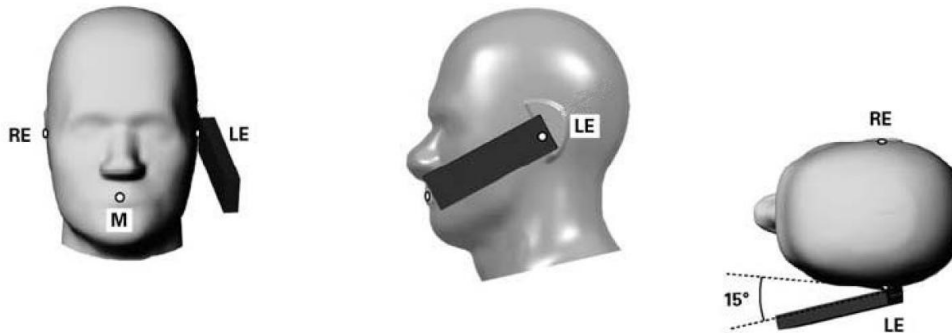


Fig-4.3 Illustration for Tilted Position

4.2.2 Body-worn Accessory Exposure Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 D01 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance $\leq 5 \text{ mm}$ to support compliance.

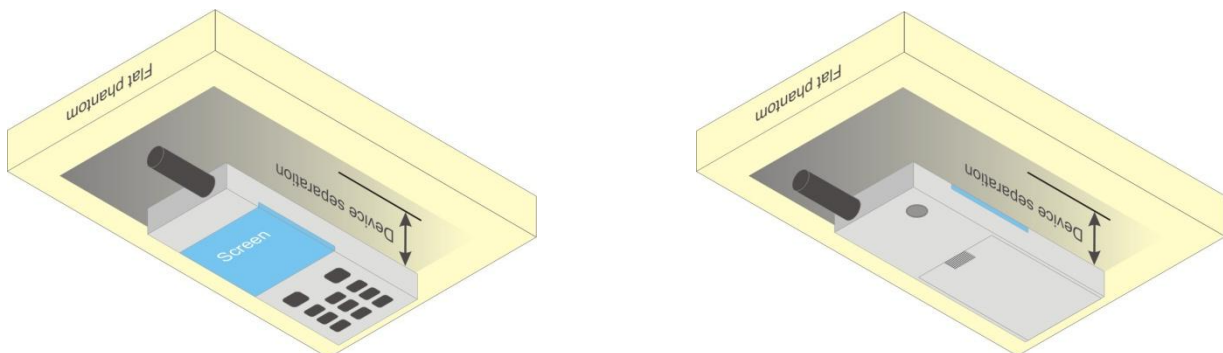
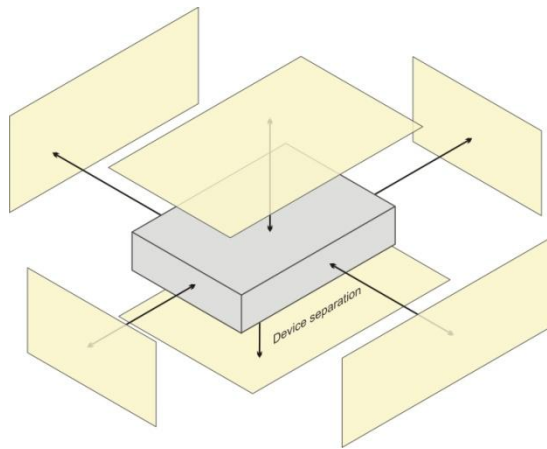


Fig-4.4 Illustration for Body Worn Position

4.2.3 Hotspot Mode Exposure Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225 D06. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



Based on the antenna location shown on appendix D of this report, the SAR testing required for hotspot mode is listed as below.

Antenna	Front Face	Rear Face	Left Side	Right Side	Top Side	Bottom Side
WWAN-0	V	V	V	V		V
WWAN-1	V	V	V	V	V	
BT / WLAN-0	V	V	V		V	
WLAN-1	V	V	V		V	
WLAN-0+1	V	V	V		V	

FCC SAR Test Report

4.3 Tissue Verification

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

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Mar. 05, 2018	Head	750	23.4	0.89	42.416	0.89	41.9	0.00	1.23
Mar. 06, 2018	Head	750	23.2	0.886	43.435	0.89	41.9	-0.45	3.66
Mar. 06, 2018	Head	835	23.2	0.917	41.818	0.9	41.5	1.89	0.77
Mar. 26, 2018	Head	835	23.3	0.919	41.759	0.9	41.5	2.11	0.62
Apr. 10, 2018	Head	835	23.2	0.928	41.992	0.9	41.5	3.11	1.19
Mar. 06, 2018	Head	1750	23.4	1.334	41.29	1.37	40.1	-2.63	2.97
Apr. 11, 2018	Head	1750	23.3	1.318	39.352	1.37	40.1	-3.80	-1.87
Mar. 05, 2018	Head	1900	23.4	1.458	39.592	1.4	40	4.14	-1.02
Mar. 05, 2018	Head	2300	23.4	1.73	39.008	1.67	39.5	3.59	-1.25
Mar. 06, 2018	Head	2300	23.4	1.717	38.423	1.67	39.5	2.81	-2.73
Mar. 13, 2018	Head	2450	23.5	1.882	38.31	1.8	39.2	4.56	-2.27
Mar. 06, 2018	Head	2600	23.4	2.03	37.41	1.96	39	3.57	-4.08
Mar. 13, 2018	Head	5250	23.5	4.7	36.799	4.71	35.9	-0.21	2.50
Mar. 13, 2018	Head	5600	23.5	5.074	36.37	5.07	35.5	0.08	2.45
Mar. 13, 2018	Head	5800	23.5	5.205	35.948	5.27	35.3	-1.23	1.84
Mar. 05, 2018	Body	750	23.3	0.959	53.094	0.96	55.5	-0.10	-4.34
Mar. 06, 2018	Body	835	23.1	1.005	57.812	0.97	55.2	3.61	4.73
Mar. 24, 2018	Body	835	23.2	1.011	54.122	0.97	55.2	4.23	-1.95
Apr. 10, 2018	Body	835	23.2	0.972	56.099	0.97	55.2	0.21	1.63
Apr. 02, 2018	Body	1750	23.1	1.431	51.463	1.49	53.4	-3.96	-3.63
Apr. 05, 2018	Body	1750	23.2	1.434	51.402	1.49	53.4	-3.76	-3.74
Apr. 11, 2018	Body	1750	23.3	1.444	52.141	1.49	53.4	-3.09	-2.36
Mar. 04, 2018	Body	1900	23.3	1.581	51.565	1.52	53.3	4.01	-3.26
Apr. 02, 2018	Body	1900	23.1	1.564	50.975	1.52	53.3	2.89	-4.36
Apr. 05, 2018	Body	1900	23.2	1.57	51.004	1.52	53.3	3.29	-4.31
Apr. 11, 2018	Body	1900	23.3	1.582	51.7	1.52	53.3	4.08	-3.00
Mar. 05, 2018	Body	2300	23.3	1.857	51.08	1.81	52.9	2.60	-3.44
Mar. 14, 2018	Body	2450	23.3	1.997	51.334	1.95	52.7	2.41	-2.59
Apr. 11, 2018	Body	2450	23.3	1.969	52.42	1.95	52.7	0.97	-0.53
Mar. 05, 2018	Body	2600	23.3	2.18	50.252	2.16	52.5	0.93	-4.28
Mar. 14, 2018	Body	5250	23.4	5.573	49.2	5.36	48.9	3.97	0.61
Mar. 14, 2018	Body	5600	23.4	5.943	48.609	5.77	48.5	3.00	0.22
Mar. 14, 2018	Body	5800	23.4	6.221	48.523	6	48.2	3.68	0.67

Note:

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

FCC SAR Test Report

4.4 System Validation

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

Test Date	Probe S/N	Calibration Point		Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Mar. 05, 2018	3971	Head	750	0.89	42.416	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 06, 2018	3971	Head	750	0.886	43.435	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 06, 2018	3971	Head	835	0.917	41.818	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 26, 2018	3820	Head	835	0.919	41.759	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 10, 2018	3820	Head	835	0.928	41.992	Pass	Pass	Pass	GMSK	Pass	N/A
Mar. 06, 2018	3971	Head	1750	1.334	41.29	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 11, 2018	3820	Head	1750	1.318	39.352	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 05, 2018	3971	Head	1900	1.458	39.592	Pass	Pass	Pass	GMSK	Pass	N/A
Mar. 05, 2018	3971	Head	2300	1.73	39.008	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 06, 2018	3971	Head	2300	1.717	38.423	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 13, 2018	3650	Head	2450	1.882	38.31	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 06, 2018	3971	Head	2600	2.03	37.41	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 13, 2018	3650	Head	5250	4.7	36.799	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 13, 2018	3650	Head	5600	5.074	36.37	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 13, 2018	3650	Head	5800	5.205	35.948	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 05, 2018	3971	Body	750	0.959	53.094	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 06, 2018	3971	Body	835	1.005	57.812	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 24, 2018	3820	Body	835	1.011	54.122	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 10, 2018	3820	Body	835	0.972	56.099	Pass	Pass	Pass	GMSK	Pass	N/A
Apr. 02, 2018	3820	Body	1750	1.431	51.463	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 05, 2018	3650	Body	1750	1.434	51.402	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 11, 2018	3820	Body	1750	1.444	52.141	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 04, 2018	3650	Body	1900	1.581	51.565	Pass	Pass	Pass	GMSK	Pass	N/A
Apr. 02, 2018	3820	Body	1900	1.564	50.975	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 05, 2018	3650	Body	1900	1.57	51.004	Pass	Pass	Pass	N/A	N/A	N/A
Apr. 11, 2018	3820	Body	1900	1.582	51.7	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 05, 2018	3971	Body	2300	1.857	51.08	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 14, 2018	3578	Body	2450	1.997	51.334	Pass	Pass	Pass	OFDM	N/A	Pass
Apr. 11, 2018	3650	Body	2450	1.969	52.42	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 05, 2018	3971	Body	2600	2.18	50.252	Pass	Pass	Pass	N/A	N/A	N/A
Mar. 14, 2018	3578	Body	5250	5.573	49.2	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 14, 2018	3578	Body	5600	5.943	48.609	Pass	Pass	Pass	OFDM	N/A	Pass
Mar. 14, 2018	3578	Body	5800	6.221	48.523	Pass	Pass	Pass	OFDM	N/A	Pass

FCC SAR Test Report

4.5 System Verification

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Mar. 05, 2018	Head	750	8.25	1.91	7.64	-7.39	1013	3971	861
Mar. 06, 2018	Head	750	8.25	2.09	8.36	1.33	1013	3971	861
Mar. 06, 2018	Head	835	9.41	2.4	9.60	2.02	4d121	3971	861
Mar. 26, 2018	Head	835	9.41	2.34	9.36	-0.53	4d121	3820	917
Apr. 10, 2018	Head	835	9.41	2.46	9.84	4.57	4d121	3820	917
Mar. 06, 2018	Head	1750	36.20	9.6	38.40	6.08	1055	3971	861
Apr. 11, 2018	Head	1750	36.20	9.5	38.00	4.97	1055	3820	917
Mar. 05, 2018	Head	1900	40.70	9.57	38.28	-5.95	5d036	3971	861
Mar. 05, 2018	Head	2300	49.50	12.1	48.40	-2.22	1004	3971	861
Mar. 06, 2018	Head	2300	49.50	12.6	50.40	1.82	1004	3971	861
Mar. 13, 2018	Head	2450	50.80	13.1	52.40	3.15	737	3650	861
Mar. 06, 2018	Head	2600	56.90	14.4	57.60	1.23	1020	3971	861
Mar. 13, 2018	Head	5250	78.60	8.1	81.00	3.05	1019	3650	861
Mar. 13, 2018	Head	5600	83.70	8.09	80.90	-3.35	1019	3650	861
Mar. 13, 2018	Head	5800	79.70	7.81	78.10	-2.01	1019	3650	861
Mar. 05, 2018	Body	750	8.72	2.12	8.48	-2.75	1013	3971	861
Mar. 06, 2018	Body	835	9.61	2.57	10.28	6.97	4d121	3971	861
Mar. 24, 2018	Body	835	9.61	2.27	9.08	-5.52	4d121	3820	917
Apr. 10, 2018	Body	835	9.61	2.31	9.24	-3.85	4d121	3820	917
Apr. 02, 2018	Body	1750	37.10	8.97	35.88	-3.29	1055	3820	917
Apr. 05, 2018	Body	1750	37.10	9.01	36.04	-2.86	1055	3650	861
Apr. 11, 2018	Body	1750	37.10	9.47	37.88	2.10	1055	3820	917
Mar. 04, 2018	Body	1900	40.20	10.40	41.60	3.48	5d036	3650	1431
Apr. 02, 2018	Body	1900	40.20	10.6	42.40	5.47	5d036	3820	917
Apr. 05, 2018	Body	1900	40.20	9.7	38.80	-3.48	5d036	3650	861
Apr. 11, 2018	Body	1900	40.20	10	40.00	-0.50	5d036	3820	917
Mar. 05, 2018	Body	2300	47.30	12.1	48.40	2.33	1004	3971	861
Mar. 14, 2018	Body	2450	49.70	12.5	50.00	0.60	737	3578	360
Apr. 11, 2018	Body	2450	49.70	11.8	47.20	-5.03	737	3650	861
Mar. 05, 2018	Body	2600	54.30	13.9	55.60	2.39	1020	3971	861
Mar. 14, 2018	Body	5250	76.50	7.72	77.20	0.92	1019	3578	360
Mar. 14, 2018	Body	5600	79.70	8.3	83.00	4.14	1019	3578	360
Mar. 14, 2018	Body	5800	76.90	8	80.00	4.03	1019	3578	360

Note:

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

FCC SAR Test Report

4.6 Maximum Output Power

4.6.1 Maximum Target Conducted Power

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

Mode	Maximum Burst-Averaged Output Power		Maximum Frame-Averaged Output Power	
	GSM850	GSM1900	GSM850	GSM1900
GSM (GMSK, 1Tx-slot)	32.0	29.0	23.0	20.0
GPRS (GMSK, 1Tx-slot)	32.0	29.0	23.0	20.0
GPRS (GMSK, 2Tx-slot)	30.0	27.0	24.0	21.0
EDGE (8PSK, 1Tx-slot)	27.5	25.0	18.5	16.0
EDGE (8PSK, 2Tx-slot)	27.0	24.5	21.0	18.5

Note:

1. SAR testing was performed on the maximum frame-averaged power mode.
2. 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:

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

Mode	WCDMA Band II	WCDMA Band V
RMC 12.2K	23.5	24.0
HSDPA / HSUPA / DC-HSDPA	23.0	23.0

Mode	WCDMA Band IV (without Power Reduction)	WCDMA Band IV (with Power Reduction)	Power Reduction (dB)
RMC 12.2K	24.0	23.5	0.5
HSDPA / HSUPA / DC-HSDPA	23.0	22.5	0.5

Mode	LTE 2
QPSK	23.5
16QAM	22.5
64QAM	21.5

Mode	LTE 4 (without Power Reduction)	LTE 4 (with Power Reduction)	Power Reduction (dB)
QPSK	24.0	23.5	0.5
16QAM	23.0	22.5	0.5
64QAM	22.0	21.5	0.5

FCC SAR Test Report

Mode	LTE 5	LTE 7	LTE 12	LTE 17
QPSK	24.0	23.0	23.0	23.0
16QAM	23.0	22.0	22.0	22.0
64QAM	22.0	21.0	21.0	21.0

Mode	LTE 26	LTE 30	LTE 38	LTE 41
QPSK	24.0	24.0	24.0	24.0
16QAM	23.0	23.0	23.0	23.0
64QAM	22.0	22.0	22.0	22.0

Mode	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
Tx Antenna	Ant0 / Ant1 / Ant0+1	Ant0 / Ant1 / Ant0+1	Ant0 / Ant1 / Ant0+1	Ant0 / Ant1 / Ant0+1	Ant0 / Ant1 / Ant0+1
802.11b	Ch1-12: 18.5 Ch13: 17.5	N/A	N/A	N/A	N/A
802.11g	Ch1-11: 18.5 Ch12: 16.5 Ch13: 5.5	N/A	N/A	N/A	N/A
802.11a	N/A	18.0	18.0	18.0	18.0
802.11n HT20 / 802.11ac VHT20	Ch1-11: 18.5 Ch12: 16.5 Ch13: 4.0	17.0	17.0	17.0	17.0
802.11ac VHT40	N/A	15.5	15.5	15.5	15.5
802.11ac VHT80	N/A	15.5	15.5	Ch106: 14.5 Ch122-138: 15.5	15.5

Mode	2.4G Bluetooth
Bluetooth EDR	13.0
Bluetooth LE	Ch0: 7.5 Ch19: 6.5 Ch39: 7.5

FCC SAR Test Report

4.6.2 Measured Conducted Power Result

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

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Maximum Burst-Averaged Output Power						
GSM (GMSK, 1Tx-slot)	31.53	31.54	31.26	28.98	28.97	28.93
GPRS (GMSK, 1Tx-slot)	31.44	31.45	31.17	28.94	28.93	28.89
GPRS (GMSK, 2Tx-slot)	29.91	29.92	29.64	26.62	26.61	26.57
EDGE (8PSK, 1Tx-slot)	27.17	27.18	26.90	24.86	24.85	24.81
EDGE (8PSK, 2Tx-slot)	26.83	26.84	26.56	24.41	24.40	24.36

Band	WCDMA Band II			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	826.4	836.4	846.6	
RMC 12.2K	23.47	23.38	23.29	23.99	23.93	23.91	-
HSDPA Subtest-1	22.51	22.42	22.33	22.93	22.87	22.85	0
HSDPA Subtest-2	22.52	22.43	22.34	22.87	22.81	22.79	0
HSDPA Subtest-3	22.05	21.96	21.87	22.38	22.32	22.30	0.5
HSDPA Subtest-4	22.04	21.95	21.86	22.37	22.31	22.29	0.5
DC-HSDPA Subtest-1	22.37	22.28	22.19	22.78	22.72	22.70	0
DC-HSDPA Subtest-2	22.38	22.29	22.20	22.72	22.66	22.64	0
DC-HSDPA Subtest-3	21.91	21.82	21.73	22.23	22.17	22.15	0.5
DC-HSDPA Subtest-4	21.90	21.81	21.72	22.22	22.16	22.14	0.5
HSUPA Subtest-1	22.58	22.49	22.40	22.97	22.91	22.89	0
HSUPA Subtest-2	20.60	20.51	20.42	20.98	20.92	20.90	2
HSUPA Subtest-3	21.62	21.53	21.44	21.93	21.87	21.85	1
HSUPA Subtest-4	20.60	20.51	20.42	20.98	20.95	20.93	2
HSUPA Subtest-5	22.61	22.52	22.43	22.98	22.92	22.90	0

FCC SAR Test Report

Band	WCDMA Band IV			3GPP MPR (dB)
Channel	1312	1413	1513	
Frequency (MHz)	1712.4	1732.6	1752.6	
EUT without Power Reduction (Cell Off)				
RMC 12.2K	23.98	23.92	23.95	-
HSDPA Subtest-1	22.94	22.88	22.91	0
HSDPA Subtest-2	22.91	22.85	22.88	0
HSDPA Subtest-3	22.47	22.41	22.44	0.5
HSDPA Subtest-4	22.44	22.38	22.41	0.5
DC-HSDPA Subtest-1	22.78	22.72	22.75	0
DC-HSDPA Subtest-2	22.75	22.69	22.72	0
DC-HSDPA Subtest-3	22.31	22.25	22.28	0.5
DC-HSDPA Subtest-4	22.28	22.22	22.25	0.5
HSUPA Subtest-1	22.99	22.93	22.96	0
HSUPA Subtest-2	20.93	20.87	20.90	2
HSUPA Subtest-3	22.00	21.94	21.97	1
HSUPA Subtest-4	20.98	20.92	20.95	2
HSUPA Subtest-5	22.98	22.95	22.98	0
EUT with Power Reduction (Cell On)				
RMC 12.2K	23.38	23.31	23.26	-
HSDPA Subtest-1	22.24	22.23	22.18	-
HSDPA Subtest-2	22.33	22.32	22.27	-
HSDPA Subtest-3	21.84	21.83	21.78	-
HSDPA Subtest-4	21.83	21.82	21.77	-
DC-HSDPA Subtest-1	22.13	22.12	22.07	-
DC-HSDPA Subtest-2	22.22	22.21	22.16	-
DC-HSDPA Subtest-3	21.73	21.72	21.67	-
DC-HSDPA Subtest-4	21.72	21.71	21.66	-
HSUPA Subtest-1	22.36	22.35	22.30	-
HSUPA Subtest-2	20.37	20.36	20.31	-
HSUPA Subtest-3	21.34	21.33	21.28	-
HSUPA Subtest-4	20.32	20.31	20.26	-
HSUPA Subtest-5	22.33	22.32	22.27	-

FCC SAR Test Report

LTE Band 2															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18700	18900	19100				Channel		18675	18900	19125	
		Frequency (MHz)		1860.0	1880.0	1900.0				Frequency (MHz)		1857.5	1880.0	1902.5	
20M	QPSK	1	0	23.16	23.11	23.33	0	15M	QPSK	1	0	23.08	23.03	23.25	0
		1	50	22.93	22.88	23.10	0			1	37	22.85	22.80	23.02	0
		1	99	22.88	22.83	23.05	0			1	74	22.80	22.75	22.97	0
		50	0	22.13	22.08	22.30	1			36	0	22.05	22.00	22.22	1
		50	25	22.07	22.02	22.24	1			36	19	21.99	21.94	22.16	1
		50	50	21.97	21.92	22.14	1			36	39	21.89	21.84	22.06	1
	16QAM	100	0	22.08	22.03	22.25	1			75	0	22.00	21.95	22.17	1
		1	0	22.18	22.13	22.35	1		16QAM	1	0	22.10	22.05	22.27	1
		1	50	21.95	21.90	22.12	1			1	37	21.87	21.82	22.04	1
		1	99	21.90	21.85	22.07	1			1	74	21.82	21.77	21.99	1
		50	0	21.15	21.10	21.32	2			36	0	21.07	21.02	21.24	2
		50	25	21.09	21.04	21.26	2			36	19	21.01	20.96	21.18	2
	64QAM	50	50	20.99	20.94	21.16	2			36	39	20.91	20.86	21.08	2
		100	0	21.10	21.05	21.27	2			75	0	21.02	20.97	21.19	2
		1	0	21.17	21.12	21.34	2		64QAM	1	0	21.09	21.04	21.26	2
		1	50	20.94	20.89	21.11	2			1	37	20.86	20.81	21.03	2
		1	99	20.89	20.84	21.06	2			1	74	20.81	20.76	20.98	2
		50	0	20.14	20.09	20.31	3			36	0	20.06	20.01	20.23	3
		50	25	20.08	20.03	20.25	3			36	19	20.00	19.95	20.17	3
		50	50	19.98	19.93	20.15	3			36	39	19.90	19.85	20.07	3
		100	0	20.09	20.04	20.26	3			75	0	20.01	19.96	20.18	3
10M	QPSK	1	0	23.02	22.97	23.19	0	5M	QPSK	1	0	22.99	22.94	23.16	0
		1	24	22.79	22.74	22.96	0			1	12	22.76	22.71	22.93	0
		1	49	22.74	22.69	22.91	0			1	24	22.71	22.66	22.88	0
		25	0	21.99	21.94	22.16	1			12	0	21.96	21.91	22.13	1
		25	12	21.93	21.88	22.10	1			12	6	21.90	21.85	22.07	1
		25	25	21.83	21.78	22.00	1			12	13	21.80	21.75	21.97	1
	16QAM	50	0	21.94	21.89	22.11	1			25	0	21.91	21.86	22.08	1
		1	0	22.04	21.99	22.21	1		16QAM	1	0	22.01	21.96	22.18	1
		1	24	21.81	21.76	21.98	1			1	12	21.78	21.73	21.95	1
		1	49	21.76	21.71	21.93	1			1	24	21.73	21.68	21.90	1
		25	0	21.01	20.96	21.18	2			12	0	20.98	20.93	21.15	2
		25	12	20.95	20.90	21.12	2			12	6	20.92	20.87	21.09	2
	64QAM	25	25	20.85	20.80	21.02	2			12	13	20.82	20.77	20.99	2
		50	0	20.96	20.91	21.13	2			25	0	20.93	20.88	21.10	2
		1	0	21.03	20.98	21.20	2		64QAM	1	0	21.00	20.95	21.17	2
		1	24	20.80	20.75	20.97	2			1	12	20.77	20.72	20.94	2
		1	49	20.75	20.70	20.92	2			1	24	20.72	20.67	20.89	2
		25	0	20.00	19.95	20.17	3			12	0	19.97	19.92	20.14	3
		25	12	19.94	19.89	20.11	3			12	6	19.91	19.86	20.08	3
		25	25	19.84	19.79	20.01	3			12	13	19.81	19.76	19.98	3
		50	0	19.95	19.90	20.12	3			25	0	19.92	19.87	20.09	3
3M	QPSK	1	0	22.93	22.88	23.10	0	1.4M	QPSK	1	0	22.88	22.83	23.05	0
		1	7	22.70	22.65	22.87	0			1	2	22.65	22.60	22.82	0
		1	14	22.65	22.60	22.82	0			1	5	22.60	22.55	22.77	0
		8	0	21.90	21.85	22.07	1			3	0	21.85	21.80	22.02	0
		8	3	21.84	21.79	22.01	1			3	1	21.79	21.74	21.96	0
		8	7	21.74	21.69	21.91	1			3	3	21.69	21.64	21.86	0
	16QAM	15	0	21.85	21.80	22.02	1			6	0	21.80	21.75	21.97	1
		1	0	21.95	21.90	22.12	1		16QAM	1	0	21.90	21.85	22.07	1
		1	7	21.72	21.67	21.89	1			1	2	21.67	21.62	21.84	1
		1	14	21.67	21.62	21.84	1			1	5	21.62	21.57	21.79	1
		8	0	20.92	20.87	21.09	2			3	0	20.87	20.82	21.04	1
		8	3	20.86	20.81	21.03	2			3	1	20.81	20.76	20.98	1
	64QAM	8	7	20.76	20.71	20.93	2			3	3	20.71	20.66	20.88	1
		15	0	20.87	20.82	21.04	2			6	0	20.82	20.77	20.99	2
		1	0	20.94	20.89	21.11	2		64QAM	1	0	20.89	20.84	21.06	2
		1	7	20.71	20.66	20.88	2			1	2	20.66	20.61	20.83	2
		1	14	20.66	20.61	20.83	2			1	5	20.61	20.56	20.78	2
		8	0	19.91	19.86	20.08	3			3	0	19.86	19.81	20.03	2
		8	3	19.85	19.80	20.02	3			3	1	19.80	19.75	19.97	2
		8	7	19.75	19.70	19.92	3			3	3	19.70	19.65	19.87	2
		15	0	19.86	19.81	20.03	3			6	0	19.81	19.76	19.98	3

FCC SAR Test Report

LTE Band 4															
EUT without Power Reduction (Cell Off)															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	23.37	23.34	23.33	0	15M	QPSK	1	0	23.25	23.22	23.21	0
		1	50	23.23	23.11	23.21	0			1	37	23.11	22.99	23.09	0
		1	99	23.04	23.02	23.13	0			1	74	22.92	22.90	23.01	0
		50	0	22.38	22.28	22.28	1			36	0	22.26	22.16	22.16	1
		50	25	22.19	22.18	22.18	1			36	19	22.07	22.06	22.06	1
		50	50	22.11	22.12	22.21	1			36	39	21.99	22.00	22.09	1
		100	0	22.21	22.17	22.20	1			75	0	22.09	22.05	22.08	1
		1	0	22.34	22.31	22.30	1		16QAM	1	0	22.22	22.19	22.18	1
	16QAM	1	50	22.20	22.08	22.18	1			1	37	22.08	21.96	22.06	1
		1	99	22.01	21.99	22.10	1			1	74	21.89	21.87	21.98	1
		50	0	21.35	21.25	21.25	2			36	0	21.23	21.13	21.13	2
		50	25	21.16	21.15	21.15	2			36	19	21.04	21.03	21.03	2
		50	50	21.08	21.09	21.18	2			36	39	20.96	20.97	21.06	2
		100	0	21.18	21.14	21.17	2			75	0	21.06	21.02	21.05	2
		1	0	21.31	21.28	21.27	2		64QAM	1	0	21.19	21.16	21.15	2
	64QAM	1	50	21.17	21.05	21.15	2			1	37	21.05	20.93	21.03	2
		1	99	20.98	20.96	21.07	2			1	74	20.86	20.84	20.95	2
		50	0	20.32	20.22	20.22	3			36	0	20.20	20.10	20.10	3
		50	25	20.13	20.12	20.12	3			36	19	20.01	20.00	20.00	3
		50	50	20.05	20.06	20.15	3			36	39	19.93	19.94	20.03	3
		100	0	20.15	20.11	20.14	3			75	0	20.03	19.99	20.02	3
		1	0	20.15	20.11	20.14	3			75	0	20.03	19.99	20.02	3
10M	QPSK	1	0	23.12	23.09	23.08	0	5M	QPSK	1	0	23.04	23.01	23.00	0
		1	24	22.98	22.86	22.96	0			1	12	22.90	22.78	22.88	0
		1	49	22.79	22.77	22.88	0			1	24	22.71	22.69	22.80	0
		25	0	22.13	22.03	22.03	1			12	0	22.05	21.95	21.95	1
		25	12	21.94	21.93	21.93	1			12	6	21.86	21.85	21.85	1
		25	25	21.86	21.87	21.96	1			12	13	21.78	21.79	21.88	1
		50	0	21.96	21.92	21.95	1			25	0	21.88	21.84	21.87	1
		1	0	22.09	22.06	22.05	1		16QAM	1	0	22.01	21.98	21.97	1
	16QAM	1	24	21.95	21.83	21.93	1			1	12	21.87	21.75	21.85	1
		1	49	21.76	21.74	21.85	1			1	24	21.68	21.66	21.77	1
		25	0	21.10	21.00	21.00	2			12	0	21.02	20.92	20.92	2
		25	12	20.91	20.90	20.90	2			12	6	20.83	20.82	20.82	2
		25	25	20.83	20.84	20.93	2			12	13	20.75	20.76	20.85	2
		50	0	20.93	20.89	20.92	2			25	0	20.85	20.81	20.84	2
		1	0	21.06	21.03	21.02	2		64QAM	1	0	20.98	20.95	20.94	2
	64QAM	1	24	20.92	20.80	20.90	2			1	12	20.84	20.72	20.82	2
		1	49	20.73	20.71	20.82	2			1	24	20.65	20.63	20.74	2
		25	0	20.07	19.97	19.97	3			12	0	19.99	19.89	19.89	3
		25	12	19.88	19.87	19.87	3			12	6	19.80	19.79	19.79	3
		25	25	19.80	19.81	19.90	3			12	13	19.72	19.73	19.82	3
		50	0	19.90	19.86	19.89	3			25	0	19.82	19.78	19.81	3
		1	0	19.90	19.86	19.89	3			25	0	19.82	19.78	19.81	3
3M	QPSK	1	0	22.96	22.93	22.92	0	1.4M	QPSK	1	0	22.89	22.86	22.85	0
		1	7	22.82	22.70	22.80	0			1	2	22.75	22.63	22.73	0
		1	14	22.63	22.61	22.72	0			1	5	22.56	22.54	22.65	0
		8	0	21.97	21.87	21.87	1			3	0	22.73	22.63	22.63	0
		8	3	21.78	21.77	21.77	1			3	1	22.54	22.53	22.53	0
		8	7	21.70	21.71	21.80	1			3	3	22.46	22.47	22.56	0
		15	0	21.80	21.76	21.79	1			6	0	21.73	21.69	21.72	1
		1	0	21.93	21.90	21.89	1		16QAM	1	0	21.86	21.83	21.82	1
	16QAM	1	7	21.79	21.67	21.77	1			1	2	21.72	21.60	21.70	1
		1	14	21.60	21.58	21.69	1			1	5	21.53	21.51	21.62	1
		8	0	20.94	20.84	20.84	2			3	0	21.70	21.60	21.60	1
		8	3	20.75	20.74	20.74	2			3	1	21.51	21.50	21.50	1
		8	7	20.67	20.68	20.77	2			3	3	21.43	21.44	21.53	1
		15	0	20.77	20.73	20.76	2			6	0	20.70	20.66	20.69	2
		1	0	20.90	20.87	20.86	2		64QAM	1	0	20.83	20.80	20.79	2
	64QAM	1	7	20.76	20.64	20.74	2			1	2	20.69	20.57	20.67	2
		1	14	20.57	20.55	20.66	2			1	5	20.50	20.48	20.59	2
		8	0	19.91	19.81	19.81	3			3	0	20.67	20.57	20.57	2
		8	3	19.72	19.71	19.71	3			3	1	20.48	20.47	20.47	2
		8	7	19.64	19.65	19.74	3			3	3	20.40	20.41	20.50	2
		15	0	19.74	19.70	19.73	3			6	0	19.67	19.63	19.66	3
		15	0	19.74	19.70	19.73	3			6	0	19.67	19.63	19.66	3

FCC SAR Test Report

LTE Band 4															
EUT with Power Reduction (Cell On)															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	23.21	23.13	23.18	0	15M	QPSK	1	0	23.18	23.10	23.15	0
		1	50	22.97	22.89	22.87	0			1	37	22.94	22.86	22.84	0
		1	99	22.86	22.78	22.76	0			1	74	22.83	22.75	22.73	0
		50	0	22.13	22.05	22.03	1			36	0	22.10	22.02	22.00	1
		50	25	22.06	21.98	21.96	1			36	19	22.03	21.95	21.93	1
		50	50	21.99	21.91	21.89	1			36	39	21.96	21.88	21.86	1
		100	0	22.07	21.99	21.97	1			75	0	22.04	21.96	21.94	1
		1	0	22.20	22.12	22.10	1		16QAM	1	0	22.15	22.07	22.12	1
	16QAM	1	50	21.96	21.88	21.86	1			1	37	21.91	21.83	21.81	1
		1	99	21.85	21.77	21.75	1			1	74	21.80	21.72	21.70	1
		50	0	21.12	21.04	21.02	2			36	0	21.07	20.99	20.97	2
		50	25	21.05	20.97	20.95	2			36	19	21.00	20.92	20.90	2
		50	50	20.98	20.90	20.88	2			36	39	20.93	20.85	20.83	2
		100	0	21.06	20.98	20.96	2			75	0	21.01	20.93	20.91	2
		1	0	21.19	21.11	21.09	2		64QAM	1	0	21.12	21.04	21.09	2
	64QAM	1	50	20.95	20.87	20.85	2			1	37	20.88	20.80	20.78	2
		1	99	20.84	20.76	20.74	2			1	74	20.77	20.69	20.67	2
		50	0	20.11	20.03	20.01	3			36	0	20.04	19.96	19.94	3
		50	25	20.04	19.96	19.94	3			36	19	19.97	19.89	19.87	3
		50	50	19.97	19.89	19.87	3			36	39	19.90	19.82	19.80	3
		100	0	20.05	19.97	19.95	3			75	0	19.98	19.90	19.88	3
		1	0	20.05	19.97	19.95	3			75	0	19.98	19.90	19.88	3
10M	QPSK	1	0	23.10	23.02	23.07	0	5M	QPSK	1	0	23.02	22.94	22.99	0
		1	24	22.86	22.78	22.76	0			1	12	22.78	22.70	22.68	0
		1	49	22.75	22.67	22.65	0			1	24	22.67	22.59	22.57	0
		25	0	22.02	21.94	21.92	1			12	0	21.94	21.86	21.84	1
		25	12	21.95	21.87	21.85	1			12	6	21.87	21.79	21.77	1
		25	25	21.88	21.80	21.78	1			12	13	21.80	21.72	21.70	1
		50	0	21.96	21.88	21.86	1			25	0	21.88	21.80	21.78	1
		1	0	21.99	21.91	21.96	1		16QAM	1	0	21.83	21.75	21.80	1
	16QAM	1	24	21.75	21.67	21.65	1			1	12	21.59	21.51	21.49	1
		1	49	21.64	21.56	21.54	1			1	24	21.48	21.40	21.38	1
		25	0	20.91	20.83	20.81	2			12	0	20.75	20.67	20.65	2
		25	12	20.84	20.76	20.74	2			12	6	20.68	20.60	20.58	2
		25	25	20.77	20.69	20.67	2			12	13	20.61	20.53	20.51	2
		50	0	20.85	20.77	20.75	2			25	0	20.69	20.61	20.59	2
		1	0	20.88	20.80	20.85	2		64QAM	1	0	20.64	20.56	20.61	2
	64QAM	1	24	20.64	20.56	20.54	2			1	12	20.40	20.32	20.30	2
		1	49	20.53	20.45	20.43	2			1	24	20.29	20.21	20.19	2
		25	0	19.80	19.72	19.70	3			12	0	19.56	19.48	19.46	3
		25	12	19.73	19.65	19.63	3			12	6	19.49	19.41	19.39	3
		25	25	19.66	19.58	19.56	3			12	13	19.42	19.34	19.32	3
		50	0	19.74	19.66	19.64	3			25	0	19.50	19.42	19.40	3
		1	0	19.74	19.66	19.64	3			25	0	19.50	19.42	19.40	3
3M	QPSK	1	0	22.95	22.87	22.92	0	1.4M	QPSK	1	0	22.88	22.80	22.85	0
		1	7	22.71	22.63	22.61	0			1	2	22.64	22.56	22.54	0
		1	14	22.60	22.52	22.50	0			1	5	22.53	22.45	22.43	0
		8	0	21.87	21.79	21.77	1			3	0	21.80	21.72	21.70	0
		8	3	21.80	21.72	21.70	1			3	1	21.73	21.65	21.63	0
		8	7	21.73	21.65	21.63	1			3	3	21.66	21.58	21.56	0
		15	0	21.81	21.73	21.71	1			6	0	21.74	21.66	21.64	1
		1	0	21.69	21.61	21.66	1		16QAM	1	0	21.85	21.77	21.82	1
	16QAM	1	7	21.45	21.37	21.35	1			1	2	21.61	21.53	21.51	1
		1	14	21.34	21.26	21.24	1			1	5	21.50	21.42	21.40	1
		8	0	20.61	20.53	20.51	2			3	0	20.77	20.69	20.67	1
		8	3	20.54	20.46	20.44	2			3	1	20.70	20.62	20.60	1
		8	7	20.47	20.39	20.37	2			3	3	20.63	20.55	20.53	1
		15	0	20.55	20.47	20.45	2			6	0	20.71	20.63	20.61	2
		1	0	20.43	20.35	20.40	2		64QAM	1	0	20.82	20.74	20.79	2
	64QAM	1	7	20.19	20.11	20.09	2			1	2	20.58	20.50	20.48	2
		1	14	20.08	20.00	19.98	2			1	5	20.47	20.39	20.37	2
		8	0	19.35	19.27	19.25	3			3	0	19.74	19.66	19.64	2
		8	3	19.28	19.20	19.18	3			3	1	19.67	19.59	19.57	2
		8	7	19.21	19.13	19.11	3			3	3	19.60	19.52	19.51	2
		15	0	19.29	19.21	19.19	3			6	0	19.68	19.60	19.58	3
		1	0	19.29	19.21	19.19	3			6	0	19.68	19.60	19.58	3

FCC SAR Test Report

LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency (MHz)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	23.35	23.41	23.17	0	5M	QPSK	1	0	23.32	23.26	23.08	0
		1	24	23.34	23.28	23.11	0			1	12	23.25	23.19	23.02	0
		1	49	23.21	23.18	23.03	0			1	24	23.12	23.09	22.94	0
		25	0	22.38	22.43	22.19	1			12	0	22.29	22.34	22.10	1
		25	12	22.31	22.31	22.17	1			12	6	22.22	22.22	22.08	1
		25	25	22.25	22.28	22.09	1			12	13	22.16	22.19	22.00	1
	16QAM	50	0	22.26	22.27	22.18	1			25	0	22.17	22.18	22.09	1
		1	0	22.32	22.38	22.14	1		16QAM	1	0	22.23	22.29	22.05	1
		1	24	22.31	22.25	22.08	1			1	12	22.22	22.16	21.99	1
		1	49	22.18	22.15	22.00	1			1	24	22.09	22.06	21.91	1
		25	0	21.35	21.40	21.16	2			12	0	21.26	21.31	21.07	2
		25	12	21.28	21.28	21.14	2			12	6	21.19	21.19	21.05	2
	64QAM	25	25	21.22	21.25	21.06	2			12	13	21.13	21.16	20.97	2
		50	0	21.23	21.24	21.15	2			25	0	21.14	21.15	21.06	2
		1	0	21.34	21.40	21.16	2		64QAM	1	0	21.25	21.31	21.07	2
		1	24	21.33	21.27	21.10	2			1	12	21.24	21.18	21.01	2
		1	49	21.20	21.17	21.02	2			1	24	21.11	21.08	20.93	2
		25	0	20.37	20.42	20.18	3			12	0	20.28	20.33	20.09	3
		25	12	20.30	20.30	20.16	3			12	6	20.21	20.21	20.07	3
		25	25	20.24	20.27	20.08	3			12	13	20.15	20.18	19.99	3
		50	0	20.25	20.26	20.17	3			25	0	20.16	20.17	20.08	3
3M	QPSK	1	0	23.20	23.14	22.96	0	1.4M	QPSK	1	0	23.08	23.02	22.84	0
		1	7	23.13	23.07	22.90	0			1	2	23.01	22.95	22.78	0
		1	14	23.00	22.97	22.82	0			1	5	22.88	22.85	22.70	0
		8	0	22.17	22.22	21.98	1			3	0	22.84	22.89	22.65	0
		8	3	22.10	22.10	21.96	1			3	1	22.77	22.77	22.63	0
		8	7	22.04	22.07	21.88	1			3	3	22.71	22.74	22.55	0
	16QAM	15	0	22.05	22.06	21.97	1			6	0	21.93	21.94	21.85	1
		1	0	22.11	22.17	21.93	1		16QAM	1	0	21.99	22.05	21.81	1
		1	7	22.10	22.04	21.87	1			1	2	21.98	21.92	21.75	1
		1	14	21.97	21.94	21.79	1			1	5	21.85	21.82	21.67	1
		8	0	21.14	21.19	20.95	2			3	0	21.81	21.86	21.62	1
		8	3	21.07	21.07	20.93	2			3	1	21.74	21.74	21.60	1
	64QAM	8	7	21.01	21.04	20.85	2			3	3	21.68	21.71	21.52	1
		15	0	21.02	21.03	20.94	2			6	0	20.90	20.91	20.82	2
		1	0	21.13	21.19	20.95	2		64QAM	1	0	21.01	21.07	20.83	2
		1	7	21.12	21.06	20.89	2			1	2	21.00	20.94	20.77	2
		1	14	20.99	20.96	20.81	2			1	5	20.87	20.84	20.69	2
		8	0	20.16	20.21	19.97	3			3	0	20.83	20.88	20.64	2
		8	3	20.09	20.09	19.95	3			3	1	20.76	20.76	20.62	2
		8	7	20.03	20.06	19.87	3			3	3	20.70	20.73	20.54	2
		15	0	20.04	20.05	19.96	3			6	0	19.92	19.93	19.84	3

FCC SAR Test Report

LTE Band 7															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20850	21100	21350				Channel		20825	21100	21375	
		Frequency (MHz)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	22.78	22.86	22.84	0	15M	QPSK	1	0	22.65	22.73	22.71	0
		1	50	22.96	22.93	22.92	0			1	37	22.83	22.80	22.79	0
		1	99	22.97	22.98	22.99	0			1	74	22.84	22.85	22.86	0
		50	0	21.89	21.96	21.97	1			36	0	21.76	21.83	21.84	1
		50	25	21.92	21.94	21.95	1			36	19	21.79	21.81	21.82	1
		50	50	21.96	21.98	21.99	1			36	39	21.83	21.85	21.86	1
		100	0	21.93	21.94	21.96	1			75	0	21.80	21.81	21.83	1
	16QAM	1	0	21.75	21.83	21.81	1		16QAM	1	0	21.62	21.70	21.68	1
		1	50	21.93	21.90	21.89	1			1	37	21.80	21.77	21.76	1
		1	99	21.94	21.95	21.96	1			1	74	21.81	21.82	21.83	1
		50	0	20.86	20.93	20.94	2			36	0	20.73	20.80	20.81	2
		50	25	20.89	20.91	20.92	2			36	19	20.76	20.78	20.79	2
		50	50	20.93	20.95	20.96	2			36	39	20.80	20.82	20.83	2
		100	0	20.90	20.91	20.93	2			75	0	20.77	20.78	20.80	2
	64QAM	1	0	20.72	20.80	20.78	2		64QAM	1	0	20.59	20.67	20.65	2
		1	50	20.90	20.87	20.86	2			1	37	20.77	20.74	20.73	2
		1	99	20.91	20.92	20.93	2			1	74	20.78	20.79	20.80	2
		50	0	19.83	19.90	19.91	3			36	0	19.70	19.77	19.78	3
		50	25	19.86	19.88	19.89	3			36	19	19.73	19.75	19.76	3
		50	50	19.90	19.92	19.93	3			36	39	19.77	19.79	19.80	3
		100	0	19.87	19.88	19.90	3			75	0	19.74	19.75	19.77	3
10M	QPSK	1	0	21.85	21.93	21.91	0	5M	QPSK	1	0	21.74	21.82	21.80	0
		1	24	22.03	22.00	21.99	0			1	12	21.92	21.89	21.88	0
		1	49	22.04	22.05	22.06	0			1	24	21.93	21.94	21.95	0
		25	0	20.96	21.03	21.04	1			12	0	20.85	20.92	20.93	1
		25	12	20.99	21.01	21.02	1			12	6	20.88	20.90	20.91	1
		25	25	21.03	21.05	21.06	1			12	13	20.92	20.94	20.95	1
		50	0	21.00	21.01	21.03	1			25	0	20.89	20.90	20.92	1
	16QAM	1	0	20.82	20.90	20.88	1		16QAM	1	0	20.71	20.79	20.77	1
		1	24	21.00	20.97	20.96	1			1	12	20.89	20.86	20.85	1
		1	49	21.01	21.02	21.03	1			1	24	20.90	20.91	20.92	1
		25	0	19.93	20.00	20.01	2			12	0	19.82	19.89	19.90	2
		25	12	19.96	19.98	19.99	2			12	6	19.85	19.87	19.88	2
		25	25	20.00	20.02	20.03	2			12	13	19.89	19.91	19.92	2
		50	0	19.97	19.98	20.00	2			25	0	19.86	19.87	19.89	2
	64QAM	1	0	19.79	19.87	19.85	2		64QAM	1	0	19.68	19.76	19.74	2
		1	24	19.97	19.94	19.93	2			1	12	19.86	19.83	19.82	2
		1	49	19.98	19.99	20.00	2			1	24	19.87	19.88	19.89	2
		25	0	18.90	18.97	18.98	3			12	0	18.79	18.86	18.87	3
		25	12	18.93	18.95	18.96	3			12	6	18.82	18.84	18.85	3
		25	25	18.97	18.99	19.00	3			12	13	18.86	18.88	18.89	3
		50	0	18.94	18.95	18.97	3			25	0	18.83	18.84	18.86	3

FCC SAR Test Report

LTE Band 12															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23060	23095	23130				Channel		23035	23095	23155	
		Frequency (MHz)		704.0	707.5	711.0				Frequency (MHz)		701.5	707.5	713.5	
10M	QPSK	1	0	22.68	22.81	22.91	0	5M	QPSK	1	0	22.56	22.69	22.79	0
		1	24	22.86	22.88	22.93	0			1	12	22.74	22.76	22.81	0
		1	49	22.89	22.99	22.97	0			1	24	22.77	22.87	22.85	0
		25	0	21.83	21.95	21.96	1			12	0	21.71	21.83	21.84	1
		25	12	21.91	21.97	21.94	1			12	6	21.79	21.85	21.82	1
		25	25	21.97	21.98	21.97	1			12	13	21.85	21.86	21.85	1
		50	0	21.92	21.94	21.91	1			25	0	21.80	21.82	21.79	1
		50	0	21.92	21.94	21.91	1			25	0	21.80	21.82	21.79	1
	16QAM	1	0	21.66	21.79	21.89	1		16QAM	1	0	21.54	21.67	21.77	1
		1	24	21.84	21.86	21.91	1			1	12	21.72	21.74	21.79	1
		1	49	21.87	21.97	21.95	1			1	24	21.75	21.85	21.83	1
		25	0	20.81	20.93	20.94	2			12	0	20.69	20.81	20.82	2
		25	12	20.89	20.95	20.92	2			12	6	20.77	20.83	20.80	2
		25	25	20.95	20.96	20.95	2			12	13	20.83	20.84	20.83	2
		50	0	20.90	20.92	20.89	2			25	0	20.78	20.80	20.77	2
		50	0	20.90	20.92	20.89	2			25	0	20.78	20.80	20.77	2
	64QAM	1	0	20.64	20.77	20.87	2		64QAM	1	0	20.52	20.65	20.75	2
		1	24	20.82	20.84	20.89	2			1	12	20.70	20.72	20.77	2
		1	49	20.85	20.95	20.93	2			1	24	20.73	20.83	20.81	2
		25	0	19.79	19.91	19.92	3			12	0	19.67	19.79	19.80	3
		25	12	19.87	19.93	19.90	3			12	6	19.75	19.81	19.78	3
		25	25	19.93	19.94	19.93	3			12	13	19.81	19.82	19.81	3
		50	0	19.88	19.90	19.87	3			25	0	19.76	19.78	19.75	3
		50	0	19.88	19.90	19.87	3			25	0	19.76	19.78	19.75	3
3M	QPSK	1	0	22.48	22.61	22.71	0	1.4M	QPSK	1	0	22.35	22.48	22.58	0
		1	7	22.66	22.68	22.73	0			1	2	22.53	22.55	22.60	0
		1	14	22.69	22.79	22.77	0			1	5	22.56	22.66	22.64	0
		8	0	21.63	21.75	21.76	1			3	0	22.30	22.42	22.43	0
		8	3	21.71	21.77	21.74	1			3	1	22.38	22.44	22.41	0
		8	7	21.77	21.78	21.77	1			3	3	22.44	22.45	22.44	0
		15	0	21.72	21.74	21.71	1			6	0	21.59	21.61	21.58	1
		15	0	21.72	21.74	21.71	1			6	0	21.59	21.61	21.58	1
	16QAM	1	0	21.46	21.59	21.69	1		16QAM	1	0	21.33	21.46	21.56	1
		1	7	21.64	21.66	21.71	1			1	2	21.51	21.53	21.58	1
		1	14	21.67	21.77	21.75	1			1	5	21.54	21.64	21.62	1
		8	0	20.61	20.73	20.74	2			3	0	21.19	21.31	21.32	1
		8	3	20.69	20.75	20.72	2			3	1	21.27	21.33	21.30	1
		8	7	20.75	20.76	20.75	2			3	3	21.33	21.34	21.33	1
		15	0	20.70	20.72	20.69	2			6	0	20.57	20.59	20.56	2
		15	0	20.70	20.72	20.69	2			6	0	20.57	20.59	20.56	2
	64QAM	1	0	20.44	20.57	20.67	2		64QAM	1	0	20.31	20.44	20.54	2
		1	7	20.62	20.64	20.69	2			1	2	20.49	20.51	20.56	2
		1	14	20.65	20.75	20.73	2			1	5	20.52	20.62	20.60	2
		8	0	19.59	19.71	19.72	3			3	0	20.17	20.29	20.30	2
		8	3	19.67	19.73	19.70	3			3	1	20.25	20.31	20.28	2
		8	7	19.73	19.74	19.73	3			3	3	20.31	20.32	20.31	2
		15	0	19.68	19.70	19.67	3			6	0	19.55	19.57	19.54	3
		15	0	19.68	19.70	19.67	3			6	0	19.55	19.57	19.54	3

LTE Band 17															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23780	23790	23800				Channel		23755	23790	23825	
		Frequency (MHz)		709.0	710.0	711.0				Frequency (MHz)		706.5	710.0	713.5	
10M	QPSK	1	0	22.78	22.86	22.84	0	5M	QPSK	1	0	22.65	22.73	22.71	0
		1	24	22.96	22.93	22.92	0			1	12	22.83	22.80	22.79	0
		1	49	22.97	22.98	22.99	0			1	24	22.84	22.85	22.86	0
		25	0	21.89	21.96	21.97	1			12	0	21.76	21.83	21.84	1
		25	12	21.92	21.94	21.95	1			12	6	21.79	21.81	21.82	1
		25	25	21.96	21.96	21.99	1			12	13	21.83	21.83	21.86	1
		50	0	21.93	21.94	21.96	1			25	0	21.80	21.81	21.83	1
		50	0	21.93	21.94	21.96	1			25	0	21.80	21.81	21.83	1
	16QAM	1	0	21.77	21.85	21.83	1		16QAM	1	0	21.64	21.72	21.70	1
		1	24	21.95	21.92	21.91	1			1	12	21.82	21.79	21.78	1
		1	49	21.96	21.97	21.98	1			1	24	21.83	21.84	21.85	1
		25	0	20.88	20.95	20.96	2			12	0	20.75	20.82	20.83	2
		25	12	20.91	20.93	20.94	2			12	6	20.78	20.80	20.81	2
		25	25	20.95	20.95	20.98	2			12	13	20.82	20.82	20.85	2
		50	0	20.92	20.93	20.95	2			25	0	20.79	20.80	20.82	2
		50	0	20.92	20.93	20.95	2			25	0	20.79	20.80	20.82	2
	64QAM	1	0	20.80	20.88	20.86	2		64QAM	1	0	20.67	20.75	20.73	2
		1	24	20.98	20.95	20.94	2			1	12	20.85	20.82	20.81	2
		1	49	20.99	21.00	20.96	2			1	24	20.86	20.87	20.88	2
		25	0	19.91	19.98	19.99	3			12	0	19.78	19.85	19.86	3
		25	12	19.94	19.96	19.97	3			12	6	19.81	19.83	19.84	3
		25	25	19.98	19.98	19.96	3			12	13	19.85	19.85	19.88	3
		50	0	19.95	19.96	19.98	3			25	0	19.82	19.83	19.85	3
		50	0	19.95	19.96	19.98	3			25	0	19.82	19.83	19.85	3

FCC SAR Test Report

LTE Band 26															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		26765	26865	26965				Channel		26740	26865	26990	
		Frequency (MHz)		821.5	831.5	841.5				Frequency (MHz)		819.0	831.5	844.0	
15M	QPSK	1	0	23.68	23.46	23.33	0	10M	QPSK	1	0	23.60	23.38	23.25	0
		1	37	23.58	23.42	23.25	0			1	24	23.50	23.34	23.17	0
		1	74	23.42	23.31	23.08	0			1	49	23.34	23.23	23.00	0
		36	0	22.72	22.48	22.36	1			25	0	22.64	22.40	22.28	1
		36	19	22.69	22.46	22.34	1			25	12	22.61	22.38	22.26	1
		36	39	22.54	22.34	22.26	1			25	25	22.46	22.26	22.18	1
		75	0	22.61	22.39	22.33	1			50	0	22.53	22.31	22.25	1
	16QAM	1	0	22.70	22.48	22.35	1		16QAM	1	0	22.62	22.40	22.27	1
		1	37	22.60	22.44	22.27	1			1	24	22.52	22.36	22.19	1
		1	74	22.44	22.33	22.10	1			1	49	22.36	22.25	22.02	1
		36	0	21.74	21.50	21.38	2			25	0	21.66	21.42	21.30	2
		36	19	21.71	21.48	21.36	2			25	12	21.63	21.40	21.28	2
		36	39	21.56	21.36	21.28	2			25	25	21.48	21.28	21.20	2
		75	0	21.63	21.41	21.35	2			50	0	21.55	21.33	21.27	2
	64QAM	1	0	21.65	21.43	21.30	2		64QAM	1	0	21.57	21.35	21.22	2
		1	37	21.55	21.39	21.22	2			1	24	21.47	21.31	21.14	2
		1	74	21.39	21.28	21.05	2			1	49	21.31	21.20	20.97	2
		36	0	20.69	20.45	20.33	3			25	0	20.61	20.37	20.25	3
		36	19	20.66	20.43	20.31	3			25	12	20.58	20.35	20.23	3
		36	39	20.51	20.31	20.23	3			25	25	20.43	20.23	20.15	3
		75	0	20.58	20.36	20.30	3			50	0	20.50	20.28	20.22	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		26715	26865	27015				Channel		26705	26865	27025	
		Frequency (MHz)		816.5	831.5	846.5				Frequency (MHz)		815.5	831.5	847.5	
5M	QPSK	1	0	23.47	23.25	23.12	0	3M	QPSK	1	0	23.39	23.17	23.04	0
		1	12	23.37	23.21	23.04	0			1	7	23.29	23.13	22.96	0
		1	24	23.21	23.10	22.87	0			1	14	23.13	23.02	22.79	0
		12	0	22.51	22.27	22.15	1			8	0	22.43	22.19	22.07	1
		12	6	22.48	22.25	22.13	1			8	3	22.40	22.17	22.05	1
		12	13	22.33	22.13	22.05	1			8	7	22.25	22.05	21.97	1
		25	0	22.40	22.18	22.12	1			15	0	22.32	22.10	22.04	1
	16QAM	1	0	22.49	22.27	22.14	1		16QAM	1	0	22.41	22.19	22.06	1
		1	12	22.39	22.23	22.06	1			1	7	22.31	22.15	21.98	1
		1	24	22.23	22.12	21.89	1			1	14	22.15	22.04	21.81	1
		12	0	21.53	21.29	21.17	2			8	0	21.45	21.21	21.09	2
		12	6	21.50	21.27	21.15	2			8	3	21.42	21.19	21.07	2
		12	13	21.35	21.15	21.07	2			8	7	21.27	21.07	20.99	2
		25	0	21.42	21.20	21.14	2			15	0	21.34	21.12	21.06	2
	64QAM	1	0	21.44	21.22	21.09	2		64QAM	1	0	21.36	21.14	21.01	2
		1	12	21.34	21.18	21.01	2			1	7	21.26	21.10	20.93	2
		1	24	21.18	21.07	20.84	2			1	14	21.10	20.99	20.76	2
		12	0	20.48	20.24	20.12	3			8	0	20.40	20.16	20.04	3
		12	6	20.45	20.22	20.10	3			8	3	20.37	20.14	20.02	3
		12	13	20.30	20.10	20.02	3			8	7	20.22	20.02	19.94	3
		25	0	20.37	20.15	20.09	3			15	0	20.29	20.07	20.01	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		26697	26865	27033				Channel		26697	26865	27033	
		Frequency (MHz)		814.7	831.5	848.3				Frequency (MHz)		814.7	831.5	848.3	
1.4M	QPSK	1	0	23.26	23.04	22.91	0		QPSK	1	0	23.26	23.04	22.91	0
		1	2	23.16	23.00	22.83	0			1	2	23.16	23.00	22.83	0
		1	5	23.00	22.89	22.66	0			1	5	23.00	22.89	22.66	0
		3	0	22.92	22.68	22.56	0			3	0	22.92	22.68	22.56	0
		3	1	22.89	22.66	22.54	0			3	1	22.89	22.66	22.54	0
		3	3	22.74	22.54	22.46	0			3	3	22.74	22.54	22.46	0
		6	0	22.19	21.97	21.91	1			6	0	22.19	21.97	21.91	1
	16QAM	1	0	22.28	22.06	21.93	1		16QAM	1	0	22.28	22.06	21.93	1
		1	2	22.18	22.02	21.85	1			1	2	22.18	22.02	21.85	1
		1	5	22.02	21.91	21.68	1			1	5	22.02	21.91	21.68	1
		3	0	21.94	21.70	21.58	1			3	0	21.94	21.70	21.58	1
		3	1	21.91	21.68	21.56	1			3	1	21.91	21.68	21.56	1
		3	3	21.76	21.56	21.48	1			3	3	21.76	21.56	21.48	1
		6	0	21.21	20.99	20.93	2			6	0	21.21	20.99	20.93	2
	64QAM	1	0	21.23	21.01	20.88	2		64QAM	1	0	21.23	21.01	20.88	2
		1	2	21.13	20.97	20.80	2			1	2	21.13	20.97	20.80	2
		1	5	20.97	20.86	20.63	2			1	5	20.97	20.86	20.63	2
		3	0	20.89	20.65	20.53	2			3	0	20.89	20.65	20.53	2
		3	1	20.86	20.63	20.51	2			3	1	20.86	20.63	20.51	2
		3	3	20.71	20.51	20.43	2			3	3	20.71	20.51	20.43	2
		6	0	20.16	19.94	19.88	3			6	0	20.16	19.94	19.88	3

FCC SAR Test Report

LTE Band 30															
BW	MCS Index	RB Size	RB Offset		Mid		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			27710					Channel		27685	27710	27735	
		Frequency (MHz)			2310.0					Frequency (MHz)		2307.5	2310.0	2312.5	
10M	QPSK	1	0		23.75		0	5M	QPSK	1	0	23.62	23.64	23.55	0
		1	24		23.58		0			1	12	23.44	23.47	23.35	0
		1	49		23.51		0			1	24	23.37	23.40	23.28	0
		25	0		22.79		1			12	0	22.65	22.68	22.56	1
		25	12		22.75		1			12	6	22.61	22.64	22.52	1
		25	25		22.67		1			12	13	22.53	22.56	22.44	1
	16QAM	50	0		22.72		1		25	0	22.58	22.61	22.49	1	
		1	0		22.72		1		16QAM	1	0	22.58	22.61	22.49	1
		1	24		22.55		1			1	12	22.41	22.44	22.32	1
		1	49		22.48		1			1	24	22.34	22.37	22.25	1
		25	0		21.76		2			12	0	21.62	21.65	21.53	2
		25	12		21.72		2			12	6	21.58	21.61	21.49	2
	64QAM	25	25		21.64		2			12	13	21.50	21.53	21.41	2
		50	0		21.69		2		25	0	21.55	21.58	21.46	2	
		1	0		21.65		2		64QAM	1	0	21.51	21.54	21.42	2
		1	24		21.48		2			1	12	21.34	21.37	21.25	2
		1	49		21.41		2			1	24	21.27	21.30	21.18	2
		25	0		20.69		3			12	0	20.55	20.58	20.46	3
	25	12		20.65		3	12			6	20.51	20.54	20.42	3	
	25	25		20.57		3	12			13	20.43	20.46	20.34	3	
	64QAM	50	0		20.62		3		25	0	20.48	20.51	20.39	3	

LTE Band 38																	
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)		
		Channel		37850	38000	38150				Channel		37825	38000	38175			
		Frequency (MHz)		2580	2595	2610				Frequency (MHz)		2577.5	2595	2612.5			
10M	QPSK	1	0	23.57	23.59	23.52	0	5M	QPSK	1	0	23.43	23.45	23.38	0		
		1	50	23.54	23.52	23.29	0			1	37	23.40	23.38	23.15	0		
		1	99	23.51	23.51	23.23	0			1	74	23.37	23.37	23.09	0		
		50	0	22.56	22.64	22.51	1			36	0	22.42	22.50	22.37	1		
		50	25	22.54	22.59	22.45	1			36	19	22.40	22.45	22.31	1		
		50	50	22.51	22.51	22.33	1			36	39	22.37	22.37	22.19	1		
	16QAM	100	0	22.55	22.62	22.41	1		75	0	22.41	22.48	22.27	1			
		1	0	22.52	22.54	22.47	1		1	0	22.38	22.40	22.33	1			
		1	50	22.49	22.47	22.24	1		1	37	22.35	22.33	22.10	1			
		1	99	22.46	22.46	22.18	1		1	74	22.32	22.32	22.04	1			
		50	0	21.51	21.59	21.46	2		36	0	21.37	21.45	21.32	2			
		50	25	21.49	21.54	21.40	2		36	19	21.35	21.40	21.26	2			
	64QAM	50	50	21.46	21.46	21.28	2		36	39	21.32	21.32	21.14	2			
		100	0	21.50	21.57	21.36	2		75	0	21.36	21.43	21.22	2			
		1	0	21.47	21.49	21.42	2		1	0	21.33	21.35	21.28	2			
		1	50	21.44	21.42	21.19	2		1	37	21.30	21.28	21.05	2			
		1	99	21.41	21.41	21.13	2		1	74	21.27	21.27	20.99	2			
		50	0	20.46	20.54	20.41	3		36	0	20.32	20.40	20.27	3			
3M	QPSK	50	25	20.44	20.49	20.35	3	1.4M	QPSK	36	19	20.30	20.35	20.21	3		
		50	50	20.41	20.41	20.23	3			36	39	20.27	20.27	20.09	3		
		100	0	20.45	20.52	20.31	3			75	0	20.31	20.38	20.17	3		
		16QAM	1	0	23.35	23.37	23.30			0	16QAM	1	0	23.23	23.25	23.18	0
			1	24	23.32	23.30	23.07			0		1	12	23.20	23.18	22.95	0
			1	49	23.29	23.29	23.01			0		1	24	23.17	23.17	22.89	0
	25		0	22.34	22.42	22.29	1		12	0		22.22	22.30	22.17	1		
	25		12	22.32	22.37	22.23	1		12	6		22.20	22.25	22.11	1		
	25		25	22.29	22.29	22.11	1		12	13		22.17	22.17	21.99	1		
	64QAM	50	0	22.33	22.40	22.19	1		25	0	22.21	22.28	22.07	1			
		1	0	22.30	22.32	22.25	1		1	0	22.18	22.20	22.13	1			
		1	24	22.27	22.25	22.02	1		1	12	22.15	22.13	21.90	1			
		1	49	22.24	22.24	21.96	1		1	24	22.12	22.12	21.84	1			
		25	0	21.29	21.37	21.24	2		12	0	21.17	21.25	21.12	2			
		25	12	21.27	21.32	21.18	2		12	6	21.15	21.20	21.06	2			
64QAM	25	25	21.24	21.24	21.06	2	12	13	21.12	21.12	20.94	2					
	50	0	21.28	21.35	21.14	2	25	0	21.16	21.23	21.02	2					
	1	0	21.25	21.27	21.20	2	64QAM	1	0	21.13	21.15	21.08	2				
	1	24	21.22	21.20	20.97	2		1	12	21.10	21.08	20.85	2				
	1	49	21.19	21.19	20.91	2		1	24	21.07	21.07	20.79	2				
	25	0	20.24	20.32	20.19	3		12	0	20.12	20.20	20.07	3				
	25	12	20.22	20.27	20.13	3		12	6	20.10	20.15	20.01	3				
	25	25	20.19	20.19	20.01	3		12	13	20.07	20.07	19.89	3				
	50	0	20.23	20.30	20.09	3		25	0	20.11	20.18	19.97	3				

FCC SAR Test Report

LTE Band 41																			
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel		39750	40185	40620	41055	41490				Channel		39725	40173	40620	41068	41515	
		Frequency (MHz)		2506.0	2549.5	2593.0	2636.5	2680.0				Frequency (MHz)		2503.5	2548.3	2593.0	2637.8	2682.5	
20M	QPSK	1	0	23.85	23.72	23.67	23.61	23.44	0	15M	QPSK	1	0	23.71	23.58	23.53	23.47	23.30	0
		1	50	23.76	23.63	23.58	23.52	23.35	0			1	37	23.62	23.49	23.44	23.38	23.21	0
		1	99	23.74	23.61	23.56	23.50	23.33	0			1	74	23.60	23.47	23.42	23.36	23.19	0
		50	0	22.89	22.76	22.71	22.65	22.48	1			36	0	22.75	22.62	22.57	22.51	22.34	1
		50	25	22.76	22.63	22.58	22.52	22.35	1			36	19	22.62	22.49	22.44	22.38	22.21	1
		50	50	22.74	22.61	22.56	22.50	22.33	1			36	39	22.60	22.47	22.42	22.36	22.19	1
		100	0	22.85	22.72	22.67	22.61	22.44	1			75	0	22.71	22.58	22.53	22.47	22.30	1
		1	0	22.80	22.67	22.62	22.56	22.39	1		16QAM	1	0	22.66	22.53	22.48	22.42	22.25	1
	16QAM	1	50	22.71	22.58	22.53	22.47	22.30	1			1	37	22.57	22.44	22.39	22.33	22.16	1
		1	99	22.69	22.56	22.51	22.45	22.28	1			1	74	22.55	22.42	22.37	22.31	22.14	1
		50	0	21.84	21.71	21.66	21.60	21.43	2			36	0	21.70	21.57	21.52	21.46	21.29	2
		50	25	21.71	21.58	21.53	21.47	21.30	2			36	19	21.57	21.44	21.39	21.33	21.16	2
		50	50	21.69	21.56	21.51	21.45	21.28	2			36	39	21.55	21.42	21.37	21.31	21.14	2
		100	0	21.80	21.67	21.62	21.56	21.39	2			75	0	21.66	21.53	21.48	21.42	21.25	2
		1	0	21.78	21.65	21.60	21.54	21.37	2		64QAM	1	0	21.64	21.51	21.46	21.40	21.23	2
	64QAM	1	50	21.69	21.56	21.51	21.45	21.28	2			1	37	21.55	21.42	21.37	21.31	21.14	2
		1	99	21.67	21.54	21.49	21.43	21.26	2			1	74	21.53	21.40	21.35	21.29	21.12	2
		50	0	20.82	20.69	20.64	20.58	20.41	3			36	0	20.68	20.55	20.50	20.44	20.27	3
		50	25	20.69	20.56	20.51	20.45	20.28	3			36	19	20.55	20.42	20.37	20.31	20.14	3
		50	50	20.67	20.54	20.49	20.43	20.26	3			36	39	20.53	20.40	20.35	20.29	20.12	3
		100	0	20.78	20.65	20.60	20.54	20.37	3			75	0	20.64	20.51	20.46	20.40	20.23	3
10M	QPSK	1	0	23.59	23.46	23.41	23.35	23.18	0	5M	QPSK	1	0	23.51	23.38	23.33	23.27	23.10	0
		1	24	23.50	23.37	23.32	23.26	23.09	0			1	12	23.42	23.29	23.24	23.18	23.01	0
		1	49	23.48	23.35	23.30	23.24	23.07	0			1	24	23.40	23.27	23.22	23.16	22.99	0
		25	0	22.63	22.50	22.45	22.39	22.22	1			12	0	22.55	22.42	22.37	22.31	22.14	1
		25	12	22.50	22.37	22.32	22.26	22.09	1			12	6	22.42	22.29	22.24	22.18	22.01	1
		25	25	22.48	22.35	22.30	22.24	22.07	1			12	13	22.40	22.27	22.22	22.16	21.99	1
		50	0	22.59	22.46	22.41	22.35	22.18	1			25	0	22.51	22.38	22.33	22.27	22.10	1
		1	0	22.54	22.41	22.36	22.30	22.13	1		16QAM	1	0	22.46	22.33	22.28	22.22	22.05	1
	16QAM	1	24	22.45	22.32	22.27	22.21	22.04	1			1	12	22.37	22.24	22.19	22.13	21.96	1
		1	49	22.43	22.30	22.25	22.19	22.02	1			1	24	22.35	22.22	22.17	22.11	21.94	1
		25	0	21.58	21.45	21.40	21.34	21.17	2			12	0	21.50	21.37	21.32	21.26	21.09	2
		25	12	21.45	21.32	21.27	21.21	21.04	2			12	6	21.37	21.24	21.19	21.13	20.96	2
		25	25	21.43	21.30	21.25	21.19	21.02	2			12	13	21.35	21.22	21.17	21.11	20.94	2
		50	0	21.54	21.41	21.36	21.30	21.13	2			25	0	21.46	21.33	21.28	21.22	21.05	2
		1	0	21.52	21.39	21.34	21.28	21.11	2		64QAM	1	0	21.44	21.31	21.26	21.20	21.03	2
	64QAM	1	24	21.43	21.30	21.25	21.19	21.02	2			1	12	21.35	21.22	21.17	21.11	20.94	2
		1	49	21.41	21.28	21.23	21.17	21.00	2			1	24	21.33	21.20	21.15	21.09	20.92	2
		25	0	20.56	20.43	20.38	20.32	20.15	3			12	0	20.48	20.35	20.30	20.24	20.07	3
		25	12	20.43	20.30	20.25	20.19	20.02	3			12	6	20.35	20.22	20.17	20.11	19.94	3
		25	25	20.41	20.28	20.23	20.17	20.00	3			12	13	20.33	20.20	20.15	20.09	19.92	3
		50	0	20.52	20.39	20.34	20.28	20.11	3			25	0	20.44	20.31	20.26	20.20	20.03	3

FCC SAR Test Report

<WLAN 2.4G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11b	1	2412	18.33	18.23	18.37
	6	2437	18.17	18.03	18.31
	11	2462	18.11	18.04	18.42
	12	2467	18.13	18.1	18.41
	13	2472	16.99	16.97	17.07

<WLAN 5.3G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11a	52	5260	17.59	17.53	17.94
	56	5280	17.74	17.7	17.79
	60	5300	17.87	17.76	17.95
	64	5320	17.96	17.97	17.98

<WLAN 5.6G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11a	100	5500	17.91	17.8	17.96
	116	5580	17.59	17.55	17.72
	120	5600	17.71	17.73	17.81
	124	5620	17.76	17.69	17.78
	132	5660	17.6	17.59	17.77
	140	5700	17.65	17.63	17.96
	144	5720	17.58	17.56	17.87

<WLAN 5.8G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11a	149	5745	17.83	17.76	17.84
	153	5765	17.7	17.66	17.74
	157	5785	17.9	17.63	17.93
	161	5805	17.59	17.61	17.89
	165	5825	17.61	17.58	17.79

<Bluetooth>

Mode	Channel	Frequency (MHz)	Average Power
Bluetooth EDR	0	2402	12.81
	39	2441	11.76
	78	2480	12.55
Bluetooth LE	0	2402	6.42
	19	2440	4.68
	39	2480	7.14

4.7 SAR Testing Results

4.7.1 SAR Test Reduction Considerations

<KDB 447498 D01, General RF Exposure Guidance>

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

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

<KDB 941225 D01, 3G SAR Measurement Procedures>

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

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

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

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

(2) QPSK with 100% RB allocation

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

(3) Higher order modulations

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

(4) Other channel bandwidth

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

FCC SAR Test Report

<Power Confirmation for SAR Test Exclusion for LTE Downlink CA>

According to KDB 941225 D05A, the uplink maximum output power below was measured with downlink CA active on the channel with highest measured maximum output power when downlink CA is inactive. The downlink SCC channel was paired with the uplink channel as normal operation. For intra-band contiguous CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing per section 5.4.1A of 3GPP TS36.521. For intra-band non-contiguous CA, the downlink channel spacing between the component carriers was set to maximum separation from PCC and remain fully within the downlink transmission band. For Inter-band CA, the SCC downlink channel was set to near the middle of its transmission band.

Power Measurements for Intra-Band Contiguous Downlink CA

CA Combination	PCC								SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Ch	UL Freq. (MHz)	RB Size	RB Offset	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	Single Carrier Tx Power (dBm)	Tx Power with DL-CA Active (dBm)
CA_7B	7	15M	21375	2562.5	1	74	3375	2682.5	7	5M	3279	2672.9	-	-	-	-	22.86	22.82
CA_7C	7	20M	21350	2560	1	99	3350	2680	7	20M	3152	2660.2	-	-	-	-	22.99	22.98
CA_41C	41	20M	40340	2565	1	0	40340	2565	41	20M	40538	2584.8	-	-	-	-	23.73	23.70

Power Measurements for Intra-Band Non-Contiguous Downlink CA

CA Combination	PCC								SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Ch	UL Freq. (MHz)	RB Size	RB Offset	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	Single Carrier Tx Power (dBm)	Tx Power with DL-CA Active (dBm)
CA_41A-41A	41	20M	40340	2565	1	0	40340	2565	41	20M	41140	2645	-	-	-	-	23.73	23.7

Power Measurements for Inter-Band Downlink CA

CA Combination	PCC								SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Ch	UL Freq. (MHz)	RB Size	RB Offset	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	Single Carrier Tx Power (dBm)	Tx Power with DL-CA Active (dBm)
CA_2A-17A	2	10M	19150	1905	1	0	1150	1985	17	10M	5790	740	-	-	-	-	23.56	22.65
CA_4A-17A	4	10M	20000	1715	1	0	2000	2115	17	10M	5790	740	-	-	-	-	23.12	22.85
CA_5A-7A	5	10M	20525	836.5	1	0	2525	881.5	7	20M	3110	2655	-	-	-	-	23.35	22.61
CA_2C-5A	2	20M	19100	1900	1	0	1100	1980	2	20M	902	1960.2	5	10M	2525	881.5	23.36	23.33
CA_2C-12A	2	20M	19100	1900	1	0	1100	1980	2	20M	902	1960.2	12	10M	5095	737.5	23.36	23.34
CA_2C-29A	2	20M	19100	1900	1	0	1100	1980	2	20M	902	1960.2	29	10M	9715	722.5	23.36	23.29
CA_2C-30A	2	20M	19100	1900	1	0	1100	1980	2	20M	902	1960.2	30	10M	9820	2355	23.36	23.30
CA_2A-5A-30A	2	20M	19100	1900	1	0	1100	1980	5	10M	2525	881.5	30	10M	9820	2355	23.36	23.33
CA_2A-12A-30A	2	20M	19100	1900	1	0	1100	1980	12	10M	5095	737.5	30	10M	9820	2355	23.36	23.29
CA_2A-29A-30A	2	20M	19100	1900	1	0	1100	1980	30	10M	9820	2355	29	10M	9715	722.5	23.36	23.22
CA_4A-5A-30A	4	20M	20050	1720	1	0	2050	2120	5	10M	2525	881.5	30	10M	9820	2355	23.37	22.85
CA_4A-12A-30A	4	20M	20050	1720	1	0	2050	2120	12	10M	5095	737.5	30	10M	9820	2355	23.37	22.87
CA_4A-29A-30A	4	20M	20050	1720	1	0	2050	2120	30	10M	9820	2355	29	10M	9715	722.5	23.37	22.89

FCC SAR Test Report

Power Measurements for Inter-Band Downlink CA (4*4 MIMO)

CA Combination	PCC								SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Ch	UL Freq. (MHz)	RB Size	RB Offset	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	LTE Band	BW (MHz)	DL Ch	DL Freq. (MHz)	Single Carrier Tx Power (dBm)	Tx Power with DL-CA Active (dBm)
CA_7C	7	20M	21350	2560	1	99	3350	2680	7	20M	3152	2660.2	-	-	-	-	22.99	22.9

Summary for SAR Test Exclusion for LTE Downlink CA

Per power confirmation results in above, the uplink maximum output power with downlink CA active remains within the specified tune-up tolerance and not more than 0.25 dB higher than the maximum output power with downlink CA inactive. According to KDB 941225 D05A, the SAR test exclusion applies to LTE downlink CA operation.

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

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

<KDB 648474 D04, SAR Guidance for Dynamic Antenna Tuning>

This device supports dynamic antenna tuning for GSM 850 / 1900 and WCDMA II / IV / V and LTE 2 / 4 / 7 / 12 / 26.

According to KDB 648474 D04 and FCC guidance in October 2015 TCBC workshop, the following test procedure was followed to demonstrate that SAR results in this report represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. The tuning state determined by the auto-tune was verified before and after SAR measurement for the highest reported SAR configuration for each band and testing configuration to confirm the antenna state of auto-tune is the same. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.

To evaluate all of the tuner states, the 144 tuner states were divided among the aggregate band, mode and exposure combinations so that each combination was evaluated for at least 24 tuner states and also so that at least 3 single point SAR measurements were made for every available tuner state. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely by QRCT software installed in laptop PC through a micro USB cable connected between the DUT and the laptop PC, so that the DUT was not moved and the probe remained stationary at the same position throughout the entire series of single point measurements for each combination.

The operational description contains more information about the design and implementation of the dynamic antenna tuning.

FCC SAR Test Report

Supplemental Data for Head SAR

Band	GSM850	Band	GSM1900	Band	WCDMA II	Band	WCDMA IV
Mode	GPRS10	Mode	GPRS10	Mode	RMC12.2K	Mode	RMC12.2K
Position	Right Cheek	Position	Left cheek	Position	Left cheek	Position	Left Cheek
Channel	128	Channel	512	Channel	9262	Channel	1312
Measured 1g SAR (W/kg)	0.14	Measured 1g SAR (W/kg)	0.117	Measured 1g SAR (W/kg)	0.061	Measured 1g SAR (W/kg)	0.061
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune	0.218	Auto-tune	0.208	Auto-tune	0.120	Auto-tune	0.115
Default (Open-loop)	0.213	Default (Open-loop)	0.195	Default (Open-loop)	0.114	Default (Open-loop)	0.107
State 0	0.165	State 0	0.162	State 0	0.079	State 0	0.108
State 8	0.147	State 8	0.158	State 8	0.081	State 8	0.091
State 17	0.166	State 17	0.155	State 17	0.081	State 17	0.101
State 18	0.157	State 18	0.126	State 18	0.079	State 18	0.091
State 26	0.208	State 26	0.144	State 26	0.071	State 26	0.105
State 35	0.093	State 35	0.119	State 35	0.092	State 35	0.09
State 36	0.172	State 36	0.133	State 36	0.088	State 36	0.094
State 44	0.149	State 44	0.166	State 44	0.071	State 44	0.097
State 53	0.165	State 53	0.198	State 53	0.062	State 53	0.087
State 54	0.157	State 54	0.187	State 54	0.06	State 54	0.094
State 62	0.102	State 62	0.137	State 62	0.062	State 62	0.087
State 71	0.091	State 71	0.158	State 71	0.115	State 71	0.091
State 72	0.127	State 72	0.155	State 72	0.089	State 72	0.092
State 80	0.123	State 80	0.144	State 80	0.077	State 80	0.086
State 89	0.127	State 89	0.13	State 89	0.082	State 89	0.085
State 90	0.138	State 90	0.09	State 90	0.079	State 90	0.083
State 98	0.165	State 98	0.094	State 98	0.081	State 98	0.087
State 107	0.079	State 107	0.104	State 107	0.085	State 107	0.081
State 108	0.117	State 108	0.112	State 108	0.08	State 108	0.083
State 116	0.117	State 116	0.119	State 116	0.091	State 116	0.092
State 125	0.121	State 125	0.126	State 125	0.079	State 125	0.095
State 126	0.134	State 126	0.101	State 126	0.075	State 126	0.091
State 134	0.182	State 134	0.13	State 134	0.066	State 134	0.09
State 143	0.166	State 143	0.108	State 143	0.071	State 143	0.088

FCC SAR Test Report

Band	WCDMA V	Band	LTE 2	Band	LTE 4	Band	LTE 12	Band	LTE 26
Mode	RMC12.2K	Mode	QPSK,20M 1RB, OS0	Mode	QPSK,20M 1RB, OS0	Mode	QPSK,10M 1RB, S49	Mode	QPSK,15M 1RB, OS0
Position	Right Cheek	Position	Left cheek	Position	Left cheek	Position	Right Cheek	Position	Right Cheek
Channel	4132	Channel	19100	Channel	20050	Channel	23095	Channel	26765
Measured 1g SAR (W/kg)	0.104	Measured 1g SAR (W/kg)	0.061	Measured 1g SAR (W/kg)	0.041	Measured 1g SAR (W/kg)	0.034	Measured 1g SAR (W/kg)	0.075
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune	0.163	Auto-tune	0.135	Auto-tune	0.117	Auto-tune	0.099	Auto-tune	0.111
Default (Open-loop)	0.156	Default (Open-loop)	0.130	Default (Open-loop)	0.113	Default (Open-loop)	0.092	Default (Open-loop)	0.106
State 0	0.083	State 0	0.104	State 0	0.096	State 0	0.092	State 0	0.069
State 8	0.057	State 8	0.097	State 8	0.099	State 8	0.082	State 8	0.056
State 17	0.128	State 17	0.108	State 17	0.102	State 17	0.081	State 17	0.094
State 18	0.153	State 18	0.102	State 18	0.103	State 18	0.083	State 18	0.084
State 26	0.113	State 26	0.091	State 26	0.103	State 26	0.082	State 26	0.071
State 35	0.151	State 35	0.132	State 35	0.095	State 35	0.001	State 35	0.081
State 36	0.079	State 36	0.113	State 36	0.108	State 36	0.001	State 36	0.077
State 44	0.053	State 44	0.11	State 44	0.111	State 44	0.011	State 44	0.104
State 53	0.129	State 53	0.102	State 53	0.102	State 53	0.008	State 53	0.076
State 54	0.155	State 54	0.091	State 54	0.098	State 54	0.009	State 54	0.073
State 62	0.114	State 62	0.095	State 62	0.092	State 62	0.007	State 62	0.069
State 71	0.111	State 71	0.104	State 71	0.096	State 71	0.007	State 71	0.073
State 72	0.152	State 72	0.113	State 72	0.101	State 72	0.032	State 72	0.101
State 80	0.125	State 80	0.115	State 80	0.096	State 80	0.034	State 80	0.105
State 89	0.153	State 89	0.108	State 89	0.088	State 89	0.022	State 89	0.101
State 90	0.146	State 90	0.084	State 90	0.087	State 90	0.028	State 90	0.087
State 98	0.134	State 98	0.091	State 98	0.093	State 98	0.012	State 98	0.073
State 107	0.153	State 107	0.093	State 107	0.082	State 107	0.031	State 107	0.102
State 108	0.147	State 108	0.102	State 108	0.085	State 108	0.029	State 108	0.105
State 116	0.128	State 116	0.087	State 116	0.099	State 116	0.029	State 116	0.098
State 125	0.140	State 125	0.076	State 125	0.092	State 125	0.013	State 125	0.095
State 126	0.153	State 126	0.106	State 126	0.101	State 126	0.015	State 126	0.091
State 134	0.129	State 134	0.095	State 134	0.090	State 134	0.024	State 134	0.097
State 143	0.144	State 143	0.097	State 143	0.103	State 143	0.022	State 143	0.101

FCC SAR Test Report

Supplemental Data for Body SAR

Band	GSM850	Band	GSM1900	Band	WCDMA II	Band	WCDMA IV
Mode	GPRS10	Mode	GPRS10	Mode	RMC12.2K	Mode	RMC12.2K
Position	Rear Face	Position	Bottom Side	Position	Bottom Side	Position	Bottom Side
Channel	128	Channel	512	Channel	9400	Channel	1312
Measured 1g SAR (W/kg)	0.262	Measured 1g SAR (W/kg)	0.999	Measured 1g SAR (W/kg)	1.11	Measured 1g SAR (W/kg)	1.15
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune	0.437	Auto-tune	1.551	Auto-tune	1.769	Auto-tune	1.765
Default (Open-loop)	0.429	Default (Open-loop)	1.495	Default (Open-loop)	1.752	Default (Open-loop)	1.754
State 0	0.286	State 0	1.492	State 0	1.743	State 0	1.742
State 8	0.247	State 8	1.373	State 8	1.663	State 8	1.662
State 17	0.267	State 17	1.442	State 17	1.455	State 17	1.446
State 18	0.299	State 18	1.419	State 18	1.311	State 18	1.298
State 26	0.175	State 26	1.283	State 26	1.375	State 26	1.364
State 35	0.257	State 35	1.417	State 35	1.503	State 35	1.495
State 36	0.191	State 36	1.391	State 36	1.583	State 36	1.578
State 44	0.214	State 44	1.312	State 44	1.295	State 44	1.282
State 53	0.29	State 53	1.367	State 53	1.503	State 53	1.495
State 54	0.201	State 54	1.283	State 54	1.631	State 54	1.627
State 62	0.174	State 62	1.277	State 62	1.679	State 62	1.676
State 71	0.227	State 71	1.387	State 71	1.679	State 71	1.666
State 72	0.392	State 72	1.312	State 72	1.509	State 72	1.578
State 80	0.377	State 80	1.402	State 80	1.391	State 80	1.364
State 89	0.422	State 89	1.441	State 89	1.631	State 89	1.611
State 90	0.292	State 90	1.446	State 90	1.583	State 90	1.561
State 98	0.266	State 98	1.343	State 98	1.471	State 98	1.446
State 107	0.321	State 107	1.325	State 107	1.599	State 107	1.578
State 108	0.389	State 108	1.307	State 108	1.631	State 108	1.615
State 116	0.413	State 116	1.398	State 116	1.503	State 116	1.522
State 125	0.421	State 125	1.373	State 125	1.567	State 125	1.588
State 126	0.309	State 126	1.384	State 126	1.615	State 126	1.637
State 134	0.283	State 134	1.283	State 134	1.679	State 134	1.703
State 143	0.378	State 143	1.264	State 143	1.631	State 143	1.653

FCC SAR Test Report

Band	WCDMA V	Band	LTE 2	Band	LTE 4	Band	LTE 12	Band	LTE 26
Mode	RMC12.2K	Mode	QPSK,20M 1RB, OS0	Mode	QPSK,20M 1RB, OS0	Mode	QPSK,10M 1RB, S49	Mode	QPSK,15M 1RB, OS0
Position	Rear Face	Position	Bottom Side	Position	Bottom Side	Position	Rear Face	Position	Rear Face
Channel	4132	Channel	19100	Channel	20300	Channel	23095	Channel	26765
Measured 1g SAR (W/kg)	0.189	Measured 1g SAR (W/kg)	1.07	Measured 1g SAR (W/kg)	1.11	Measured 1g SAR (W/kg)	0.122	Measured 1g SAR (W/kg)	0.152
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune	0.251	Auto-tune	1.735	Auto-tune	1.778	Auto-tune	0.193	Auto-tune	0.219
Default (Open-loop)	0.242	Default (Open-loop)	1.720	Default (Open-loop)	1.763	Default (Open-loop)	0.185	Default (Open-loop)	0.208
State 0	0.229	State 0	1.608	State 0	1.720	State 0	0.155	State 0	0.188
State 8	0.219	State 8	1.602	State 8	1.688	State 8	0.144	State 8	0.181
State 17	0.227	State 17	1.587	State 17	1.672	State 17	0.172	State 17	0.147
State 18	0.177	State 18	1.328	State 18	1.674	State 18	0.151	State 18	0.125
State 26	0.152	State 26	1.711	State 26	1.545	State 26	0.153	State 26	0.186
State 35	0.238	State 35	1.678	State 35	1.513	State 35	0.159	State 35	0.195
State 36	0.235	State 36	1.612	State 36	1.491	State 36	0.164	State 36	0.182
State 44	0.189	State 44	1.413	State 44	1.747	State 44	0.152	State 44	0.171
State 53	0.232	State 53	1.405	State 53	1.739	State 53	0.169	State 53	0.187
State 54	0.171	State 54	1.401	State 54	1.722	State 54	0.165	State 54	0.187
State 62	0.143	State 62	1.142	State 62	1.752	State 62	0.158	State 62	0.178
State 71	0.219	State 71	1.581	State 71	1.481	State 71	0.155	State 71	0.172
State 72	0.228	State 72	1.564	State 72	1.465	State 72	0.145	State 72	0.185
State 80	0.216	State 80	1.416	State 80	1.715	State 80	0.143	State 80	0.182
State 89	0.226	State 89	1.662	State 89	1.707	State 89	0.145	State 89	0.145
State 90	0.218	State 90	1.613	State 90	1.684	State 90	0.162	State 90	0.198
State 98	0.219	State 98	1.606	State 98	1.451	State 98	0.169	State 98	0.181
State 107	0.209	State 107	1.418	State 107	1.752	State 107	0.155	State 107	0.187
State 108	0.212	State 108	1.269	State 108	1.607	State 108	0.159	State 108	0.182
State 116	0.222	State 116	1.515	State 116	1.660	State 116	0.171	State 116	0.161
State 125	0.202	State 125	1.467	State 125	1.656	State 125	0.163	State 125	0.175
State 126	0.211	State 126	1.470	State 126	1.403	State 126	0.16	State 126	0.183
State 134	0.207	State 134	1.605	State 134	1.704	State 134	0.151	State 134	0.181
State 143	0.192	State 143	1.625	State 143	1.559	State 143	0.148	State 143	0.174

FCC SAR Test Report

<SAR Measurements for Antenna tuner states>

For each band / mode / exposure condition combination where the single point SAR measurement is > 1.4 W/kg, single point SAR measurements should be made for all tuner states (144 states) for that particular band / mode / exposure condition.

Band						GSM1900					
Mode						GPRS 10					
Position						Bottom Side					
Channel						512					
Measured 1g SAR (W/kg)						0.999					
Average Value of Time Sweep (W/kg)											
Auto-tune						1.551					
Default (Open-loop)						1.495					
State 0	1.492	State 24	1.373	State 48	1.234	State 72	1.312	State 96	1.447	State 120	1.253
State 1	1.384	State 25	1.396	State 49	1.244	State 73	1.117	State 97	1.432	State 121	1.212
State 2	1.176	State 26	1.283	State 50	1.040	State 74	1.203	State 98	1.343	State 122	1.253
State 3	1.275	State 27	1.224	State 51	1.205	State 75	1.252	State 99	1.217	State 123	0.980
State 4	1.227	State 28	1.275	State 52	0.960	State 76	1.065	State 100	1.172	State 124	0.970
State 5	1.182	State 29	1.107	State 53	1.367	State 77	1.141	State 101	1.334	State 125	1.373
State 6	1.408	State 30	1.191	State 54	1.283	State 78	1.368	State 102	1.271	State 126	1.384
State 7	1.444	State 31	1.124	State 55	1.114	State 79	1.345	State 103	1.100	State 127	1.065
State 8	1.373	State 32	1.031	State 56	1.245	State 80	1.402	State 104	0.991	State 128	1.202
State 9	1.310	State 33	0.810	State 57	1.222	State 81	1.388	State 105	1.046	State 129	1.188
State 10	1.267	State 34	1.015	State 58	1.292	State 82	1.264	State 106	0.955	State 130	1.272
State 11	1.331	State 35	1.417	State 59	1.199	State 83	1.401	State 107	1.325	State 131	1.353
State 12	1.362	State 36	1.391	State 60	1.351	State 84	1.411	State 108	1.307	State 132	1.307
State 13	1.341	State 37	1.132	State 61	1.362	State 85	1.353	State 109	1.178	State 133	1.353
State 14	1.215	State 38	1.275	State 62	1.277	State 86	1.365	State 110	1.272	State 134	1.283
State 15	1.045	State 39	1.158	State 63	1.246	State 87	1.155	State 111	1.202	State 135	1.273
State 16	1.215	State 40	1.204	State 64	1.256	State 88	1.141	State 112	1.307	State 136	1.224
State 17	1.442	State 41	1.240	State 65	1.215	State 89	1.441	State 113	1.248	State 137	1.263
State 18	1.419	State 42	1.346	State 66	1.256	State 90	1.446	State 114	1.388	State 138	1.165
State 19	1.188	State 43	1.334	State 67	1.173	State 91	1.295	State 115	1.315	State 139	1.165
State 20	1.304	State 44	1.312	State 68	1.235	State 92	1.263	State 116	1.398	State 140	1.253
State 21	1.315	State 45	1.118	State 69	1.142	State 93	1.399	State 117	1.346	State 141	1.046
State 22	1.280	State 46	1.195	State 70	1.080	State 94	1.295	State 118	1.367	State 142	0.923
State 23	1.419	State 47	1.283	State 71	1.387	State 95	1.353	State 119	1.243	State 143	1.264

FCC SAR Test Report

Band						WCDMA II					
Mode						RMC12.2K					
Position						Bottom Side					
Channel						9400					
Measured 1g SAR (W/kg)						1.11					
Average Value of Time Sweep (W/kg)											
Auto-tune						1.769					
Default (Open-loop)						1.752					
State 0	1.743	State 24	1.396	State 48	1.237	State 72	1.509	State 96	1.618	State 120	1.367
State 1	1.616	State 25	1.420	State 49	1.246	State 73	1.336	State 97	1.618	State 121	1.322
State 2	1.373	State 26	1.375	State 50	1.042	State 74	1.439	State 98	1.471	State 122	1.367
State 3	1.490	State 27	1.366	State 51	1.207	State 75	1.496	State 99	1.333	State 123	1.069
State 4	1.434	State 28	1.347	State 52	0.962	State 76	1.274	State 100	1.283	State 124	1.059
State 5	1.380	State 29	1.235	State 53	1.503	State 77	1.364	State 101	1.461	State 125	1.567
State 6	1.645	State 30	1.328	State 54	1.631	State 78	1.637	State 102	1.392	State 126	1.615
State 7	1.687	State 31	1.253	State 55	1.279	State 79	1.608	State 103	1.204	State 127	1.260
State 8	1.663	State 32	1.151	State 56	1.430	State 80	1.391	State 104	1.086	State 128	1.422
State 9	1.586	State 33	0.904	State 57	1.404	State 81	1.174	State 105	1.145	State 129	1.408
State 10	1.535	State 34	1.132	State 58	1.484	State 82	1.361	State 106	1.046	State 130	1.505
State 11	1.612	State 35	1.503	State 59	1.377	State 83	1.184	State 107	1.599	State 131	1.601
State 12	1.650	State 36	1.583	State 60	1.618	State 84	1.381	State 108	1.631	State 132	1.546
State 13	1.625	State 37	1.265	State 61	1.564	State 85	1.342	State 109	1.350	State 133	1.601
State 14	1.471	State 38	1.425	State 62	1.679	State 86	1.154	State 110	1.457	State 134	1.679
State 15	1.265	State 39	1.294	State 63	1.651	State 87	0.977	State 111	1.377	State 135	1.666
State 16	1.471	State 40	1.346	State 64	1.665	State 88	0.965	State 112	1.497	State 136	1.602
State 17	1.455	State 41	1.385	State 65	1.610	State 89	1.631	State 113	1.430	State 137	1.653
State 18	1.311	State 42	1.504	State 66	1.665	State 90	1.583	State 114	1.604	State 138	1.524
State 19	1.209	State 43	1.491	State 67	1.555	State 91	1.448	State 115	1.618	State 139	1.524
State 20	1.326	State 44	1.295	State 68	1.638	State 92	1.409	State 116	1.503	State 140	1.640
State 21	1.338	State 45	1.120	State 69	1.514	State 93	1.566	State 117	1.469	State 141	1.369
State 22	1.302	State 46	1.198	State 70	1.431	State 94	1.448	State 118	1.492	State 142	1.208
State 23	1.443	State 47	1.285	State 71	1.679	State 95	1.514	State 119	1.356	State 143	1.631

FCC SAR Test Report

Band						WCDMA IV					
Mode						RMC12.2K					
Position						Bottom Side					
Channel						1312					
Measured 1g SAR (W/kg)						1.15					
Average Value of Time Sweep (W/kg)											
Auto-tune						1.765					
Default (Open-loop)						1.754					
State 0	1.742	State 24	1.388	State 48	1.224	State 72	1.578	State 96	1.598	State 120	1.364
State 1	1.656	State 25	1.411	State 49	1.234	State 73	1.348	State 97	1.598	State 121	1.319
State 2	1.407	State 26	1.364	State 50	1.031	State 74	1.452	State 98	1.446	State 122	1.364
State 3	1.526	State 27	1.302	State 51	1.195	State 75	1.509	State 99	1.310	State 123	1.067
State 4	1.468	State 28	1.355	State 52	0.952	State 76	1.286	State 100	1.262	State 124	1.056
State 5	1.414	State 29	1.177	State 53	1.495	State 77	1.377	State 101	1.436	State 125	1.588
State 6	1.684	State 30	1.266	State 54	1.627	State 78	1.652	State 102	1.368	State 126	1.637
State 7	1.728	State 31	1.195	State 55	1.276	State 79	1.623	State 103	1.184	State 127	1.267
State 8	1.662	State 32	1.097	State 56	1.427	State 80	1.364	State 104	1.068	State 128	1.429
State 9	1.585	State 33	0.861	State 57	1.400	State 81	1.151	State 105	1.126	State 129	1.415
State 10	1.534	State 34	1.079	State 58	1.480	State 82	1.335	State 106	1.029	State 130	1.512
State 11	1.611	State 35	1.495	State 59	1.374	State 83	1.161	State 107	1.578	State 131	1.609
State 12	1.649	State 36	1.578	State 60	1.614	State 84	1.354	State 108	1.615	State 132	1.554
State 13	1.624	State 37	1.261	State 61	1.560	State 85	1.316	State 109	1.326	State 133	1.609
State 14	1.470	State 38	1.420	State 62	1.676	State 86	1.132	State 110	1.431	State 134	1.703
State 15	1.264	State 39	1.290	State 63	1.609	State 87	0.958	State 111	1.352	State 135	1.690
State 16	1.470	State 40	1.341	State 64	1.622	State 88	0.946	State 112	1.471	State 136	1.624
State 17	1.446	State 41	1.381	State 65	1.569	State 89	1.611	State 113	1.405	State 137	1.677
State 18	1.298	State 42	1.499	State 66	1.622	State 90	1.561	State 114	1.576	State 138	1.546
State 19	1.201	State 43	1.486	State 67	1.515	State 91	1.431	State 115	1.589	State 139	1.546
State 20	1.318	State 44	1.282	State 68	1.596	State 92	1.392	State 116	1.522	State 140	1.664
State 21	1.329	State 45	1.108	State 69	1.475	State 93	1.547	State 117	1.466	State 141	1.389
State 22	1.294	State 46	1.186	State 70	1.394	State 94	1.431	State 118	1.488	State 142	1.225
State 23	1.434	State 47	1.272	State 71	1.666	State 95	1.495	State 119	1.353	State 143	1.653

FCC SAR Test Report

Band						LTE 2					
Mode						QPSK20M 1RB, OS0					
Position						Bottom Side					
Channel						19100					
Measured 1g SAR (W/kg)						1.07					
Average Value of Time Sweep (W/kg)											
Auto-tune						1.735					
Default (Open-loop)						1.720					
State 0	1.608	State 24	1.511	State 48	1.349	State 72	1.564	State 96	1.610	State 120	1.378
State 1	1.528	State 25	1.536	State 49	1.360	State 73	1.234	State 97	1.610	State 121	1.333
State 2	1.298	State 26	1.711	State 50	1.137	State 74	1.329	State 98	1.606	State 122	1.378
State 3	1.409	State 27	1.633	State 51	1.317	State 75	1.382	State 99	1.445	State 123	1.078
State 4	1.356	State 28	1.700	State 52	1.050	State 76	1.177	State 100	1.392	State 124	1.067
State 5	1.305	State 29	1.476	State 53	1.405	State 77	1.260	State 101	1.585	State 125	1.467
State 6	1.555	State 30	1.588	State 54	1.401	State 78	1.512	State 102	1.510	State 126	1.470
State 7	1.595	State 31	1.499	State 55	1.093	State 79	1.486	State 103	1.306	State 127	1.137
State 8	1.602	State 32	1.376	State 56	1.222	State 80	1.416	State 104	1.178	State 128	1.283
State 9	1.528	State 33	1.080	State 57	1.199	State 81	1.195	State 105	1.242	State 129	1.271
State 10	1.479	State 34	1.353	State 58	1.268	State 82	1.386	State 106	1.135	State 130	1.358
State 11	1.553	State 35	1.678	State 59	1.177	State 83	1.205	State 107	1.418	State 131	1.445
State 12	1.590	State 36	1.612	State 60	1.382	State 84	1.406	State 108	1.269	State 132	1.395
State 13	1.565	State 37	1.399	State 61	1.336	State 85	1.366	State 109	1.164	State 133	1.445
State 14	1.417	State 38	1.576	State 62	1.142	State 86	1.175	State 110	1.257	State 134	1.605
State 15	1.219	State 39	1.431	State 63	1.114	State 87	0.994	State 111	1.187	State 135	1.593
State 16	1.417	State 40	1.488	State 64	1.123	State 88	0.982	State 112	1.291	State 136	1.531
State 17	1.587	State 41	1.532	State 65	1.086	State 89	1.662	State 113	1.234	State 137	1.580
State 18	1.328	State 42	1.663	State 66	1.123	State 90	1.613	State 114	1.383	State 138	1.457
State 19	1.308	State 43	1.649	State 67	1.049	State 91	1.441	State 115	1.395	State 139	1.457
State 20	1.435	State 44	1.413	State 68	1.105	State 92	1.402	State 116	1.515	State 140	1.568
State 21	1.447	State 45	1.222	State 69	1.021	State 93	1.558	State 117	1.481	State 141	1.309
State 22	1.409	State 46	1.307	State 70	0.966	State 94	1.441	State 118	1.504	State 142	1.154
State 23	1.562	State 47	1.402	State 71	1.581	State 95	1.506	State 119	1.367	State 143	1.625

FCC SAR Test Report

Band						LTE 4					
Mode						QPSK20M 1RB, OS0					
Position						Bottom Side					
Channel						20300					
Measured 1g SAR (W/kg)						1.11					
Average Value of Time Sweep (W/kg)											
Auto-tune						1.778					
Default (Open-loop)						1.763					
State 0	1.720	State 24	1.607	State 48	1.668	State 72	1.465	State 96	1.654	State 120	1.510
State 1	1.595	State 25	1.634	State 49	1.681	State 73	1.169	State 97	1.654	State 121	1.460
State 2	1.355	State 26	1.545	State 50	1.405	State 74	1.259	State 98	1.451	State 122	1.510
State 3	1.470	State 27	1.474	State 51	1.629	State 75	1.308	State 99	1.306	State 123	1.181
State 4	1.415	State 28	1.535	State 52	1.298	State 76	1.114	State 100	1.258	State 124	1.169
State 5	1.362	State 29	1.333	State 53	1.739	State 77	1.193	State 101	1.432	State 125	1.656
State 6	1.623	State 30	1.434	State 54	1.722	State 78	1.432	State 102	1.364	State 126	1.403
State 7	1.665	State 31	1.353	State 55	1.331	State 79	1.407	State 103	1.180	State 127	1.260
State 8	1.688	State 32	1.242	State 56	1.489	State 80	1.715	State 104	1.064	State 128	1.421
State 9	1.610	State 33	0.975	State 57	1.461	State 81	1.427	State 105	1.122	State 129	1.408
State 10	1.558	State 34	1.222	State 58	1.544	State 82	1.655	State 106	1.025	State 130	1.504
State 11	1.636	State 35	1.513	State 59	1.433	State 83	1.439	State 107	1.752	State 131	1.601
State 12	1.675	State 36	1.491	State 60	1.683	State 84	1.679	State 108	1.607	State 132	1.546
State 13	1.649	State 37	1.262	State 61	1.628	State 85	1.631	State 109	1.431	State 133	1.601
State 14	1.493	State 38	1.421	State 62	1.752	State 86	1.403	State 110	1.544	State 134	1.704
State 15	1.284	State 39	1.291	State 63	1.643	State 87	1.187	State 111	1.459	State 135	1.691
State 16	1.493	State 40	1.342	State 64	1.656	State 88	1.173	State 112	1.587	State 136	1.625
State 17	1.672	State 41	1.381	State 65	1.601	State 89	1.707	State 113	1.516	State 137	1.678
State 18	1.674	State 42	1.500	State 66	1.656	State 90	1.684	State 114	1.700	State 138	1.547
State 19	1.391	State 43	1.487	State 67	1.547	State 91	1.480	State 115	1.714	State 139	1.547
State 20	1.526	State 44	1.747	State 68	1.629	State 92	1.440	State 116	1.660	State 140	1.665
State 21	1.539	State 45	1.511	State 69	1.506	State 93	1.600	State 117	1.623	State 141	1.389
State 22	1.499	State 46	1.616	State 70	1.424	State 94	1.480	State 118	1.648	State 142	1.226
State 23	1.661	State 47	1.734	State 71	1.481	State 95	1.547	State 119	1.498	State 143	1.559

FCC SAR Test Report

4.7.2 SAR Results for Head Exposure Condition

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS10	Right Cheek	189	1	Ant 0	30.0	29.92	1.02	-0.06	0.14	0.14
	GSM850	GPRS10	Right Tilted	189	1	Ant 0	30.0	29.92	1.02	0.08	0.079	0.08
	GSM850	GPRS10	Left Cheek	189	1	Ant 0	30.0	29.92	1.02	0.01	0.118	0.12
	GSM850	GPRS10	Left Tilted	189	1	Ant 0	30.0	29.92	1.02	-0.15	0.077	0.08
	GSM850	GPRS10	Right Cheek	189	1	Ant 1	30.0	29.92	1.02	-0.16	0.962	0.98
	GSM850	GPRS10	Right Tilted	189	1	Ant 1	30.0	29.92	1.02	-0.17	0.949	0.97
01	GSM850	GPRS10	Left Cheek	189	1	Ant 1	30.0	29.92	1.02	-0.08	1.14	1.16
	GSM850	GPRS10	Left Tilted	189	1	Ant 1	30.0	29.92	1.02	0.06	1.06	1.08
	GSM850	GPRS10	Right Cheek	128	1	Ant 1	30.0	29.91	1.02	0.03	1.05	1.07
	GSM850	GPRS10	Right Cheek	251	1	Ant 1	30.0	29.64	1.09	0.01	1.03	1.12
	GSM850	GPRS10	Right Tilted	128	1	Ant 1	30.0	29.91	1.02	-0.15	0.992	1.01
	GSM850	GPRS10	Right Tilted	251	1	Ant 1	30.0	29.64	1.09	0.15	1.03	1.12
	GSM850	GPRS10	Left Cheek	128	1	Ant 1	30.0	29.91	1.02	-0.11	0.12	0.12
	GSM850	GPRS10	Left Cheek	251	1	Ant 1	30.0	29.64	1.09	-0.16	1.05	1.14
	GSM850	GPRS10	Left Tilted	128	1	Ant 1	30.0	29.91	1.02	-0.11	1.08	1.10
	GSM850	GPRS10	Left Tilted	251	1	Ant 1	30.0	29.64	1.09	-0.15	1.03	1.12
	GSM850	GPRS10	Left Cheek	189	2	Ant 1	30.0	29.92	1.02	0.16	1.05	1.07
	GSM850	GPRS10	Left Cheek	128	2	Ant 1	30.0	29.91	1.02	-0.08	1.02	1.04
	GSM850	GPRS10	Left Cheek	251	2	Ant 1	30.0	29.64	1.09	0.03	0.974	1.06
	GSM850	GPRS10	Left Cheek	189	1	Ant 1	30.0	29.92	1.02	-0.08	1.12	1.14
	GSM1900	GPRS10	Right Cheek	512	1	Ant 0	27.0	26.62	1.09	0.00	0.001	0.00
	GSM1900	GPRS10	Right Tilted	512	1	Ant 0	27.0	26.62	1.09	0.00	0.001	0.00
02	GSM1900	GPRS10	Left Cheek	512	1	Ant 0	27.0	26.62	1.09	0.02	0.117	0.13
	GSM1900	GPRS10	Left Tilted	512	1	Ant 0	27.0	26.62	1.09	0.00	0.001	0.00
	GSM1900	GPRS10	Left Cheek	661	1	Ant 0	27.0	26.61	1.09	-0.07	0.101	0.11
	GSM1900	GPRS10	Left Cheek	810	1	Ant 0	27.0	26.57	1.10	0.03	0.108	0.12
	GSM1900	GPRS10	Left Cheek	512	2	Ant 0	27.0	26.62	1.09	-0.03	0.108	0.12
	WCDMA II	RMC12.2K	Right Cheek	9262	1	Ant 0	23.5	23.47	1.01	-0.04	0.045	0.05
	WCDMA II	RMC12.2K	Right Tilted	9262	1	Ant 0	23.5	23.47	1.01	0.00	0.001	0.00
03	WCDMA II	RMC12.2K	Left Cheek	9262	1	Ant 0	23.5	23.47	1.01	-0.10	0.061	0.06
	WCDMA II	RMC12.2K	Left Tilted	9262	1	Ant 0	23.5	23.47	1.01	0.00	0.001	0.00
	WCDMA II	RMC12.2K	Left Cheek	9400	1	Ant 0	23.5	23.38	1.03	-0.08	0.034	0.03
	WCDMA II	RMC12.2K	Left Cheek	9538	1	Ant 0	23.5	23.29	1.05	0.11	0.044	0.05
	WCDMA II	RMC12.2K	Left Cheek	9262	2	Ant 0	23.5	23.47	1.01	-0.17	0.048	0.05
	WCDMA IV	RMC12.2K	Right Cheek	1312	1	Ant 0	23.5	23.38	1.03	0.00	0.001	0.00
	WCDMA IV	RMC12.2K	Right Tilted	1312	1	Ant 0	23.5	23.38	1.03	0.00	0.001	0.00
	WCDMA IV	RMC12.2K	Left Cheek	1312	1	Ant 0	23.5	23.38	1.03	0.10	0.061	0.06
	WCDMA IV	RMC12.2K	Left Tilted	1312	1	Ant 0	23.5	23.38	1.03	0.00	0.001	0.00
	WCDMA IV	RMC12.2K	Right Cheek	1312	1	Ant 1	24.0	23.98	1.00	0.08	0.685	0.69
	WCDMA IV	RMC12.2K	Right Tilted	1312	1	Ant 1	24.0	23.98	1.00	-0.05	0.923	0.93
	WCDMA IV	RMC12.2K	Left Cheek	1312	1	Ant 1	24.0	23.98	1.00	0.03	0.642	0.64
	WCDMA IV	RMC12.2K	Left Tilted	1312	1	Ant 1	24.0	23.98	1.00	-0.07	0.841	0.84
	WCDMA IV	RMC12.2K	Right Tilted	1413	1	Ant 1	24.0	23.92	1.02	0.08	1.03	1.05
04	WCDMA IV	RMC12.2K	Right Tilted	1513	1	Ant 1	24.0	23.95	1.01	-0.03	1.07	1.08
	WCDMA IV	RMC12.2K	Left Tilted	1413	1	Ant 1	24.0	23.92	1.02	0.06	0.812	0.83
	WCDMA IV	RMC12.2K	Left Tilted	1513	1	Ant 1	24.0	23.95	1.01	-0.02	0.929	0.94
	WCDMA IV	RMC12.2K	Right Tilted	1513	2	Ant 1	24.0	23.95	1.01	-0.01	0.512	0.52
	WCDMA IV	RMC12.2K	Right Tilted	1513	1	Ant 1	24.0	23.95	1.01	-0.03	1.05	1.06

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WCDMA V	RMC12.2K	Right Cheek	4132	1	Ant 0	24.0	23.99	1.00	0.03	0.104	0.10
	WCDMA V	RMC12.2K	Right Tilted	4132	1	Ant 0	24.0	23.99	1.00	0.00	0.059	0.06
	WCDMA V	RMC12.2K	Left Cheek	4132	1	Ant 0	24.0	23.99	1.00	-0.11	0.092	0.09
	WCDMA V	RMC12.2K	Left Tilted	4132	1	Ant 0	24.0	23.99	1.00	0.07	0.06	0.06
	WCDMA V	RMC12.2K	Right Cheek	4132	1	Ant 1	24.0	23.99	1.00	0.03	0.874	0.88
	WCDMA V	RMC12.2K	Right Tilted	4132	1	Ant 1	24.0	23.99	1.00	0.08	0.824	0.83
	WCDMA V	RMC12.2K	Left Cheek	4132	1	Ant 1	24.0	23.99	1.00	-0.05	0.917	0.92
	WCDMA V	RMC12.2K	Left Tilted	4132	1	Ant 1	24.0	23.99	1.00	0.04	0.972	0.97
	WCDMA V	RMC12.2K	Right Cheek	4182	1	Ant 1	24.0	23.93	1.02	0.07	0.900	0.91
	WCDMA V	RMC12.2K	Right Cheek	4233	1	Ant 1	24.0	23.91	1.02	-0.08	1.020	1.04
	WCDMA V	RMC12.2K	Right Tilted	4182	1	Ant 1	24.0	23.93	1.02	0.03	0.987	1.00
	WCDMA V	RMC12.2K	Right Tilted	4233	1	Ant 1	24.0	23.91	1.02	0.05	0.983	1.00
	WCDMA V	RMC12.2K	Left Cheek	4182	1	Ant 1	24.0	23.93	1.02	0.09	0.938	0.95
05	WCDMA V	RMC12.2K	Left Cheek	4233	1	Ant 1	24.0	23.91	1.02	0.03	1.06	1.08
	WCDMA V	RMC12.2K	Left Tilted	4182	1	Ant 1	24.0	23.93	1.02	0.10	0.955	0.97
	WCDMA V	RMC12.2K	Left Tilted	4233	1	Ant 1	24.0	23.91	1.02	0.05	1.05	1.07
	WCDMA V	RMC12.2K	Left Cheek	4233	2	Ant 1	24.0	23.91	1.02	-0.09	0.710	0.72
	WCDMA V	RMC12.2K	Left Cheek	4233	1	Ant 1	24.0	23.91	1.02	0.03	1.03	1.05

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	1	0	Right Cheek	19100	1	Ant 0	23.5	23.33	1.04	-0.02	0.001	0.00
	LTE 2	QPSK20M	1	0	Right Tilted	19100	1	Ant 0	23.5	23.33	1.04	0.13	0.001	0.00
06	LTE 2	QPSK20M	1	0	Left Cheek	19100	1	Ant 0	23.5	23.33	1.04	-0.07	0.061	0.06
	LTE 2	QPSK20M	1	0	Left Tilted	19100	1	Ant 0	23.5	23.33	1.04	-0.01	0.001	0.00
	LTE 2	QPSK20M	50	0	Right Cheek	19100	1	Ant 0	22.5	22.30	1.05	0.15	0.001	0.00
	LTE 2	QPSK20M	50	0	Right Tilted	19100	1	Ant 0	22.5	22.30	1.05	-0.02	0.001	0.00
	LTE 2	QPSK20M	50	0	Left Cheek	19100	1	Ant 0	22.5	22.30	1.05	0.05	0.048	0.05
	LTE 2	QPSK20M	50	0	Left Tilted	19100	1	Ant 0	22.5	22.30	1.05	0.06	0.001	0.00
	LTE 2	QPSK20M	1	0	Left Cheek	18700	1	Ant 0	23.5	23.16	1.08	0.07	0.043	0.05
	LTE 2	QPSK20M	1	0	Left Cheek	18900	1	Ant 0	23.5	23.11	1.09	0.08	0.048	0.05
	LTE 2	QPSK20M	1	0	Left Cheek	19100	2	Ant 0	23.5	23.33	1.04	0.13	0.042	0.04
	LTE 4	QPSK20M	1	0	Right Cheek	20050	1	Ant 0	23.5	23.21	1.07	-0.03	0.001	0.00
	LTE 4	QPSK20M	1	0	Right Tilted	20050	1	Ant 0	23.5	23.21	1.07	0.02	0.001	0.00
	LTE 4	QPSK20M	1	0	Left Cheek	20050	1	Ant 0	23.5	23.21	1.07	0.15	0.041	0.04
	LTE 4	QPSK20M	1	0	Left Tilted	20050	1	Ant 0	23.5	23.21	1.07	0.14	0.001	0.00
	LTE 4	QPSK20M	50	0	Right Cheek	20050	1	Ant 0	22.5	22.13	1.09	-0.07	0.001	0.00
	LTE 4	QPSK20M	50	0	Right Tilted	20050	1	Ant 0	22.5	22.13	1.09	0.09	0.001	0.00
	LTE 4	QPSK20M	50	0	Left Cheek	20050	1	Ant 0	22.5	22.13	1.09	0.16	0.035	0.04
	LTE 4	QPSK20M	50	0	Left Tilted	20050	1	Ant 0	22.5	22.13	1.09	0.15	0.001	0.00
	LTE 4	QPSK20M	1	0	Right Cheek	20050	1	Ant 1	24.0	23.37	1.16	-0.08	0.502	0.58
	LTE 4	QPSK20M	1	0	Right Tilted	20050	1	Ant 1	24.0	23.37	1.16	0.03	0.749	0.87
	LTE 4	QPSK20M	1	0	Left Cheek	20050	1	Ant 1	24.0	23.37	1.16	0.07	0.446	0.52
	LTE 4	QPSK20M	1	0	Left Tilted	20050	1	Ant 1	24.0	23.37	1.16	0.05	0.592	0.68
	LTE 4	QPSK20M	50	0	Right Cheek	20050	1	Ant 1	23.0	22.38	1.15	0.10	0.409	0.47
	LTE 4	QPSK20M	50	0	Right Tilted	20050	1	Ant 1	23.0	22.38	1.15	-0.06	0.537	0.62
	LTE 4	QPSK20M	50	0	Left Cheek	20050	1	Ant 1	23.0	22.38	1.15	0.08	0.371	0.43
	LTE 4	QPSK20M	50	0	Left Tilted	20050	1	Ant 1	23.0	22.38	1.15	0.03	0.487	0.56
	LTE 4	QPSK20M	1	0	Right Tilted	20175	1	Ant 1	24.0	23.34	1.16	-0.01	0.723	0.84
07	LTE 4	QPSK20M	1	0	Right Tilted	20300	1	Ant 1	24.0	23.33	1.17	-0.01	0.773	0.90
	LTE 4	QPSK20M	100	0	Right Tilted	20050	1	Ant 1	23.0	22.07	1.24	0.07	0.522	0.65
	LTE 4	QPSK20M	1	0	Right Tilted	20300	2	Ant 1	24.0	23.33	1.17	0.03	0.475	0.55

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 5	QPSK10M	1	0	Right Cheek	20525	1	Ant 0	24.0	23.41	1.15	0.01	0.130	0.15
	LTE 5	QPSK10M	1	0	Right Tilted	20525	1	Ant 0	24.0	23.41	1.15	0.03	0.076	0.09
	LTE 5	QPSK10M	1	0	Left Cheek	20525	1	Ant 0	24.0	23.41	1.15	-0.05	0.114	0.13
	LTE 5	QPSK10M	1	0	Left Tilted	20525	1	Ant 0	24.0	23.41	1.15	0.04	0.072	0.08
	LTE 5	QPSK10M	25	0	Right Cheek	20525	1	Ant 0	23.0	22.43	1.14	0.01	0.075	0.09
	LTE 5	QPSK10M	25	0	Right Tilted	20525	1	Ant 0	23.0	22.43	1.14	0.05	0.047	0.05
	LTE 5	QPSK10M	25	0	Left Cheek	20525	1	Ant 0	23.0	22.43	1.14	0.1	0.067	0.08
	LTE 5	QPSK10M	25	0	Left Tilted	20525	1	Ant 0	23.0	22.43	1.14	0.12	0.044	0.05
	LTE 5	QPSK10M	1	0	Right Cheek	20525	1	Ant 1	24.0	23.41	1.15	0.03	0.602	0.69
	LTE 5	QPSK10M	1	0	Right Tilted	20525	1	Ant 1	24.0	23.41	1.15	-0.05	0.563	0.64
08	LTE 5	QPSK10M	1	0	Left Cheek	20525	1	Ant 1	24.0	23.41	1.15	0.01	0.649	0.74
	LTE 5	QPSK10M	1	0	Left Tilted	20525	1	Ant 1	24.0	23.41	1.15	-0.13	0.615	0.70
	LTE 5	QPSK10M	25	0	Right Cheek	20525	1	Ant 1	23.0	22.43	1.14	0.14	0.572	0.65
	LTE 5	QPSK10M	25	0	Right Tilted	20525	1	Ant 1	23.0	22.43	1.14	-0.14	0.546	0.62
	LTE 5	QPSK10M	25	0	Left Cheek	20525	1	Ant 1	23.0	22.43	1.14	0.11	0.567	0.65
	LTE 5	QPSK10M	25	0	Left Tilted	20525	1	Ant 1	23.0	22.43	1.14	0.1	0.612	0.70
	LTE 5	QPSK10M	1	0	Left Cheek	20450	1	Ant 1	24.0	23.35	1.16	0.04	0.594	0.69
	LTE 5	QPSK10M	1	0	Left Cheek	20600	1	Ant 1	24.0	23.17	1.21	-0.05	0.608	0.74
	LTE 5	QPSK10M	1	0	Left Cheek	20525	2	Ant 1	24.0	23.41	1.15	-0.06	0.613	0.70
	LTE 7	QPSK20M	1	99	Right Cheek	21350	1	Ant 0	23.0	22.99	1.00	-0.01	0.065	0.07
	LTE 7	QPSK20M	1	99	Right Tilted	21350	1	Ant 0	23.0	22.99	1.00	0.05	0.075	0.08
	LTE 7	QPSK20M	1	99	Left Cheek	21350	1	Ant 0	23.0	22.99	1.00	0.02	0.175	0.18
	LTE 7	QPSK20M	1	99	Left Tilted	21350	1	Ant 0	23.0	22.99	1.00	-0.02	0.068	0.07
	LTE 7	QPSK20M	50	50	Right Cheek	21350	1	Ant 0	22.0	21.99	1.00	0.13	0.057	0.06
	LTE 7	QPSK20M	50	50	Right Tilted	21350	1	Ant 0	22.0	21.99	1.00	-0.09	0.066	0.07
	LTE 7	QPSK20M	50	50	Left Cheek	21350	1	Ant 0	22.0	21.99	1.00	0.07	0.158	0.16
	LTE 7	QPSK20M	50	50	Left Tilted	21350	1	Ant 0	22.0	21.99	1.00	-0.06	0.053	0.05
	LTE 7	QPSK20M	1	99	Right Cheek	21350	1	Ant 1	23.0	22.99	1.00	0.10	0.641	0.64
	LTE 7	QPSK20M	1	99	Right Tilted	21350	1	Ant 1	23.0	22.99	1.00	0.09	0.725	0.73
	LTE 7	QPSK20M	1	99	Left Cheek	21350	1	Ant 1	23.0	22.99	1.00	0.04	0.893	0.90
09	LTE 7	QPSK20M	1	99	Left Tilted	21350	1	Ant 1	23.0	22.99	1.00	0.09	1.13	1.13
	LTE 7	QPSK20M	50	50	Right Cheek	21350	1	Ant 1	22.0	21.99	1.00	0.03	0.493	0.49
	LTE 7	QPSK20M	50	50	Right Tilted	21350	1	Ant 1	22.0	21.99	1.00	0.07	0.578	0.58
	LTE 7	QPSK20M	50	50	Left Cheek	21350	1	Ant 1	22.0	21.99	1.00	0.02	0.687	0.69
	LTE 7	QPSK20M	50	50	Left Tilted	21350	1	Ant 1	22.0	21.99	1.00	-0.06	0.834	0.84
	LTE 7	QPSK20M	1	99	Left Cheek	20850	1	Ant 1	23.0	22.97	1.01	0.01	0.812	0.82
	LTE 7	QPSK20M	1	99	Left Cheek	21100	1	Ant 1	23.0	22.98	1.00	0.06	0.719	0.72
	LTE 7	QPSK20M	1	99	Left Tilted	20850	1	Ant 1	23.0	22.97	1.01	-0.10	0.951	0.96
	LTE 7	QPSK20M	1	99	Left Tilted	21100	1	Ant 1	23.0	22.98	1.00	0.06	0.867	0.87
	LTE 7	QPSK20M	50	50	Left Tilted	20850	1	Ant 1	22.0	21.96	1.01	-0.03	1.028	1.04
	LTE 7	QPSK20M	50	50	Left Tilted	21100	1	Ant 1	22.0	21.98	1.00	0.08	0.982	0.99
	LTE 7	QPSK20M	100	0	Left Cheek	21350	1	Ant 1	22.0	21.96	1.01	-0.04	0.877	0.89
	LTE 7	QPSK20M	100	0	Left Tilted	21350	1	Ant 1	22.0	21.96	1.01	0.08	1.079	1.09
	LTE 7	QPSK20M	1	99	Left Tilted	21350	2	Ant 1	23.0	22.99	1.00	0.06	0.201	0.20
	LTE 7	QPSK20M	1	99	Left Tilted	21350	1	Ant 1	23.0	22.99	1.00	0.04	1.08	1.08

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 12	QPSK10M	1	49	Right Cheek	23095	1	Ant 0	23.0	22.99	1.00	-0.05	0.034	0.03
	LTE 12	QPSK10M	1	49	Right Tilted	23095	1	Ant 0	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	1	49	Left Cheek	23095	1	Ant 0	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	1	49	Left Tilted	23095	1	Ant 0	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Right Cheek	23095	1	Ant 0	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Right Tilted	23095	1	Ant 0	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Left Cheek	23095	1	Ant 0	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Left Tilted	23095	1	Ant 0	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	1	49	Right Cheek	23095	1	Ant 1	23.0	22.99	1.00	0.08	0.400	0.40
	LTE 12	QPSK10M	1	49	Right Tilted	23095	1	Ant 1	23.0	22.99	1.00	-0.03	0.422	0.42
	LTE 12	QPSK10M	1	49	Left Cheek	23095	1	Ant 1	23.0	22.99	1.00	0.05	0.441	0.44
	LTE 12	QPSK10M	1	49	Left Tilted	23095	1	Ant 1	23.0	22.99	1.00	0.01	0.497	0.50
	LTE 12	QPSK10M	25	25	Right Cheek	23095	1	Ant 1	22.0	21.98	1.00	0.09	0.316	0.32
	LTE 12	QPSK10M	25	25	Right Tilted	23095	1	Ant 1	22.0	21.98	1.00	0.03	0.338	0.34
	LTE 12	QPSK10M	25	25	Left Cheek	23095	1	Ant 1	22.0	21.98	1.00	-0.07	0.363	0.36
	LTE 12	QPSK10M	25	25	Left Tilted	23095	1	Ant 1	22.0	21.98	1.00	0.04	0.409	0.41
10	LTE 12	QPSK10M	1	49	Left Tilted	23060	1	Ant 1	23.0	22.89	1.03	-0.01	0.507	0.52
	LTE 12	QPSK10M	1	49	Left Tilted	23130	1	Ant 1	23.0	22.97	1.01	0.08	0.505	0.51
	LTE 12	QPSK10M	1	49	Left Tilted	23060	2	Ant 1	23.0	22.89	1.03	0.02	0.501	0.51
	LTE 26	QPSK15M	1	0	Right Cheek	26765	1	Ant 0	24.0	23.68	1.08	0.04	0.075	0.08
	LTE 26	QPSK15M	1	0	Right Tilted	26765	1	Ant 0	24.0	23.68	1.08	-0.02	0.04	0.04
	LTE 26	QPSK15M	1	0	Left Cheek	26765	1	Ant 0	24.0	23.68	1.08	0.03	0.058	0.06
	LTE 26	QPSK15M	1	0	Left Tilted	26765	1	Ant 0	24.0	23.68	1.08	0.11	0.034	0.04
	LTE 26	QPSK15M	36	0	Right Cheek	26765	1	Ant 0	23.0	22.72	1.07	-0.18	0.057	0.06
	LTE 26	QPSK15M	36	0	Right Tilted	26765	1	Ant 0	23.0	22.72	1.07	0.00	0.001	0.00
	LTE 26	QPSK15M	36	0	Left Cheek	26765	1	Ant 0	23.0	22.72	1.07	0.09	0.052	0.06
	LTE 26	QPSK15M	36	0	Left Tilted	26765	1	Ant 0	23.0	22.72	1.07	0.07	0.001	0.00
	LTE 26	QPSK15M	1	0	Right Cheek	26765	1	Ant 1	24.0	23.68	1.08	0.02	0.661	0.71
	LTE 26	QPSK15M	1	0	Right Tilted	26765	1	Ant 1	24.0	23.68	1.08	0.09	0.655	0.71
	LTE 26	QPSK15M	1	0	Left Cheek	26765	1	Ant 1	24.0	23.68	1.08	-0.04	0.680	0.73
	LTE 26	QPSK15M	1	0	Left Tilted	26765	1	Ant 1	24.0	23.68	1.08	0.10	0.724	0.78
	LTE 26	QPSK15M	36	0	Right Cheek	26765	1	Ant 1	23.0	22.72	1.07	0.05	0.541	0.58
	LTE 26	QPSK15M	36	0	Right Tilted	26765	1	Ant 1	23.0	22.72	1.07	0.08	0.537	0.57
	LTE 26	QPSK15M	36	0	Left Cheek	26765	1	Ant 1	23.0	22.72	1.07	-0.03	0.568	0.61
	LTE 26	QPSK15M	36	0	Left Tilted	26765	1	Ant 1	23.0	22.72	1.07	0.07	0.606	0.65
	LTE 26	QPSK15M	1	0	Left Tilted	26865	1	Ant 1	24.0	23.46	1.13	0.09	0.738	0.84
11	LTE 26	QPSK15M	1	0	Left Tilted	26965	1	Ant 1	24.0	23.33	1.17	0.03	0.773	0.90
	LTE 26	QPSK15M	75	0	Left Tilted	26765	1	Ant 1	23.0	22.61	1.09	0.07	0.638	0.70
	LTE 26	QPSK15M	1	0	Left Tilted	26965	2	Ant 1	24.0	23.33	1.17	0.02	0.738	0.86
	LTE 26	QPSK15M	1	0	Left Tilted	26765	2	Ant 1	24.0	23.68	1.08	0.01	0.722	0.78
	LTE 26	QPSK15M	1	0	Left Tilted	26865	2	Ant 1	24.0	23.46	1.13	-0.03	0.699	0.79

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 30	QPSK10M	1	0	Right Cheek	27710	1	Ant 0	24.0	23.75	1.06	0.13	0.064	0.07
	LTE 30	QPSK10M	1	0	Right Tilted	27710	1	Ant 0	24.0	23.75	1.06	-0.19	0.072	0.08
	LTE 30	QPSK10M	1	0	Left Cheek	27710	1	Ant 0	24.0	23.75	1.06	0.05	0.13	0.14
	LTE 30	QPSK10M	1	0	Left Tilted	27710	1	Ant 0	24.0	23.75	1.06	0.18	0.042	0.04
	LTE 30	QPSK10M	25	0	Right Cheek	27710	1	Ant 0	23.0	22.79	1.05	-0.04	0.048	0.05
	LTE 30	QPSK10M	25	0	Right Tilted	27710	1	Ant 0	23.0	22.79	1.05	0.05	0.055	0.06
	LTE 30	QPSK10M	25	0	Left Cheek	27710	1	Ant 0	23.0	22.79	1.05	-0.07	0.102	0.11
	LTE 30	QPSK10M	25	0	Left Tilted	27710	1	Ant 0	23.0	22.79	1.05	0.02	0.034	0.04
	LTE 30	QPSK10M	1	0	Right Cheek	27710	1	Ant 1	24.0	23.75	1.06	0.08	0.304	0.32
	LTE 30	QPSK10M	1	0	Right Tilted	27710	1	Ant 1	24.0	23.75	1.06	0.06	0.324	0.34
	LTE 30	QPSK10M	1	0	Left Cheek	27710	1	Ant 1	24.0	23.75	1.06	0.07	0.476	0.50
12	LTE 30	QPSK10M	1	0	Left Tilted	27710	1	Ant 1	24.0	23.75	1.06	-0.01	0.538	0.57
	LTE 30	QPSK10M	25	0	Right Cheek	27710	1	Ant 1	23.0	22.79	1.05	0.03	0.245	0.26
	LTE 30	QPSK10M	25	0	Right Tilted	27710	1	Ant 1	23.0	22.79	1.05	0.07	0.262	0.27
	LTE 30	QPSK10M	25	0	Left Cheek	27710	1	Ant 1	23.0	22.79	1.05	0.09	0.391	0.41
	LTE 30	QPSK10M	25	0	Left Tilted	27710	1	Ant 1	23.0	22.79	1.05	-0.02	0.460	0.48
	LTE 30	QPSK10M	1	0	Left Tilted	27710	2	Ant 1	24.0	23.75	1.06	-0.05	0.348	0.37
	LTE 41	QPSK20M	1	0	Right Cheek	39750	1	Ant 0	24.0	23.85	1.04	0.06	0.058	0.06
	LTE 41	QPSK20M	1	0	Right Tilted	39750	1	Ant 0	24.0	23.85	1.04	0.03	0.064	0.07
	LTE 41	QPSK20M	1	0	Left Cheek	39750	1	Ant 0	24.0	23.85	1.04	0.07	0.175	0.18
	LTE 41	QPSK20M	1	0	Left Tilted	39750	1	Ant 0	24.0	23.85	1.04	0.06	0.048	0.05
	LTE 41	QPSK20M	50	0	Right Cheek	39750	1	Ant 0	23.0	22.89	1.03	0.08	0.040	0.04
	LTE 41	QPSK20M	50	0	Right Tilted	39750	1	Ant 0	23.0	22.89	1.03	-0.05	0.048	0.05
	LTE 41	QPSK20M	50	0	Left Cheek	39750	1	Ant 0	23.0	22.89	1.03	0.08	0.135	0.14
	LTE 41	QPSK20M	50	0	Left Tilted	39750	1	Ant 0	23.0	22.89	1.03	0.04	0.037	0.04
	LTE 41	QPSK20M	1	0	Right Cheek	39750	1	Ant 1	24.0	23.85	1.04	-0.01	0.414	0.43
	LTE 41	QPSK20M	1	0	Right Tilted	39750	1	Ant 1	24.0	23.85	1.04	0.02	0.491	0.51
	LTE 41	QPSK20M	1	0	Left Cheek	39750	1	Ant 1	24.0	23.85	1.04	-0.03	0.622	0.64
	LTE 41	QPSK20M	1	0	Left Tilted	39750	1	Ant 1	24.0	23.85	1.04	-0.03	0.741	0.77
	LTE 41	QPSK20M	50	0	Right Cheek	39750	1	Ant 1	23.0	22.89	1.03	0.11	0.326	0.33
	LTE 41	QPSK20M	50	0	Right Tilted	39750	1	Ant 1	23.0	22.89	1.03	0.09	0.377	0.39
	LTE 41	QPSK20M	50	0	Left Cheek	39750	1	Ant 1	23.0	22.89	1.03	0.08	0.514	0.53
	LTE 41	QPSK20M	50	0	Left Tilted	39750	1	Ant 1	23.0	22.89	1.03	0.07	0.581	0.60
	LTE 41	QPSK20M	1	0	Left Tilted	40185	1	Ant 1	24.0	23.72	1.07	0.09	0.931	0.99
13	LTE 41	QPSK20M	1	0	Left Tilted	40620	1	Ant 1	24.0	23.67	1.08	0.10	1.03	1.11
	LTE 41	QPSK20M	1	0	Left Tilted	41055	1	Ant 1	24.0	23.61	1.09	0.03	1.01	1.10
	LTE 41	QPSK20M	1	0	Left Tilted	41490	1	Ant 1	24.0	23.44	1.14	-0.02	0.798	0.91
	LTE 41	QPSK20M	100	0	Left Tilted	39750	1	Ant 1	23.0	22.85	1.04	0.06	0.814	0.84
	LTE 41	QPSK20M	1	0	Left Tilted	40620	2	Ant 1	24.0	23.67	1.08	-0.04	0.515	0.56
	LTE 41	QPSK20M	1	0	Left Tilted	40620	1	Ant 1	24.0	23.67	1.08	0.03	1.02	1.10

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN2.4G	802.11b	Right Cheek	1	1	Ant 0	18.5	18.33	1.04	-0.03	0.260	0.27
	WLAN2.4G	802.11b	Right Tilted	1	1	Ant 0	18.5	18.33	1.04	0.05	0.288	0.30
	WLAN2.4G	802.11b	Left Cheek	1	1	Ant 0	18.5	18.33	1.04	-0.03	0.216	0.22
	WLAN2.4G	802.11b	Left Tilted	1	1	Ant 0	18.5	18.33	1.04	0.04	0.256	0.27
	WLAN2.4G	802.11b	Right Cheek	1	1	Ant 1	18.5	18.23	1.06	-0.03	0.148	0.16
	WLAN2.4G	802.11b	Right Tilted	1	1	Ant 1	18.5	18.23	1.06	0.00	0.081	0.09
	WLAN2.4G	802.11b	Left Cheek	1	1	Ant 1	18.5	18.23	1.06	-0.02	0.133	0.14
	WLAN2.4G	802.11b	Left Tilted	1	1	Ant 1	18.5	18.23	1.06	0.04	0.180	0.19
	WLAN2.4G	802.11b	Right Cheek	11	1	Ant 0+1	18.5	18.42	1.02	-0.06	0.060	0.06
	WLAN2.4G	802.11b	Right Tilted	11	1	Ant 0+1	18.5	18.42	1.02	-0.05	0.076	0.08
	WLAN2.4G	802.11b	Left Cheek	11	1	Ant 0+1	18.5	18.42	1.02	0.05	0.051	0.05
	WLAN2.4G	802.11b	Left Tilted	11	1	Ant 0+1	18.5	18.42	1.02	-0.12	0.074	0.08
14	WLAN2.4G	802.11b	Right Tilted	6	1	Ant 0	18.5	18.17	1.08	0.04	0.357	0.39
	WLAN2.4G	802.11b	Right Tilted	11	1	Ant 0	18.5	18.11	1.09	0.06	0.296	0.32
	WLAN2.4G	802.11b	Right Tilted	12	1	Ant 0	18.5	18.13	1.09	0.02	0.298	0.32
	WLAN2.4G	802.11b	Right Tilted	13	1	Ant 0	17.5	16.99	1.12	-0.03	0.270	0.30
	WLAN2.4G	802.11b	Right Tilted	6	2	Ant 0	18.5	18.17	1.08	0.02	0.347	0.37
	WLAN5G	802.11a	Right Cheek	64	1	Ant 0	18.0	17.96	1.01	-0.02	0.308	0.31
15	WLAN5G	802.11a	Right Tilted	64	1	Ant 0	18.0	17.96	1.01	0.13	0.375	0.38
	WLAN5G	802.11a	Left Cheek	64	1	Ant 0	18.0	17.96	1.01	-0.13	0.203	0.20
	WLAN5G	802.11a	Left Tilted	64	1	Ant 0	18.0	17.96	1.01	-0.04	0.218	0.22
	WLAN5G	802.11a	Right Cheek	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Right Tilted	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Left Cheek	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Right Cheek	64	1	Ant 0+1	18.0	17.98	1.00	-0.02	0.203	0.20
	WLAN5G	802.11a	Right Tilted	64	1	Ant 0+1	18.0	17.98	1.00	0.17	0.205	0.21
	WLAN5G	802.11a	Left Cheek	64	1	Ant 0+1	18.0	17.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	64	1	Ant 0+1	18.0	17.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11a	Right Tilted	52	1	Ant 0	18.0	17.59	1.10	0.04	0.293	0.32
	WLAN5G	802.11a	Right Tilted	56	1	Ant 0	18.0	17.74	1.06	-0.03	0.333	0.35
	WLAN5G	802.11a	Right Tilted	60	1	Ant 0	18.0	17.87	1.03	0.01	0.252	0.26
	WLAN5G	802.11a	Right Tilted	64	2	Ant 0	18.0	17.96	1.01	0.00	0.001	0.00
16	WLAN5G	802.11a	Right Cheek	100	1	Ant 0	18.0	17.91	1.02	0.11	0.313	0.32
	WLAN5G	802.11a	Right Tilted	100	1	Ant 0	18.0	17.91	1.02	0.03	0.225	0.23
	WLAN5G	802.11a	Left Cheek	100	1	Ant 0	18.0	17.91	1.02	-0.12	0.267	0.27
	WLAN5G	802.11a	Left Tilted	100	1	Ant 0	18.0	17.91	1.02	0.05	0.256	0.26
	WLAN5G	802.11a	Right Cheek	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Right Tilted	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Left Cheek	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Right Cheek	100	1	Ant 0+1	18.0	17.96	1.01	0.09	0.193	0.19
	WLAN5G	802.11a	Right Tilted	100	1	Ant 0+1	18.0	17.96	1.01	0.04	0.147	0.15
	WLAN5G	802.11a	Left Cheek	100	1	Ant 0+1	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	100	1	Ant 0+1	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Right Cheek	116	1	Ant 0	18.0	17.59	1.10	-0.02	0.210	0.23
	WLAN5G	802.11a	Right Cheek	120	1	Ant 0	18.0	17.71	1.07	-0.04	0.240	0.26
	WLAN5G	802.11a	Right Cheek	124	1	Ant 0	18.0	17.76	1.06	-0.07	0.244	0.26
	WLAN5G	802.11a	Right Cheek	132	1	Ant 0	18.0	17.60	1.10	-0.12	0.224	0.25
	WLAN5G	802.11a	Right Cheek	140	1	Ant 0	18.0	17.65	1.08	-0.03	0.256	0.28
	WLAN5G	802.11a	Right Cheek	144	1	Ant 0	18.0	17.56	1.11	-0.02	0.235	0.26
	WLAN5G	802.11a	Right Cheek	100	2	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5G	802.11a	Right Cheek	157	1	Ant 0	18.0	17.90	1.02	-0.03	0.142	0.15
17	WLAN5G	802.11a	Right Tilted	157	1	Ant 0	18.0	17.90	1.02	0.13	0.166	0.17
	WLAN5G	802.11a	Left Cheek	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Right Cheek	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Right Tilted	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Left Cheek	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Right Cheek	157	1	Ant 0+1	18.0	17.93	1.02	0.02	0.112	0.11
	WLAN5G	802.11a	Right Tilted	157	1	Ant 0+1	18.0	17.93	1.02	0.04	0.14	0.14
	WLAN5G	802.11a	Left Cheek	157	1	Ant 0+1	18.0	17.93	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Left Tilted	157	1	Ant 0+1	18.0	17.93	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Right Tilted	149	1	Ant 0	18.0	17.83	1.04	-0.12	0.162	0.17
	WLAN5G	802.11a	Right Tilted	153	1	Ant 0	18.0	17.70	1.07	0.04	0.155	0.17
	WLAN5G	802.11a	Right Tilted	161	1	Ant 0	18.0	17.59	1.10	-0.03	0.140	0.15
	WLAN5G	802.11a	Right Tilted	165	1	Ant 0	18.0	17.61	1.09	0.03	0.135	0.15
	WLAN5G	802.11a	Right Tilted	157	2	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	BT	BR / EDR	Right Cheek	0	1	13.0	12.81	1.04	0.05	0.066	0.07
	BT	BR / EDR	Right Tilted	0	1	13.0	12.81	1.04	-0.04	0.064	0.07
	BT	BR / EDR	Left Cheek	0	1	13.0	12.81	1.04	-0.13	0.063	0.07
18	BT	BR / EDR	Left Tilted	0	1	13.0	12.81	1.04	-0.07	0.085	0.09
	BT	BR / EDR	Left Tilted	39	1	13.0	11.76	1.33	0.04	0.047	0.06
	BT	BR / EDR	Left Tilted	78	1	13.0	12.55	1.11	-0.02	0.054	0.06
	BT	BR / EDR	Left Tilted	0	2	13.0	12.81	1.04	0.10	0.050	0.05

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

FCC SAR Test Report

4.7.3 SAR Results for Body-worn Exposure Condition (Test Separation Distance is 10 mm)

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS10	Front Face	189	1	Ant 0	30.0	29.92	1.02	0.08	0.203	0.21
	GSM850	GPRS10	Rear Face	189	1	Ant 0	30.0	29.92	1.02	-0.08	0.262	0.27
	GSM850	GPRS10	Front Face	189	1	Ant 1	30.0	29.92	1.02	0.13	0.238	0.24
19	GSM850	GPRS10	Rear Face	189	1	Ant 1	30.0	29.92	1.02	-0.05	0.271	0.28
	GSM850	GPRS10	Rear Face	128	1	Ant 1	30.0	29.91	1.02	-0.07	0.251	0.26
	GSM850	GPRS10	Rear Face	251	1	Ant 1	30.0	29.64	1.09	0.08	0.222	0.24
	GSM850	GPRS10	Rear Face	189	2	Ant 1	30.0	29.92	1.02	0.02	0.259	0.26
	GSM1900	GPRS10	Front Face	512	1	Ant 0	27.0	26.62	1.09	0.06	0.308	0.34
20	GSM1900	GPRS10	Rear Face	512	1	Ant 0	27.0	26.62	1.09	-0.02	0.434	0.47
	GSM1900	GPRS10	Rear Face	661	1	Ant 0	27.0	26.61	1.09	-0.08	0.321	0.35
	GSM1900	GPRS10	Rear Face	810	1	Ant 0	27.0	26.57	1.10	0.01	0.184	0.20
	GSM1900	GPRS10	Rear Face	512	2	Ant 0	27.0	26.62	1.09	-0.09	0.411	0.45
	WCDMA II	RMC12.2K	Front Face	9262	1	Ant 0	23.5	23.47	1.01	0.01	0.446	0.45
21	WCDMA II	RMC12.2K	Rear Face	9262	1	Ant 0	23.5	23.47	1.01	-0.02	0.808	0.81
	WCDMA II	RMC12.2K	Rear Face	9400	1	Ant 0	23.5	23.38	1.03	0.07	0.667	0.69
	WCDMA II	RMC12.2K	Rear Face	9538	1	Ant 0	23.5	23.29	1.05	0.18	0.613	0.64
	WCDMA II	RMC12.2K	Rear Face	9262	2	Ant 0	23.5	23.47	1.01	-0.10	0.784	0.79
	WCDMA II	RMC12.2K	Rear Face	9262	1	Ant 0	23.5	23.47	1.01	-0.08	0.802	0.81
	WCDMA IV	RMC12.2K	Front Face	1312	1	Ant 0	23.5	23.38	1.03	0.08	0.465	0.48
22	WCDMA IV	RMC12.2K	Rear Face	1312	1	Ant 0	23.5	23.38	1.03	0.03	0.866	0.89
	WCDMA IV	RMC12.2K	Front Face	1312	1	Ant 1	24.0	23.98	1.00	0.02	0.238	0.24
	WCDMA IV	RMC12.2K	Rear Face	1312	1	Ant 1	24.0	23.98	1.00	0.06	0.278	0.28
	WCDMA IV	RMC12.2K	Rear Face	1413	1	Ant 0	23.5	23.31	1.04	-0.08	0.813	0.85
	WCDMA IV	RMC12.2K	Rear Face	1513	1	Ant 0	23.5	23.26	1.06	0.07	0.776	0.82
	WCDMA IV	RMC12.2K	Rear Face	1312	2	Ant 0	23.5	23.38	1.03	0.03	0.268	0.28
	WCDMA IV	RMC12.2K	Rear Face	1312	1	Ant 0	23.5	23.38	1.03	-0.04	0.861	0.89
	WCDMA V	RMC12.2K	Front Face	4132	1	Ant 0	24.0	23.99	1.00	0.07	0.1	0.10
	WCDMA V	RMC12.2K	Rear Face	4132	1	Ant 0	24.0	23.99	1.00	-0.02	0.189	0.19
	WCDMA V	RMC12.2K	Front Face	4132	1	Ant 1	24.0	23.99	1.00	0.03	0.191	0.19
23	WCDMA V	RMC12.2K	Rear Face	4132	1	Ant 1	24.0	23.99	1.00	-0.06	0.203	0.20
	WCDMA V	RMC12.2K	Rear Face	4182	1	Ant 1	24.0	23.93	1.02	0.06	0.194	0.20
	WCDMA V	RMC12.2K	Rear Face	4233	1	Ant 1	24.0	23.91	1.02	0.02	0.199	0.20
	WCDMA V	RMC12.2K	Rear Face	4132	2	Ant 1	24.0	23.99	1.00	0.05	0.198	0.20

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	1	0	Front Face	19100	1	Ant 0	23.5	23.33	1.04	0.09	0.411	0.43
24	LTE 2	QPSK20M	1	0	Rear Face	19100	1	Ant 0	23.5	23.33	1.04	-0.02	0.647	0.67
	LTE 2	QPSK20M	50	0	Front Face	19100	1	Ant 0	22.5	22.30	1.05	-0.07	0.315	0.33
	LTE 2	QPSK20M	50	0	Rear Face	19100	1	Ant 0	22.5	22.30	1.05	0.08	0.491	0.51
	LTE 2	QPSK20M	1	0	Rear Face	18700	1	Ant 0	23.5	23.16	1.08	-0.07	0.487	0.53
	LTE 2	QPSK20M	1	0	Rear Face	18900	1	Ant 0	23.5	23.11	1.09	0.03	0.545	0.60
	LTE 2	QPSK20M	1	0	Rear Face	19100	2	Ant 0	23.5	23.33	1.04	-0.13	0.633	0.66

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
25	LTE 4	QPSK20M	1	0	Front Face	20050	1	Ant 0	23.5	23.21	1.07	-0.07	0.435	0.47
	LTE 4	QPSK20M	1	0	Rear Face	20050	1	Ant 0	23.5	23.21	1.07	0.02	0.697	0.75
	LTE 4	QPSK20M	50	0	Front Face	20050	1	Ant 0	22.5	22.13	1.09	0.06	0.382	0.42
	LTE 4	QPSK20M	50	0	Rear Face	20050	1	Ant 0	22.5	22.13	1.09	-0.03	0.683	0.74
	LTE 4	QPSK20M	1	0	Front Face	20050	1	Ant 1	24.0	23.37	1.16	0.03	0.131	0.15
	LTE 4	QPSK20M	1	0	Rear Face	20050	1	Ant 1	24.0	23.37	1.16	-0.06	0.128	0.15
	LTE 4	QPSK20M	50	0	Front Face	20050	1	Ant 1	23.0	22.38	1.15	0.03	0.103	0.12
	LTE 4	QPSK20M	50	0	Rear Face	20050	1	Ant 1	23.0	22.38	1.15	-0.03	0.123	0.14
	LTE 4	QPSK20M	1	0	Rear Face	20175	1	Ant 0	23.5	23.13	1.09	0.07	0.621	0.68
	LTE 4	QPSK20M	1	0	Rear Face	20300	1	Ant 0	23.5	23.18	1.08	-0.09	0.683	0.74
26	LTE 4	QPSK20M	1	0	Rear Face	20050	2	Ant 0	23.5	23.21	1.07	-0.15	0.617	0.66
	LTE 5	QPSK10M	1	0	Front Face	20525	1	Ant 0	24.0	23.41	1.15	0.05	0.182	0.21
	LTE 5	QPSK10M	1	0	Rear Face	20525	1	Ant 0	24.0	23.41	1.15	-0.09	0.233	0.27
	LTE 5	QPSK10M	25	0	Front Face	20525	1	Ant 0	23.0	22.43	1.14	0.14	0.096	0.11
	LTE 5	QPSK10M	25	0	Rear Face	20525	1	Ant 0	23.0	22.43	1.14	0.02	0.140	0.16
	LTE 5	QPSK10M	1	0	Front Face	20525	1	Ant 1	24.0	23.41	1.15	0.09	0.131	0.15
	LTE 5	QPSK10M	1	0	Rear Face	20525	1	Ant 1	24.0	23.41	1.15	-0.1	0.258	0.30
	LTE 5	QPSK10M	25	0	Front Face	20525	1	Ant 1	23.0	22.43	1.14	0.12	0.169	0.19
	LTE 5	QPSK10M	25	0	Rear Face	20525	1	Ant 1	23.0	22.43	1.14	0.05	0.196	0.22
	LTE 5	QPSK10M	1	0	Rear Face	20450	1	Ant 1	24.0	23.35	1.16	-0.08	0.233	0.27
27	LTE 5	QPSK10M	1	0	Rear Face	20600	1	Ant 1	24.0	23.17	1.21	0.02	0.228	0.28
	LTE 5	QPSK10M	1	0	Rear Face	20525	2	Ant 1	24.0	23.41	1.15	-0.07	0.211	0.24
	LTE 7	QPSK20M	1	99	Front Face	21350	1	Ant 0	23.0	22.99	1.00	0.04	0.17	0.17
	LTE 7	QPSK20M	1	99	Rear Face	21350	1	Ant 0	23.0	22.99	1.00	-0.08	0.352	0.35
	LTE 7	QPSK20M	50	50	Front Face	21350	1	Ant 0	22.0	21.99	1.00	-0.18	0.137	0.14
	LTE 7	QPSK20M	50	50	Rear Face	21350	1	Ant 0	22.0	21.99	1.00	0.03	0.207	0.21
	LTE 7	QPSK20M	1	99	Front Face	21350	1	Ant 1	23.0	22.99	1.00	0.01	0.107	0.11
	LTE 7	QPSK20M	1	99	Rear Face	21350	1	Ant 1	23.0	22.99	1.00	-0.16	0.125	0.13
	LTE 7	QPSK20M	50	50	Front Face	21350	1	Ant 1	22.0	21.99	1.00	0.09	0.097	0.10
	LTE 7	QPSK20M	50	50	Rear Face	21350	1	Ant 1	22.0	21.99	1.00	0.05	0.138	0.14
28	LTE 7	QPSK20M	1	99	Rear Face	20850	1	Ant 0	23.0	22.97	1.01	-0.08	0.338	0.34
	LTE 7	QPSK20M	1	99	Rear Face	21100	1	Ant 0	23.0	22.98	1.00	0.01	0.326	0.33
	LTE 7	QPSK20M	1	99	Rear Face	21350	2	Ant 0	23.0	22.99	1.00	-0.12	0.227	0.23
	LTE 12	QPSK10M	1	49	Front Face	23095	1	Ant 0	23.0	22.99	1.00	0.01	0.069	0.07
	LTE 12	QPSK10M	1	49	Rear Face	23095	1	Ant 0	23.0	22.99	1.00	-0.01	0.122	0.12
	LTE 12	QPSK10M	25	25	Front Face	23095	1	Ant 0	22.0	21.98	1.00	0.01	0.051	0.05
	LTE 12	QPSK10M	25	25	Rear Face	23095	1	Ant 0	22.0	21.98	1.00	0.14	0.096	0.10
	LTE 12	QPSK10M	1	49	Front Face	23095	1	Ant 1	23.0	22.99	1.00	0.01	0.125	0.13
	LTE 12	QPSK10M	1	49	Rear Face	23095	1	Ant 1	23.0	22.99	1.00	-0.18	0.152	0.15
	LTE 12	QPSK10M	25	25	Front Face	23095	1	Ant 1	22.0	21.98	1.00	0.09	0.100	0.10
29	LTE 12	QPSK10M	25	25	Rear Face	23095	1	Ant 1	22.0	21.98	1.00	0.06	0.116	0.12
	LTE 12	QPSK10M	1	49	Rear Face	23060	1	Ant 1	23.0	22.89	1.03	0.06	0.144	0.15
	LTE 12	QPSK10M	1	49	Rear Face	23130	1	Ant 1	23.0	22.97	1.01	0.07	0.147	0.15
	LTE 12	QPSK10M	1	49	Rear Face	23095	2	Ant 1	23.0	22.99	1.00	-0.03	0.147	0.15
	LTE 26	QPSK15M	1	0	Front Face	26765	1	Ant 0	24.0	23.68	1.08	0.08	0.079	0.09
	LTE 26	QPSK15M	1	0	Rear Face	26765	1	Ant 0	24.0	23.68	1.08	-0.03	0.152	0.16
	LTE 26	QPSK15M	36	0	Front Face	26765	1	Ant 0	23.0	22.72	1.07	0.10	0.065	0.07
	LTE 26	QPSK15M	36	0	Rear Face	26765	1	Ant 0	23.0	22.72	1.07	0.08	0.125	0.13
	LTE 26	QPSK15M	1	0	Front Face	26765	1	Ant 1	24.0	23.68	1.08	0.03	0.145	0.16
	LTE 26	QPSK15M	1	0	Rear Face	26765	1	Ant 1	24.0	23.68	1.08	0.07	0.153	0.16
29	LTE 26	QPSK15M	36	0	Front Face	26765	1	Ant 1	23.0	22.72	1.07	0.09	0.11	0.12
	LTE 26	QPSK15M	36	0	Rear Face	26765	1	Ant 1	23.0	22.72	1.07	0.02	0.139	0.15
	LTE 26	QPSK15M	1	0	Rear Face	26865	1	Ant 1	24.0	23.46	1.13	0.09	0.173	0.20
	LTE 26	QPSK15M	1	0	Rear Face	26965	1	Ant 1	24.0	23.33	1.17	-0.11	0.188	0.22
	LTE 26	QPSK15M	1	0	Rear Face	26965	2	Ant 1	24.0	23.33	1.17	-0.02	0.17	0.20

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
30	LTE 30	QPSK10M	1	0	Front Face	27710	1	Ant 0	24.0	23.75	1.06	0.03	0.158	0.17
	LTE 30	QPSK10M	1	0	Rear Face	27710	1	Ant 0	24.0	23.75	1.06	0.02	0.34	0.36
	LTE 30	QPSK10M	25	0	Front Face	27710	1	Ant 0	23.0	22.79	1.05	0.06	0.128	0.13
	LTE 30	QPSK10M	25	0	Rear Face	27710	1	Ant 0	23.0	22.79	1.05	0.08	0.213	0.22
	LTE 30	QPSK10M	1	0	Front Face	27710	1	Ant 1	24.0	23.75	1.06	0.14	0.058	0.06
	LTE 30	QPSK10M	1	0	Rear Face	27710	1	Ant 1	24.0	23.75	1.06	0.05	0.076	0.08
	LTE 30	QPSK10M	25	0	Front Face	27710	1	Ant 1	23.0	22.79	1.05	0.01	0.053	0.06
	LTE 30	QPSK10M	25	0	Rear Face	27710	1	Ant 1	23.0	22.79	1.05	0.04	0.07	0.07
	LTE 30	QPSK10M	1	0	Rear Face	27710	2	Ant 0	24.0	23.75	1.06	-0.08	0.172	0.18
31	LTE 41	QPSK20M	1	0	Front Face	39750	1	Ant 0	24.0	23.85	1.04	0.13	0.227	0.23
	LTE 41	QPSK20M	1	0	Rear Face	39750	1	Ant 0	24.0	23.85	1.04	0.06	0.335	0.35
	LTE 41	QPSK20M	50	0	Front Face	39750	1	Ant 0	23.0	22.89	1.03	0.17	0.169	0.17
	LTE 41	QPSK20M	50	0	Rear Face	39750	1	Ant 0	23.0	22.89	1.03	-0.11	0.255	0.26
	LTE 41	QPSK20M	1	0	Front Face	39750	1	Ant 1	24.0	23.85	1.04	0.11	0.091	0.09
	LTE 41	QPSK20M	1	0	Rear Face	39750	1	Ant 1	24.0	23.85	1.04	0.03	0.121	0.13
	LTE 41	QPSK20M	50	0	Front Face	39750	1	Ant 1	23.0	22.89	1.03	-0.02	0.076	0.08
	LTE 41	QPSK20M	50	0	Rear Face	39750	1	Ant 1	23.0	22.89	1.03	0.00	0.095	0.10
	LTE 41	QPSK20M	1	0	Rear Face	40185	1	Ant 0	24.0	23.72	1.07	0.11	0.284	0.30
	LTE 41	QPSK20M	1	0	Rear Face	40620	1	Ant 0	24.0	23.67	1.08	0.03	0.256	0.28
	LTE 41	QPSK20M	1	0	Rear Face	41055	1	Ant 0	24.0	23.61	1.09	-0.02	0.245	0.27
	LTE 41	QPSK20M	1	0	Rear Face	41490	1	Ant 0	24.0	23.44	1.14	0.00	0.233	0.27
	LTE 41	QPSK20M	1	0	Rear Face	39750	2	Ant 0	24.0	23.85	1.04	-0.09	0.281	0.29

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
32	WLAN2.4G	802.11b	Front Face	1	1	Ant 0	18.5	18.33	1.04	0.09	0.046	0.05
	WLAN2.4G	802.11b	Rear Face	1	1	Ant 0	18.5	18.33	1.04	0.04	0.036	0.04
	WLAN2.4G	802.11b	Front Face	1	1	Ant 1	18.5	18.23	1.06	0.08	0.026	0.03
	WLAN2.4G	802.11b	Rear Face	1	1	Ant 1	18.5	18.23	1.06	-0.05	0.03	0.03
	WLAN2.4G	802.11b	Front Face	11	1	Ant 0+1	18.5	18.42	1.02	0.04	0.058	0.06
	WLAN2.4G	802.11b	Rear Face	11	1	Ant 0+1	18.5	18.42	1.02	-0.08	0.060	0.06
	WLAN2.4G	802.11b	Rear Face	1	1	Ant 0+1	18.5	18.37	1.03	0.03	0.054	0.06
	WLAN2.4G	802.11b	Rear Face	6	1	Ant 0+1	18.5	18.31	1.04	-0.07	0.052	0.05
	WLAN2.4G	802.11b	Rear Face	12	1	Ant 0+1	18.5	18.41	1.02	-0.05	0.048	0.05
	WLAN2.4G	802.11b	Rear Face	13	1	Ant 0+1	17.5	17.07	1.10	0.10	0.036	0.04
	WLAN2.4G	802.11b	Rear Face	11	2	Ant 0+1	18.5	18.42	1.02	0.00	0.012	0.01
	WLAN5G	802.11a	Front Face	64	1	Ant 0	18.0	17.96	1.01	0.00	0.001	0.00
33	WLAN5G	802.11a	Rear Face	64	1	Ant 0	18.0	17.96	1.01	-0.13	0.079	0.08
	WLAN5G	802.11a	Front Face	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	64	1	Ant 1	18.0	17.97	1.01	0.06	0.68	0.68
	WLAN5G	802.11a	Front Face	64	1	Ant 0+1	18.0	17.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	64	1	Ant 0+1	18.0	17.98	1.00	-0.07	0.435	0.44
	WLAN5G	802.11a	Rear Face	52	1	Ant 1	18.0	17.53	1.11	0.09	0.738	0.82
	WLAN5G	802.11a	Rear Face	56	1	Ant 1	18.0	17.70	1.07	0.05	0.775	0.83
	WLAN5G	802.11a	Rear Face	60	1	Ant 1	18.0	17.76	1.06	-0.15	0.813	0.86
	WLAN5G	802.11a	Rear Face	60	2	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	60	1	Ant 1	18.0	17.76	1.06	-0.13	0.795	0.84

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5G	802.11a	Front Face	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
34	WLAN5G	802.11a	Rear Face	100	1	Ant 1	18.0	17.80	1.05	-0.08	0.606	0.63
	WLAN5G	802.11a	Front Face	100	1	Ant 0+1	18.0	17.96	1.01	0.00	0.01	0.01
	WLAN5G	802.11a	Rear Face	100	1	Ant 0+1	18.0	17.96	1.01	-0.10	0.348	0.35
	WLAN5G	802.11a	Rear Face	116	1	Ant 1	18.0	17.55	1.11	0.10	0.391	0.43
	WLAN5G	802.11a	Rear Face	120	1	Ant 1	18.0	17.73	1.06	-0.04	0.438	0.47
	WLAN5G	802.11a	Rear Face	124	1	Ant 1	18.0	17.69	1.07	0.07	0.407	0.44
	WLAN5G	802.11a	Rear Face	132	1	Ant 1	18.0	17.59	1.10	0.02	0.309	0.34
	WLAN5G	802.11a	Rear Face	140	1	Ant 1	18.0	17.63	1.09	0.08	0.281	0.31
	WLAN5G	802.11a	Rear Face	144	1	Ant 1	18.0	17.56	1.11	0.02	0.263	0.29
	WLAN5G	802.11a	Rear Face	100	2	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	157	1	Ant 0	18.0	17.90	1.02	-0.16	0.085	0.09
	WLAN5G	802.11a	Front Face	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	149	1	Ant 1	18.0	17.76	1.06	0.05	0.315	0.33
	WLAN5G	802.11a	Front Face	157	1	Ant 0+1	18.0	17.93	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	157	1	Ant 0+1	18.0	17.93	1.02	-0.13	0.215	0.22
	WLAN5G	802.11a	Rear Face	153	1	Ant 1	18.0	17.66	1.08	0.07	0.206	0.22
35	WLAN5G	802.11a	Rear Face	157	1	Ant 1	18.0	17.63	1.09	-0.11	0.345	0.38
	WLAN5G	802.11a	Rear Face	161	1	Ant 1	18.0	17.61	1.09	0.06	0.202	0.22
	WLAN5G	802.11a	Rear Face	165	1	Ant 1	18.0	17.58	1.10	0.10	0.22	0.24
	WLAN5G	802.11a	Rear Face	157	2	Ant 1	18.0	17.63	1.09	0.00	0.001	0.00

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	BT	BR / EDR	Front Face	0	1	13.0	12.81	1.04	0.00	0.001	0.00
	BT	BR / EDR	Rear Face	0	1	13.0	12.81	1.04	0.00	0.001	0.00
	BT	BR / EDR	Rear Face	39	1	13.0	11.76	1.33	0.00	0.001	0.00
	BT	BR / EDR	Rear Face	78	1	13.0	12.55	1.11	0.00	0.001	0.00
	BT	BR / EDR	Rear Face	0	2	13.0	12.81	1.04	0.00	0.001	0.00

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

FCC SAR Test Report

4.7.4 SAR Results for Hotspot Exposure Condition (Test Separation Distance is 10 mm)

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS10	Front Face	189	1	Ant 0	30.0	29.92	1.02	0.08	0.203	0.21
	GSM850	GPRS10	Rear Face	189	1	Ant 0	30.0	29.92	1.02	-0.08	0.262	0.27
	GSM850	GPRS10	Left Side	189	1	Ant 0	30.0	29.92	1.02	0.01	0.175	0.18
	GSM850	GPRS10	Right Side	189	1	Ant 0	30.0	29.92	1.02	-0.01	0.259	0.26
	GSM850	GPRS10	Bottom Side	189	1	Ant 0	30.0	29.92	1.02	0.15	0.231	0.24
	GSM850	GPRS10	Front Face	189	1	Ant 1	30.0	29.92	1.02	0.13	0.238	0.24
19	GSM850	GPRS10	Rear Face	189	1	Ant 1	30.0	29.92	1.02	-0.05	0.271	0.28
	GSM850	GPRS10	Left Side	189	1	Ant 1	30.0	29.92	1.02	0.00	0.001	0.00
	GSM850	GPRS10	Right Side	189	1	Ant 1	30.0	29.92	1.02	0.15	0.081	0.08
	GSM850	GPRS10	Top Side	189	1	Ant 1	30.0	29.92	1.02	-0.15	0.191	0.19
	GSM850	GPRS10	Rear Face	128	1	Ant 1	30.0	29.91	1.02	-0.07	0.251	0.26
	GSM850	GPRS10	Rear Face	251	1	Ant 1	30.0	29.64	1.09	0.08	0.222	0.24
	GSM850	GPRS10	Rear Face	189	2	Ant 1	30.0	29.92	1.02	0.02	0.259	0.26
	GSM1900	GPRS10	Front Face	512	1	Ant 0	27.0	26.62	1.09	0.06	0.308	0.34
	GSM1900	GPRS10	Rear Face	512	1	Ant 0	27.0	26.62	1.09	-0.02	0.434	0.47
	GSM1900	GPRS10	Left Side	512	1	Ant 0	27.0	26.62	1.09	0.00	0.001	0.00
	GSM1900	GPRS10	Right Side	512	1	Ant 0	27.0	26.62	1.09	0.00	0.001	0.00
	GSM1900	GPRS10	Bottom Side	512	1	Ant 0	27.0	26.62	1.09	0.01	0.788	0.86
	GSM1900	GPRS10	Bottom Side	661	1	Ant 0	27.0	26.61	1.09	-0.07	0.583	0.64
	GSM1900	GPRS10	Bottom Side	810	1	Ant 0	27.0	26.57	1.10	0.06	0.334	0.37
36	GSM1900	GPRS10	Bottom Side	512	2	Ant 0	27.0	26.62	1.09	0.05	0.999	1.09
	GSM1900	GPRS10	Bottom Side	661	2	Ant 0	27.0	26.61	1.09	-0.08	0.759	0.83
	GSM1900	GPRS10	Bottom Side	810	2	Ant 0	27.0	26.57	1.10	0.06	0.675	0.75
	GSM1900	GPRS10	Bottom Side	512	2	Ant 0	27.0	26.62	1.09	0.05	0.979	1.07
	WCDMA II	RMC12.2K	Front Face	9262	1	Ant 0	23.5	23.47	1.01	0.01	0.446	0.45
	WCDMA II	RMC12.2K	Rear Face	9262	1	Ant 0	23.5	23.47	1.01	-0.02	0.808	0.81
	WCDMA II	RMC12.2K	Left Side	9262	1	Ant 0	23.5	23.47	1.01	-0.15	0.081	0.08
	WCDMA II	RMC12.2K	Right Side	9262	1	Ant 0	23.5	23.47	1.01	0.15	0.052	0.05
	WCDMA II	RMC12.2K	Bottom Side	9262	1	Ant 0	23.5	23.47	1.01	0.11	1.08	1.09
	WCDMA II	RMC12.2K	Rear Face	9400	1	Ant 0	23.5	23.38	1.03	0.07	0.667	0.69
	WCDMA II	RMC12.2K	Rear Face	9538	1	Ant 0	23.5	23.29	1.05	0.18	0.613	0.64
	WCDMA II	RMC12.2K	Bottom Side	9400	1	Ant 0	23.5	23.38	1.03	0.13	1.01	1.04
	WCDMA II	RMC12.2K	Bottom Side	9538	1	Ant 0	23.5	23.29	1.05	0.11	0.951	1.00
	WCDMA II	RMC12.2K	Bottom Side	9262	2	Ant 0	23.5	23.47	1.01	-0.07	0.99	1.00
37	WCDMA II	RMC12.2K	Bottom Side	9400	2	Ant 0	23.5	23.38	1.03	-0.13	1.11	1.14
	WCDMA II	RMC12.2K	Bottom Side	9538	2	Ant 0	23.5	23.29	1.05	-0.01	0.85	0.89
	WCDMA II	RMC12.2K	Bottom Side	9400	2	Ant 0	23.5	23.38	1.03	-0.13	1.08	1.11

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WCDMA IV	RMC12.2K	Front Face	1312	1	Ant 0	23.5	23.38	1.03	0.08	0.465	0.48
	WCDMA IV	RMC12.2K	Rear Face	1312	1	Ant 0	23.5	23.38	1.03	0.03	0.866	0.89
	WCDMA IV	RMC12.2K	Left Side	1312	1	Ant 0	23.5	23.38	1.03	-0.11	0.065	0.07
	WCDMA IV	RMC12.2K	Right Side	1312	1	Ant 0	23.5	23.38	1.03	-0.15	0.059	0.06
38	WCDMA IV	RMC12.2K	Bottom Side	1312	1	Ant 0	23.5	23.38	1.03	0.10	1.15	1.18
	WCDMA IV	RMC12.2K	Front Face	1312	1	Ant 1	24.0	23.98	1.00	0.02	0.238	0.24
	WCDMA IV	RMC12.2K	Rear Face	1312	1	Ant 1	24.0	23.98	1.00	0.06	0.278	0.28
	WCDMA IV	RMC12.2K	Left Side	1312	1	Ant 1	24.0	23.98	1.00	-0.04	0.001	0.00
	WCDMA IV	RMC12.2K	Right Side	1312	1	Ant 1	24.0	23.98	1.00	0.08	0.001	0.00
	WCDMA IV	RMC12.2K	Top Side	1312	1	Ant 1	24.0	23.98	1.00	-0.03	0.421	0.42
	WCDMA IV	RMC12.2K	Rear Face	1413	1	Ant 0	23.5	23.31	1.04	-0.08	0.813	0.85
	WCDMA IV	RMC12.2K	Rear Face	1513	1	Ant 0	23.5	23.26	1.06	0.07	0.776	0.82
	WCDMA IV	RMC12.2K	Bottom Side	1413	1	Ant 0	23.5	23.31	1.04	-0.05	1.08	1.13
	WCDMA IV	RMC12.2K	Bottom Side	1513	1	Ant 0	23.5	23.26	1.06	-0.11	1.03	1.09
	WCDMA IV	RMC12.2K	Bottom Side	1312	2	Ant 0	23.5	23.38	1.03	0.01	0.459	0.47
	WCDMA IV	RMC12.2K	Bottom Side	1312	1	Ant 0	23.5	23.38	1.03	0.10	1.12	1.15
	WCDMA V	RMC12.2K	Front Face	4132	1	Ant 0	24.0	23.99	1.00	0.07	0.1	0.10
	WCDMA V	RMC12.2K	Rear Face	4132	1	Ant 0	24.0	23.99	1.00	-0.02	0.189	0.19
	WCDMA V	RMC12.2K	Left Side	4132	1	Ant 0	24.0	23.99	1.00	0.00	0.001	0.00
	WCDMA V	RMC12.2K	Right Side	4132	1	Ant 0	24.0	23.99	1.00	0.03	0.125	0.13
	WCDMA V	RMC12.2K	Bottom Side	4132	1	Ant 0	24.0	23.99	1.00	-0.08	0.12	0.12
	WCDMA V	RMC12.2K	Front Face	4132	1	Ant 1	24.0	23.99	1.00	0.03	0.191	0.19
23	WCDMA V	RMC12.2K	Rear Face	4132	1	Ant 1	24.0	23.99	1.00	-0.06	0.203	0.20
	WCDMA V	RMC12.2K	Left Side	4132	1	Ant 1	24.0	23.99	1.00	0.00	0.001	0.00
	WCDMA V	RMC12.2K	Right Side	4132	1	Ant 1	24.0	23.99	1.00	0.05	0.069	0.07
	WCDMA V	RMC12.2K	Top Side	4132	1	Ant 1	24.0	23.99	1.00	-0.08	0.162	0.16
	WCDMA V	RMC12.2K	Rear Face	4182	1	Ant 1	24.0	23.93	1.02	0.06	0.194	0.20
	WCDMA V	RMC12.2K	Rear Face	4233	1	Ant 1	24.0	23.91	1.02	0.02	0.199	0.20
	WCDMA V	RMC12.2K	Rear Face	4132	2	Ant 1	24.0	23.99	1.00	0.05	0.198	0.20

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	QPSK20M	1	0	Front Face	19100	1	Ant 0	23.5	23.33	1.04	0.09	0.411	0.43
	LTE 2	QPSK20M	1	0	Rear Face	19100	1	Ant 0	23.5	23.33	1.04	-0.02	0.647	0.67
	LTE 2	QPSK20M	1	0	Left Side	19100	1	Ant 0	23.5	23.33	1.04	-0.06	0.037	0.04
	LTE 2	QPSK20M	1	0	Right Side	19100	1	Ant 0	23.5	23.33	1.04	0.02	0.055	0.06
39	LTE 2	QPSK20M	1	0	Bottom Side	19100	1	Ant 0	23.5	23.33	1.04	-0.09	1.07	1.11
	LTE 2	QPSK20M	50	0	Front Face	19100	1	Ant 0	22.5	22.30	1.05	-0.07	0.315	0.33
	LTE 2	QPSK20M	50	0	Rear Face	19100	1	Ant 0	22.5	22.30	1.05	0.08	0.491	0.51
	LTE 2	QPSK20M	50	0	Left Side	19100	1	Ant 0	22.5	22.30	1.05	-0.09	0.068	0.07
	LTE 2	QPSK20M	50	0	Right Side	19100	1	Ant 0	22.5	22.30	1.05	0.12	0.041	0.04
	LTE 2	QPSK20M	50	0	Bottom Side	19100	1	Ant 0	22.5	22.30	1.05	0.05	0.926	0.97
	LTE 2	QPSK20M	1	0	Bottom Side	18700	1	Ant 0	23.5	23.16	1.08	0.06	0.806	0.87
	LTE 2	QPSK20M	1	0	Bottom Side	18900	1	Ant 0	23.5	23.11	1.09	-0.01	0.902	0.99
	LTE 2	QPSK20M	50	0	Bottom Side	18700	1	Ant 0	22.5	22.13	1.09	-0.06	0.899	0.98
	LTE 2	QPSK20M	50	0	Bottom Side	18900	1	Ant 0	22.5	22.08	1.10	0.08	0.862	0.95
	LTE 2	QPSK20M	100	0	Bottom Side	19100	1	Ant 0	22.5	22.25	1.06	0.03	0.871	0.92
	LTE 2	QPSK20M	1	0	Bottom Side	19100	2	Ant 0	23.5	23.33	1.04	-0.13	1.02	1.06
	LTE 2	QPSK20M	1	0	Bottom Side	18700	2	Ant 0	23.5	23.16	1.08	0.05	1.01	1.09
	LTE 2	QPSK20M	1	0	Bottom Side	18900	2	Ant 0	23.5	23.11	1.09	0.06	0.999	1.09
	LTE 2	QPSK20M	100	0	Bottom Side	19100	2	Ant 0	22.5	22.25	1.06	-0.13	0.715	0.76
	LTE 2	QPSK20M	1	0	Bottom Side	19100	1	Ant 0	23.5	23.33	1.04	-0.09	1.05	1.09

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 4	QPSK20M	1	0	Front Face	20050	1	Ant 0	23.5	23.21	1.07	-0.07	0.435	0.47
	LTE 4	QPSK20M	1	0	Rear Face	20050	1	Ant 0	23.5	23.21	1.07	0.02	0.697	0.75
	LTE 4	QPSK20M	1	0	Left Side	20050	1	Ant 0	23.5	23.21	1.07	0.01	0.031	0.03
	LTE 4	QPSK20M	1	0	Right Side	20050	1	Ant 0	23.5	23.21	1.07	-0.05	0.035	0.04
	LTE 4	QPSK20M	1	0	Bottom Side	20050	1	Ant 0	23.5	23.21	1.07	0.02	1.08	1.15
	LTE 4	QPSK20M	50	0	Front Face	20050	1	Ant 0	22.5	22.13	1.09	0.06	0.382	0.42
	LTE 4	QPSK20M	50	0	Rear Face	20050	1	Ant 0	22.5	22.13	1.09	-0.03	0.683	0.74
	LTE 4	QPSK20M	50	0	Left Side	20050	1	Ant 0	22.5	22.13	1.09	0.00	0.001	0.00
	LTE 4	QPSK20M	50	0	Right Side	20050	1	Ant 0	22.5	22.13	1.09	0.00	0.001	0.00
	LTE 4	QPSK20M	50	0	Bottom Side	20050	1	Ant 0	22.5	22.13	1.09	0.01	0.856	0.93
	LTE 4	QPSK20M	1	0	Front Face	20050	1	Ant 1	24.0	23.37	1.16	0.03	0.131	0.15
	LTE 4	QPSK20M	1	0	Rear Face	20050	1	Ant 1	24.0	23.37	1.16	-0.06	0.128	0.15
	LTE 4	QPSK20M	1	0	Left Side	20050	1	Ant 1	24.0	23.37	1.16	0.00	0.001	0.00
	LTE 4	QPSK20M	1	0	Right Side	20050	1	Ant 1	24.0	23.37	1.16	0.00	0.001	0.00
	LTE 4	QPSK20M	1	0	Top Side	20050	1	Ant 1	24.0	23.37	1.16	0.05	0.216	0.25
	LTE 4	QPSK20M	50	0	Front Face	20050	1	Ant 1	23.0	22.38	1.15	0.03	0.103	0.12
	LTE 4	QPSK20M	50	0	Rear Face	20050	1	Ant 1	23.0	22.38	1.15	-0.03	0.123	0.14
	LTE 4	QPSK20M	50	0	Left Side	20050	1	Ant 1	23.0	22.38	1.15	0.00	0.001	0.00
	LTE 4	QPSK20M	50	0	Right Side	20050	1	Ant 1	23.0	22.38	1.15	0.00	0.001	0.00
	LTE 4	QPSK20M	50	0	Top Side	20050	1	Ant 1	23.0	22.38	1.15	0.11	0.181	0.21
	LTE 4	QPSK20M	1	0	Bottom Side	20175	1	Ant 0	23.5	23.13	1.09	-0.09	1.09	1.19
40	LTE 4	QPSK20M	1	0	Bottom Side	20300	1	Ant 0	23.5	23.18	1.08	-0.05	1.11	1.19
	LTE 4	QPSK20M	50	0	Bottom Side	20175	1	Ant 0	22.5	22.05	1.11	0.05	0.891	0.99
	LTE 4	QPSK20M	50	0	Bottom Side	20300	1	Ant 0	22.5	22.03	1.11	-0.06	0.931	1.04
	LTE 4	QPSK20M	100	0	Bottom Side	20050	1	Ant 0	22.5	22.07	1.10	0.07	0.891	0.98
	LTE 4	QPSK20M	1	0	Bottom Side	20300	2	Ant 0	23.5	23.18	1.08	-0.08	0.883	0.95
	LTE 4	QPSK20M	1	0	Bottom Side	20050	2	Ant 0	23.5	23.21	1.07	0.05	0.888	0.95
	LTE 4	QPSK20M	1	0	Bottom Side	20175	2	Ant 0	23.5	23.13	1.09	0.01	0.865	0.94
	LTE 4	QPSK20M	100	0	Bottom Side	20050	2	Ant 0	22.5	22.07	1.10	-0.06	0.451	0.50
	LTE 4	QPSK20M	1	0	Bottom Side	20300	1	Ant 0	23.5	23.18	1.08	-0.05	1.08	1.16
	LTE 5	QPSK10M	1	0	Front Face	20525	1	Ant 0	24.0	23.41	1.15	0.05	0.182	0.21
	LTE 5	QPSK10M	1	0	Rear Face	20525	1	Ant 0	24.0	23.41	1.15	-0.09	0.233	0.27
	LTE 5	QPSK10M	1	0	Left Side	20525	1	Ant 0	24.0	23.41	1.15	0.05	0.247	0.28
41	LTE 5	QPSK10M	1	0	Right Side	20525	1	Ant 0	24.0	23.41	1.15	0.13	0.298	0.34
	LTE 5	QPSK10M	1	0	Bottom Side	20525	1	Ant 0	24.0	23.41	1.15	0.03	0.168	0.19
	LTE 5	QPSK10M	25	0	Front Face	20525	1	Ant 0	23.0	22.43	1.14	0.14	0.096	0.11
	LTE 5	QPSK10M	25	0	Rear Face	20525	1	Ant 0	23.0	22.43	1.14	0.02	0.140	0.16
	LTE 5	QPSK10M	25	0	Left Side	20525	1	Ant 0	23.0	22.43	1.14	0.00	0.001	0.00
	LTE 5	QPSK10M	25	0	Right Side	20525	1	Ant 0	23.0	22.43	1.14	0.14	0.119	0.14
	LTE 5	QPSK10M	25	0	Bottom Side	20525	1	Ant 0	23.0	22.43	1.14	0.1	0.087	0.10
	LTE 5	QPSK10M	1	0	Front Face	20525	1	Ant 1	24.0	23.41	1.15	0.09	0.131	0.15
	LTE 5	QPSK10M	1	0	Rear Face	20525	1	Ant 1	24.0	23.41	1.15	-0.1	0.258	0.30
	LTE 5	QPSK10M	1	0	Left Side	20525	1	Ant 1	24.0	23.41	1.15	0.04	0.160	0.18
	LTE 5	QPSK10M	1	0	Right Side	20525	1	Ant 1	24.0	23.41	1.15	0.07	0.205	0.23
	LTE 5	QPSK10M	1	0	Top Side	20525	1	Ant 1	24.0	23.41	1.15	0.05	0.00542	0.01
	LTE 5	QPSK10M	25	0	Front Face	20525	1	Ant 1	23.0	22.43	1.14	0.12	0.169	0.19
	LTE 5	QPSK10M	25	0	Rear Face	20525	1	Ant 1	23.0	22.43	1.14	0.05	0.196	0.22
	LTE 5	QPSK10M	25	0	Left Side	20525	1	Ant 1	23.0	22.43	1.14	0.00	0.001	0.00
	LTE 5	QPSK10M	25	0	Right Side	20525	1	Ant 1	23.0	22.43	1.14	0.11	0.052	0.06
	LTE 5	QPSK10M	25	0	Top Side	20525	1	Ant 1	23.0	22.43	1.14	0.12	0.135	0.15
	LTE 5	QPSK10M	1	0	Right Side	20450	1	Ant 0	24.0	23.35	1.16	0.08	0.274	0.32
	LTE 5	QPSK10M	1	0	Right Side	20600	1	Ant 0	24.0	23.17	1.21	0.05	0.269	0.33
	LTE 5	QPSK10M	1	0	Right Side	20525	2	Ant 0	24.0	23.41	1.15	0.07	0.263	0.30

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
42	LTE 7	QPSK20M	1	99	Front Face	21350	1	Ant 0	23.0	22.99	1.00	0.04	0.17	0.17
	LTE 7	QPSK20M	1	99	Rear Face	21350	1	Ant 0	23.0	22.99	1.00	-0.08	0.352	0.35
	LTE 7	QPSK20M	1	99	Left Side	21350	1	Ant 0	23.0	22.99	1.00	-0.15	0.399	0.40
	LTE 7	QPSK20M	1	99	Right Side	21350	1	Ant 0	23.0	22.99	1.00	0.11	0.036	0.04
	LTE 7	QPSK20M	1	99	Bottom Side	21350	1	Ant 0	23.0	22.99	1.00	0.05	0.192	0.19
	LTE 7	QPSK20M	50	50	Front Face	21350	1	Ant 0	22.0	21.99	1.00	-0.18	0.137	0.14
	LTE 7	QPSK20M	50	50	Rear Face	21350	1	Ant 0	22.0	21.99	1.00	0.03	0.207	0.21
	LTE 7	QPSK20M	50	50	Left Side	21350	1	Ant 0	22.0	21.99	1.00	-0.11	0.311	0.31
	LTE 7	QPSK20M	50	50	Right Side	21350	1	Ant 0	22.0	21.99	1.00	0.13	0.027	0.03
	LTE 7	QPSK20M	50	50	Bottom Side	21350	1	Ant 0	22.0	21.99	1.00	0.08	0.154	0.15
	LTE 7	QPSK20M	1	99	Front Face	21350	1	Ant 1	23.0	22.99	1.00	0.01	0.107	0.11
	LTE 7	QPSK20M	1	99	Rear Face	21350	1	Ant 1	23.0	22.99	1.00	-0.16	0.125	0.13
	LTE 7	QPSK20M	1	99	Left Side	21350	1	Ant 1	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 7	QPSK20M	1	99	Right Side	21350	1	Ant 1	23.0	22.99	1.00	0.01	0.08	0.08
	LTE 7	QPSK20M	1	99	Top Side	21350	1	Ant 1	23.0	22.99	1.00	-0.19	0.189	0.19
	LTE 7	QPSK20M	50	50	Front Face	21350	1	Ant 1	22.0	21.99	1.00	0.09	0.097	0.10
	LTE 7	QPSK20M	50	50	Rear Face	21350	1	Ant 1	22.0	21.99	1.00	0.05	0.138	0.14
	LTE 7	QPSK20M	50	50	Left Side	21350	1	Ant 1	22.0	21.99	1.00	0.00	0.001	0.00
	LTE 7	QPSK20M	50	50	Right Side	21350	1	Ant 1	22.0	21.99	1.00	-0.13	0.056	0.06
	LTE 7	QPSK20M	50	50	Top Side	21350	1	Ant 1	22.0	21.99	1.00	0.03	0.164	0.16
28	LTE 7	QPSK20M	1	99	Left Side	20850	1	Ant 0	23.0	22.97	1.01	0.01	0.383	0.39
	LTE 7	QPSK20M	1	99	Left Side	21100	1	Ant 0	23.0	22.98	1.00	0.00	0.369	0.37
	LTE 7	QPSK20M	1	99	Left Side	21350	2	Ant 0	23.0	22.99	1.00	0.05	0.23	0.23
	LTE 12	QPSK10M	1	49	Front Face	23095	1	Ant 0	23.0	22.99	1.00	0.01	0.069	0.07
	LTE 12	QPSK10M	1	49	Rear Face	23095	1	Ant 0	23.0	22.99	1.00	-0.01	0.122	0.12
	LTE 12	QPSK10M	1	49	Left Side	23095	1	Ant 0	23.0	22.99	1.00	0.06	0.096	0.10
	LTE 12	QPSK10M	1	49	Right Side	23095	1	Ant 0	23.0	22.99	1.00	-0.13	0.109	0.11
	LTE 12	QPSK10M	1	49	Bottom Side	23095	1	Ant 0	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Front Face	23095	1	Ant 0	22.0	21.98	1.00	0.01	0.051	0.05
	LTE 12	QPSK10M	25	25	Rear Face	23095	1	Ant 0	22.0	21.98	1.00	0.14	0.096	0.10
	LTE 12	QPSK10M	25	25	Left Side	23095	1	Ant 0	22.0	21.98	1.00	0.13	0.08	0.08
	LTE 12	QPSK10M	25	25	Right Side	23095	1	Ant 0	22.0	21.98	1.00	0.09	0.089	0.09
	LTE 12	QPSK10M	25	25	Bottom Side	23095	1	Ant 0	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	1	49	Front Face	23095	1	Ant 1	23.0	22.99	1.00	0.01	0.125	0.13
	LTE 12	QPSK10M	1	49	Rear Face	23095	1	Ant 1	23.0	22.99	1.00	-0.18	0.152	0.15
	LTE 12	QPSK10M	1	49	Left Side	23095	1	Ant 1	23.0	22.99	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	1	49	Right Side	23095	1	Ant 1	23.0	22.99	1.00	0.13	0.079	0.08
	LTE 12	QPSK10M	1	49	Top Side	23095	1	Ant 1	23.0	22.99	1.00	0.05	0.144	0.14
	LTE 12	QPSK10M	25	25	Front Face	23095	1	Ant 1	22.0	21.98	1.00	0.09	0.1	0.10
	LTE 12	QPSK10M	25	25	Rear Face	23095	1	Ant 1	22.0	21.98	1.00	0.06	0.116	0.12
	LTE 12	QPSK10M	25	25	Left Side	23095	1	Ant 1	22.0	21.98	1.00	0.00	0.001	0.00
	LTE 12	QPSK10M	25	25	Right Side	23095	1	Ant 1	22.0	21.98	1.00	0.06	0.054	0.05
	LTE 12	QPSK10M	25	25	Top Side	23095	1	Ant 1	22.0	21.98	1.00	0.05	0.116	0.12
	LTE 12	QPSK10M	1	49	Rear Face	23060	1	Ant 1	23.0	22.89	1.03	0.06	0.144	0.15
	LTE 12	QPSK10M	1	49	Rear Face	23130	1	Ant 1	23.0	22.97	1.01	0.07	0.147	0.15
	LTE 12	QPSK10M	1	49	Rear Face	23095	2	Ant 1	23.0	22.99	1.00	-0.03	0.147	0.15

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 26	QPSK15M	1	0	Front Face	26765	1	Ant 0	24.0	23.68	1.08	0.08	0.079	0.09
	LTE 26	QPSK15M	1	0	Rear Face	26765	1	Ant 0	24.0	23.68	1.08	-0.03	0.152	0.16
	LTE 26	QPSK15M	1	0	Left Side	26765	1	Ant 0	24.0	23.68	1.08	0.05	0.097	0.10
	LTE 26	QPSK15M	1	0	Right Side	26765	1	Ant 0	24.0	23.68	1.08	0.07	0.144	0.16
	LTE 26	QPSK15M	1	0	Bottom Side	26765	1	Ant 0	24.0	23.68	1.08	-0.02	0.064	0.07
	LTE 26	QPSK15M	36	0	Front Face	26765	1	Ant 0	23.0	22.72	1.07	0.10	0.065	0.07
	LTE 26	QPSK15M	36	0	Rear Face	26765	1	Ant 0	23.0	22.72	1.07	0.08	0.125	0.13
	LTE 26	QPSK15M	36	0	Left Side	26765	1	Ant 0	23.0	22.72	1.07	0.06	0.084	0.09
	LTE 26	QPSK15M	36	0	Right Side	26765	1	Ant 0	23.0	22.72	1.07	-0.04	0.127	0.14
	LTE 26	QPSK15M	36	0	Bottom Side	26765	1	Ant 0	23.0	22.72	1.07	0.09	0.058	0.06
	LTE 26	QPSK15M	1	0	Front Face	26765	1	Ant 1	24.0	23.68	1.08	0.03	0.145	0.16
	LTE 26	QPSK15M	1	0	Rear Face	26765	1	Ant 1	24.0	23.68	1.08	0.07	0.153	0.16
	LTE 26	QPSK15M	1	0	Left Side	26765	1	Ant 1	24.0	23.68	1.08	0.00	0.001	0.00
	LTE 26	QPSK15M	1	0	Right Side	26765	1	Ant 1	24.0	23.68	1.08	-0.05	0.051	0.05
	LTE 26	QPSK15M	1	0	Top Side	26765	1	Ant 1	24.0	23.68	1.08	0.04	0.115	0.12
	LTE 26	QPSK15M	36	0	Front Face	26765	1	Ant 1	23.0	22.72	1.07	0.09	0.11	0.12
	LTE 26	QPSK15M	36	0	Rear Face	26765	1	Ant 1	23.0	22.72	1.07	0.02	0.139	0.15
	LTE 26	QPSK15M	36	0	Left Side	26765	1	Ant 1	23.0	22.72	1.07	0.00	0.001	0.00
	LTE 26	QPSK15M	36	0	Right Side	26765	1	Ant 1	23.0	22.72	1.07	-0.08	0.037	0.04
	LTE 26	QPSK15M	36	0	Top Side	26765	1	Ant 1	23.0	22.72	1.07	0.05	0.093	0.10
	LTE 26	QPSK15M	1	0	Rear Face	26865	1	Ant 1	24.0	23.46	1.13	0.09	0.173	0.20
29	LTE 26	QPSK15M	1	0	Rear Face	26965	1	Ant 1	24.0	23.33	1.17	-0.11	0.188	0.22
	LTE 26	QPSK15M	1	0	Rear Face	26965	2	Ant 1	24.0	23.33	1.17	-0.02	0.17	0.20
	LTE 30	QPSK10M	1	0	Front Face	27710	1	Ant 0	24.0	23.75	1.06	0.03	0.158	0.17
30	LTE 30	QPSK10M	1	0	Rear Face	27710	1	Ant 0	24.0	23.75	1.06	0.02	0.34	0.36
	LTE 30	QPSK10M	1	0	Left Side	27710	1	Ant 0	24.0	23.75	1.06	-0.18	0.285	0.30
	LTE 30	QPSK10M	1	0	Right Side	27710	1	Ant 0	24.0	23.75	1.06	0.00	0.001	0.00
	LTE 30	QPSK10M	1	0	Bottom Side	27710	1	Ant 0	24.0	23.75	1.06	-0.11	0.111	0.12
	LTE 30	QPSK10M	25	0	Front Face	27710	1	Ant 0	23.0	22.79	1.05	0.06	0.128	0.13
	LTE 30	QPSK10M	25	0	Rear Face	27710	1	Ant 0	23.0	22.79	1.05	0.08	0.213	0.22
	LTE 30	QPSK10M	25	0	Left Side	27710	1	Ant 0	23.0	22.79	1.05	0.01	0.237	0.25
	LTE 30	QPSK10M	25	0	Right Side	27710	1	Ant 0	23.0	22.79	1.05	0.00	0.001	0.00
	LTE 30	QPSK10M	25	0	Bottom Side	27710	1	Ant 0	23.0	22.79	1.05	0.05	0.097	0.10
	LTE 30	QPSK10M	1	0	Front Face	27710	1	Ant 1	24.0	23.75	1.06	0.14	0.058	0.06
	LTE 30	QPSK10M	1	0	Rear Face	27710	1	Ant 1	24.0	23.75	1.06	0.05	0.076	0.08
	LTE 30	QPSK10M	1	0	Left Side	27710	1	Ant 1	24.0	23.75	1.06	0.00	0.001	0.00
	LTE 30	QPSK10M	1	0	Right Side	27710	1	Ant 1	24.0	23.75	1.06	0.01	0.043	0.05
	LTE 30	QPSK10M	1	0	Top Side	27710	1	Ant 1	24.0	23.75	1.06	-0.15	0.082	0.09
	LTE 30	QPSK10M	25	0	Front Face	27710	1	Ant 1	23.0	22.79	1.05	0.01	0.053	0.06
	LTE 30	QPSK10M	25	0	Rear Face	27710	1	Ant 1	23.0	22.79	1.05	0.04	0.07	0.07
	LTE 30	QPSK10M	25	0	Left Side	27710	1	Ant 1	23.0	22.79	1.05	0.00	0.001	0.00
	LTE 30	QPSK10M	25	0	Right Side	27710	1	Ant 1	23.0	22.79	1.05	-0.11	0.033	0.03
	LTE 30	QPSK10M	25	0	Top Side	27710	1	Ant 1	23.0	22.79	1.05	0.05	0.06	0.06
	LTE 30	QPSK10M	1	0	Rear Face	27710	2	Ant 0	24.0	23.75	1.06	0.10	0.172	0.18

FCC SAR Test Report

Plot No.	Band	Mode	RB#	RB Offset	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 41	QPSK20M	1	0	Front Face	39750	1	Ant 0	24.0	23.85	1.04	0.13	0.227	0.23
	LTE 41	QPSK20M	1	0	Rear Face	39750	1	Ant 0	24.0	23.85	1.04	0.06	0.335	0.35
43	LTE 41	QPSK20M	1	0	Left Side	39750	1	Ant 0	24.0	23.85	1.04	-0.11	0.391	0.40
	LTE 41	QPSK20M	1	0	Right Side	39750	1	Ant 0	24.0	23.85	1.04	0.11	0.02	0.02
	LTE 41	QPSK20M	1	0	Bottom Side	39750	1	Ant 0	24.0	23.85	1.04	0.03	0.161	0.17
	LTE 41	QPSK20M	50	0	Front Face	39750	1	Ant 0	23.0	22.89	1.03	0.17	0.169	0.17
	LTE 41	QPSK20M	50	0	Rear Face	39750	1	Ant 0	23.0	22.89	1.03	-0.11	0.255	0.26
	LTE 41	QPSK20M	50	0	Left Side	39750	1	Ant 0	23.0	22.89	1.03	0.08	0.256	0.26
	LTE 41	QPSK20M	50	0	Right Side	39750	1	Ant 0	23.0	22.89	1.03	0.02	0.008	0.01
	LTE 41	QPSK20M	50	0	Bottom Side	39750	1	Ant 0	23.0	22.89	1.03	0.14	0.128	0.13
	LTE 41	QPSK20M	1	0	Front Face	39750	1	Ant 1	24.0	23.85	1.04	0.11	0.091	0.09
	LTE 41	QPSK20M	1	0	Rear Face	39750	1	Ant 1	24.0	23.85	1.04	0.03	0.121	0.13
	LTE 41	QPSK20M	1	0	Left Side	39750	1	Ant 1	24.0	23.85	1.04	0.13	0.001	0.00
	LTE 41	QPSK20M	1	0	Right Side	39750	1	Ant 1	24.0	23.85	1.04	0.06	0.038	0.04
	LTE 41	QPSK20M	1	0	Top Side	39750	1	Ant 1	24.0	23.85	1.04	-0.17	0.115	0.12
	LTE 41	QPSK20M	50	0	Front Face	39750	1	Ant 1	23.0	22.89	1.03	-0.02	0.076	0.08
	LTE 41	QPSK20M	50	0	Rear Face	39750	1	Ant 1	23.0	22.89	1.03	0.00	0.095	0.10
	LTE 41	QPSK20M	50	0	Left Side	39750	1	Ant 1	23.0	22.89	1.03	0.01	0.001	0.00
	LTE 41	QPSK20M	50	0	Right Side	39750	1	Ant 1	23.0	22.89	1.03	0.08	0.028	0.03
	LTE 41	QPSK20M	50	0	Top Side	39750	1	Ant 1	23.0	22.89	1.03	-0.11	0.1	0.10
	LTE 41	QPSK20M	1	0	Left Side	40185	1	Ant 0	24.0	23.72	1.07	-0.17	0.308	0.33
	LTE 41	QPSK20M	1	0	Left Side	40620	1	Ant 0	24.0	23.67	1.08	-0.11	0.275	0.30
	LTE 41	QPSK20M	1	0	Left Side	41055	1	Ant 0	24.0	23.61	1.09	0.06	0.262	0.29
	LTE 41	QPSK20M	1	0	Left Side	41490	1	Ant 0	24.0	23.44	1.14	0.17	0.247	0.28
	LTE 41	QPSK20M	1	0	Left Side	39750	2	Ant 0	24.0	23.85	1.04	-0.09	0.281	0.29

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN2.4G	802.11b	Front Face	1	1	Ant 0	18.5	18.33	1.04	0.09	0.046	0.05
	WLAN2.4G	802.11b	Rear Face	1	1	Ant 0	18.5	18.33	1.04	0.04	0.036	0.04
	WLAN2.4G	802.11b	Left Side	1	1	Ant 0	18.5	18.33	1.04	0.10	0.052	0.05
44	WLAN2.4G	802.11b	Top Side	1	1	Ant 0	18.5	18.33	1.04	-0.12	0.183	0.19
	WLAN2.4G	802.11b	Front Face	1	1	Ant 1	18.5	18.23	1.06	0.08	0.026	0.03
	WLAN2.4G	802.11b	Rear Face	1	1	Ant 1	18.5	18.23	1.06	-0.05	0.03	0.03
	WLAN2.4G	802.11b	Left Side	1	1	Ant 1	18.5	18.23	1.06	0.00	0.001	0.00
	WLAN2.4G	802.11b	Top Side	1	1	Ant 1	18.5	18.23	1.06	-0.06	0.097	0.10
	WLAN2.4G	802.11b	Front Face	11	1	Ant 0+1	18.5	18.42	1.02	0.04	0.058	0.06
	WLAN2.4G	802.11b	Rear Face	11	1	Ant 0+1	18.5	18.42	1.02	-0.08	0.060	0.06
	WLAN2.4G	802.11b	Left Side	11	1	Ant 0+1	18.5	18.42	1.02	0.03	0.045	0.05
	WLAN2.4G	802.11b	Top Side	11	1	Ant 0+1	18.5	18.42	1.02	0.07	0.157	0.16
	WLAN2.4G	802.11b	Top Side	6	1	Ant 0	18.5	18.17	1.08	-0.08	0.144	0.16
	WLAN2.4G	802.11b	Top Side	11	1	Ant 0	18.5	18.11	1.09	0.13	0.148	0.16
	WLAN2.4G	802.11b	Top Side	12	1	Ant 0	18.5	18.13	1.09	0.05	0.132	0.14
	WLAN2.4G	802.11b	Top Side	13	1	Ant 0	17.5	16.99	1.12	-0.07	0.098	0.11
	WLAN2.4G	802.11b	Top Side	1	2	Ant 0	18.5	18.33	1.04	0.09	0.043	0.04

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Tx Antenna	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	WLAN5G	802.11a	Front Face	64	1	Ant 0	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	64	1	Ant 0	18.0	17.96	1.01	-0.13	0.079	0.08
	WLAN5G	802.11a	Left Side	64	1	Ant 0	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	64	1	Ant 0	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	64	1	Ant 1	18.0	17.97	1.01	0.06	0.68	0.68
	WLAN5G	802.11a	Left Side	64	1	Ant 1	18.0	17.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	64	1	Ant 1	18.0	17.97	1.01	-0.02	0.178	0.18
	WLAN5G	802.11a	Front Face	64	1	Ant 0+1	18.0	17.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	64	1	Ant 0+1	18.0	17.98	1.00	-0.07	0.435	0.44
	WLAN5G	802.11a	Left Side	64	1	Ant 0+1	18.0	17.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	64	1	Ant 0+1	18.0	17.98	1.00	0.03	0.111	0.11
	WLAN5G	802.11a	Rear Face	52	1	Ant 1	18.0	17.53	1.11	0.09	0.738	0.82
	WLAN5G	802.11a	Rear Face	56	1	Ant 1	18.0	17.70	1.07	0.05	0.775	0.83
33	WLAN5G	802.11a	Rear Face	60	1	Ant 1	18.0	17.76	1.06	-0.15	0.813	0.86
	WLAN5G	802.11a	Rear Face	60	2	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	60	1	Ant 1	18.0	17.76	1.06	-0.13	0.795	0.84
	WLAN5G	802.11a	Front Face	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Left Side	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	100	1	Ant 0	18.0	17.91	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	100	1	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
34	WLAN5G	802.11a	Rear Face	100	1	Ant 1	18.0	17.80	1.05	-0.08	0.606	0.63
	WLAN5G	802.11a	Left Side	100	1	Ant 1	18.0	17.80	1.05	0.00	0.01	0.01
	WLAN5G	802.11a	Top Side	100	1	Ant 1	18.0	17.80	1.05	0.03	0.18	0.19
	WLAN5G	802.11a	Front Face	100	1	Ant 0+1	18.0	17.96	1.01	0.00	0.01	0.01
	WLAN5G	802.11a	Rear Face	100	1	Ant 0+1	18.0	17.96	1.01	-0.10	0.348	0.35
	WLAN5G	802.11a	Left Side	100	1	Ant 0+1	18.0	17.96	1.01	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	100	1	Ant 0+1	18.0	17.96	1.01	0.05	0.117	0.12
	WLAN5G	802.11a	Rear Face	116	1	Ant 1	18.0	17.55	1.11	0.10	0.391	0.43
	WLAN5G	802.11a	Rear Face	120	1	Ant 1	18.0	17.73	1.06	-0.04	0.438	0.47
	WLAN5G	802.11a	Rear Face	124	1	Ant 1	18.0	17.69	1.07	0.07	0.407	0.44
	WLAN5G	802.11a	Rear Face	132	1	Ant 1	18.0	17.59	1.10	0.02	0.309	0.34
	WLAN5G	802.11a	Rear Face	140	1	Ant 1	18.0	17.63	1.09	0.08	0.281	0.31
	WLAN5G	802.11a	Rear Face	144	1	Ant 1	18.0	17.56	1.11	0.02	0.263	0.29
	WLAN5G	802.11a	Rear Face	100	2	Ant 1	18.0	17.80	1.05	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	157	1	Ant 0	18.0	17.90	1.02	-0.16	0.085	0.09
	WLAN5G	802.11a	Left Side	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	157	1	Ant 0	18.0	17.90	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	149	1	Ant 1	18.0	17.76	1.06	0.05	0.315	0.33
	WLAN5G	802.11a	Left Side	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	149	1	Ant 1	18.0	17.76	1.06	0.00	0.001	0.00
	WLAN5G	802.11a	Front Face	157	1	Ant 0+1	18.0	17.93	1.02	0.01	0.001	0.00
	WLAN5G	802.11a	Rear Face	157	1	Ant 0+1	18.0	17.93	1.02	-0.13	0.215	0.22
	WLAN5G	802.11a	Left Side	157	1	Ant 0+1	18.0	17.93	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Top Side	157	1	Ant 0+1	18.0	17.93	1.02	0.00	0.001	0.00
	WLAN5G	802.11a	Rear Face	153	1	Ant 1	18.0	17.66	1.08	0.07	0.206	0.22
35	WLAN5G	802.11a	Rear Face	157	1	Ant 1	18.0	17.63	1.09	-0.11	0.345	0.38
	WLAN5G	802.11a	Rear Face	161	1	Ant 1	18.0	17.61	1.09	0.06	0.202	0.22
	WLAN5G	802.11a	Rear Face	165	1	Ant 1	18.0	17.58	1.10	0.10	0.22	0.24
	WLAN5G	802.11a	Rear Face	157	2	Ant 1	18.0	17.63	1.09	0.00	0.001	0.00

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

FCC SAR Test Report

Plot No.	Band	Mode	Test Position	Ch.	EUT Config.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	BT	BR / EDR	Front Face	0	1	13.0	12.81	1.04	0.00	0.001	0.00
	BT	BR / EDR	Rear Face	0	1	13.0	12.81	1.04	0.00	0.001	0.00
	BT	BR / EDR	Left Side	0	1	13.0	12.81	1.04	0.00	0.001	0.00
45	BT	BR / EDR	Top Side	0	1	13.0	12.81	1.04	-0.12	0.039	0.04
	BT	BR / EDR	Top Side	39	1	13.0	11.76	1.33	0.00	0.001	0.00
	BT	BR / EDR	Top Side	78	1	13.0	12.55	1.11	0.00	0.001	0.00
	BT	BR / EDR	Top Side	0	2	13.0	12.81	1.04	0.00	0.001	0.00

Note: The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

4.7.5 SAR Measurement Variability

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

SAR repeated measurement procedure:

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

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
GSM850	Left Cheek	189	1.14	1.12	1.02	N/A	N/A	N/A	N/A
WCDMA IV	Right Tilted	1513	1.07	1.05	1.02	N/A	N/A	N/A	N/A
WCDMA V	Left Cheek	4233	1.06	1.03	1.03	N/A	N/A	N/A	N/A
LTE 7	Left Tilted	21350	1.13	1.08	1.05	N/A	N/A	N/A	N/A
LTE 41	Left Tilted	40620	1.03	1.02	1.01	N/A	N/A	N/A	N/A
WCDMA II	Rear Face	9262	0.808	0.802	1.01	N/A	N/A	N/A	N/A
WCDMA IV	Rear Face	1312	0.866	0.861	1.01	N/A	N/A	N/A	N/A
WLAN 5G	Rear Face	60	0.813	0.795	1.02	N/A	N/A	N/A	N/A
GSM1900	Bottom Side	512	0.999	0.979	1.02	N/A	N/A	N/A	N/A
WCDMA II	Bottom Side	9400	1.11	1.08	1.03	N/A	N/A	N/A	N/A
WCDMA IV	Bottom Side	1312	1.15	1.12	1.03	N/A	N/A	N/A	N/A
LTE 2	Bottom Side	19100	1.07	1.05	1.02	N/A	N/A	N/A	N/A
LTE 4	Bottom Side	20300	1.11	1.08	1.03	N/A	N/A	N/A	N/A

FCC SAR Test Report

4.7.6 Simultaneous Multi-band Transmission Evaluation

<Possibilities of Simultaneous Transmission>

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

Simultaneous TX Combination	Capable Transmit Configurations	Head Exposure Condition	Body-worn Exposure Condition	Hotspot Exposure Condition
1	WWAN + WLAN	Yes	Yes	Yes
2	WWAN + BT	Yes	Yes	Yes
3	WWAN + WLAN + BT	Yes	Yes	Yes

Note :

1. The WLAN 2.4G and WLAN 5G cannot transmit simultaneously.

<SAR Summation Analysis>

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

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
1	GSM850 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	1.12	0.27	0.07	1.46	Σ SAR < 1.6, Not required
			Right Tilted	1.12	0.39	0.07	1.58	Σ SAR < 1.6, Not required
			Left Cheek	1.16	0.22	0.07	1.45	Σ SAR < 1.6, Not required
			Left Tilted	1.12	0.27	0.09	1.48	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.24	0.06	0.00	0.30	Σ SAR < 1.6, Not required
			Rear Face	0.28	0.06	0.00	0.34	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.24	0.06	0.00	0.30	Σ SAR < 1.6, Not required
			Rear Face	0.28	0.06	0.00	0.34	Σ SAR < 1.6, Not required
			Left Side	0.18	0.05	0.00	0.23	Σ SAR < 1.6, Not required
			Right Side	0.26	0.00	0.00	0.26	Σ SAR < 1.6, Not required
			Top Side	0.19	0.19	0.04	0.42	Σ SAR < 1.6, Not required
			Bottom Side	0.24	0.00	0.00	0.24	Σ SAR < 1.6, Not required
2	GSM850 + WLAN (NII) + BT (DSS)	Head	Right Cheek	1.12	0.32	0.07	1.51	Σ SAR < 1.6, Not required
			Right Tilted	1.12	0.38	0.07	1.57	Σ SAR < 1.6, Not required
			Left Cheek	1.16	0.27	0.07	1.50	Σ SAR < 1.6, Not required
			Left Tilted	1.12	0.26	0.09	1.47	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.24	0.01	0.00	0.25	Σ SAR < 1.6, Not required
			Rear Face	0.28	0.86	0.00	1.14	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.24	0.01	0.00	0.25	Σ SAR < 1.6, Not required
			Rear Face	0.28	0.86	0.00	1.14	Σ SAR < 1.6, Not required
			Left Side	0.18	0.01	0.00	0.19	Σ SAR < 1.6, Not required
			Right Side	0.26	0.00	0.00	0.26	Σ SAR < 1.6, Not required
			Top Side	0.19	0.19	0.04	0.42	Σ SAR < 1.6, Not required
			Bottom Side	0.24	0.00	0.00	0.24	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
3	GSM1900 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.00	0.27	0.07	0.34	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.39	0.07	0.46	Σ SAR < 1.6, Not required
			Left Cheek	0.13	0.22	0.07	0.42	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.27	0.09	0.36	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.34	0.06	0.00	0.40	Σ SAR < 1.6, Not required
			Rear Face	0.47	0.06	0.00	0.53	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.34	0.06	0.00	0.40	Σ SAR < 1.6, Not required
			Rear Face	0.47	0.06	0.00	0.53	Σ SAR < 1.6, Not required
			Left Side	0.00	0.05	0.00	0.05	Σ SAR < 1.6, Not required
			Right Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.09	0.00	0.00	1.09	Σ SAR < 1.6, Not required
4	GSM1900 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.00	0.32	0.07	0.39	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.38	0.07	0.45	Σ SAR < 1.6, Not required
			Left Cheek	0.13	0.27	0.07	0.47	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.26	0.09	0.35	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.34	0.01	0.00	0.35	Σ SAR < 1.6, Not required
			Rear Face	0.47	0.86	0.00	1.33	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.34	0.01	0.00	0.35	Σ SAR < 1.6, Not required
			Rear Face	0.47	0.86	0.00	1.33	Σ SAR < 1.6, Not required
			Left Side	0.00	0.01	0.00	0.01	Σ SAR < 1.6, Not required
			Right Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.09	0.00	0.00	1.09	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
5	WCDMA II + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.05	0.27	0.07	0.39	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.39	0.07	0.46	Σ SAR < 1.6, Not required
			Left Cheek	0.06	0.22	0.07	0.35	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.27	0.09	0.36	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.45	0.06	0.00	0.51	Σ SAR < 1.6, Not required
			Rear Face	0.81	0.06	0.00	0.87	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.45	0.06	0.00	0.51	Σ SAR < 1.6, Not required
			Rear Face	0.81	0.06	0.00	0.87	Σ SAR < 1.6, Not required
			Left Side	0.08	0.05	0.00	0.13	Σ SAR < 1.6, Not required
			Right Side	0.05	0.00	0.00	0.05	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.14	0.00	0.00	1.14	Σ SAR < 1.6, Not required
6	WCDMA II + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.05	0.32	0.07	0.44	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.38	0.07	0.45	Σ SAR < 1.6, Not required
			Left Cheek	0.06	0.27	0.07	0.40	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.26	0.09	0.35	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.45	0.01	0.00	0.46	Σ SAR < 1.6, Not required
			Rear Face	0.81	0.86	0.00	1.67	Analyzed as below
		Hotspot	Front Face	0.45	0.01	0.00	0.46	Σ SAR < 1.6, Not required
			Rear Face	0.81	0.86	0.00	1.67	Analyzed as below
			Left Side	0.08	0.01	0.00	0.09	Σ SAR < 1.6, Not required
			Right Side	0.05	0.00	0.00	0.05	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.14	0.00	0.00	1.14	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
7	WCDMA IV + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.69	0.27	0.07	1.03	Σ SAR < 1.6, Not required
			Right Tilted	1.08	0.39	0.07	1.54	Σ SAR < 1.6, Not required
			Left Cheek	0.64	0.22	0.07	0.93	Σ SAR < 1.6, Not required
			Left Tilted	0.94	0.27	0.09	1.30	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.48	0.06	0.00	0.54	Σ SAR < 1.6, Not required
			Rear Face	0.89	0.06	0.00	0.95	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.48	0.06	0.00	0.54	Σ SAR < 1.6, Not required
			Rear Face	0.89	0.06	0.00	0.95	Σ SAR < 1.6, Not required
			Left Side	0.07	0.05	0.00	0.12	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.42	0.19	0.04	0.65	Σ SAR < 1.6, Not required
			Bottom Side	1.18	0.00	0.00	1.18	Σ SAR < 1.6, Not required
8	WCDMA IV + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.69	0.32	0.07	1.08	Σ SAR < 1.6, Not required
			Right Tilted	1.08	0.38	0.07	1.53	Σ SAR < 1.6, Not required
			Left Cheek	0.64	0.27	0.07	0.98	Σ SAR < 1.6, Not required
			Left Tilted	0.94	0.26	0.09	1.29	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.48	0.01	0.00	0.49	Σ SAR < 1.6, Not required
			Rear Face	0.89	0.86	0.00	1.75	Analyzed as below
		Hotspot	Front Face	0.48	0.01	0.00	0.49	Σ SAR < 1.6, Not required
			Rear Face	0.89	0.86	0.00	1.75	Analyzed as below
			Left Side	0.07	0.01	0.00	0.08	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.42	0.19	0.04	0.65	Σ SAR < 1.6, Not required
			Bottom Side	1.18	0.00	0.00	1.18	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
9	WCDMA V + WLAN (DTS) + BT (DSS)	Head	Right Cheek	1.04	0.27	0.07	1.38	Σ SAR < 1.6, Not required
			Right Tilted	1.00	0.39	0.07	1.46	Σ SAR < 1.6, Not required
			Left Cheek	1.08	0.22	0.07	1.37	Σ SAR < 1.6, Not required
			Left Tilted	1.07	0.27	0.09	1.43	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.19	0.06	0.00	0.25	Σ SAR < 1.6, Not required
			Rear Face	0.20	0.06	0.00	0.26	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.19	0.06	0.00	0.25	Σ SAR < 1.6, Not required
			Rear Face	0.20	0.06	0.00	0.26	Σ SAR < 1.6, Not required
			Left Side	0.00	0.05	0.00	0.05	Σ SAR < 1.6, Not required
			Right Side	0.13	0.00	0.00	0.13	Σ SAR < 1.6, Not required
			Top Side	0.16	0.19	0.04	0.39	Σ SAR < 1.6, Not required
			Bottom Side	0.12	0.00	0.00	0.12	Σ SAR < 1.6, Not required
10	WCDMA V + WLAN (NII) + BT (DSS)	Head	Right Cheek	1.04	0.32	0.07	1.43	Σ SAR < 1.6, Not required
			Right Tilted	1.00	0.38	0.07	1.45	Σ SAR < 1.6, Not required
			Left Cheek	1.08	0.27	0.07	1.42	Σ SAR < 1.6, Not required
			Left Tilted	1.07	0.26	0.09	1.42	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.19	0.01	0.00	0.20	Σ SAR < 1.6, Not required
			Rear Face	0.20	0.86	0.00	1.06	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.19	0.01	0.00	0.20	Σ SAR < 1.6, Not required
			Rear Face	0.20	0.86	0.00	1.06	Σ SAR < 1.6, Not required
			Left Side	0.00	0.01	0.00	0.01	Σ SAR < 1.6, Not required
			Right Side	0.13	0.00	0.00	0.13	Σ SAR < 1.6, Not required
			Top Side	0.16	0.19	0.04	0.39	Σ SAR < 1.6, Not required
			Bottom Side	0.12	0.00	0.00	0.12	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
11	LTE 2 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.00	0.27	0.07	0.34	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.39	0.07	0.46	Σ SAR < 1.6, Not required
			Left Cheek	0.06	0.22	0.07	0.35	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.27	0.09	0.36	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.06	0.00	0.49	Σ SAR < 1.6, Not required
			Rear Face	0.67	0.06	0.00	0.73	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.06	0.00	0.49	Σ SAR < 1.6, Not required
			Rear Face	0.67	0.06	0.00	0.73	Σ SAR < 1.6, Not required
			Left Side	0.07	0.05	0.00	0.12	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.11	0.00	0.00	1.11	Σ SAR < 1.6, Not required
12	LTE 2 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.00	0.32	0.07	0.39	Σ SAR < 1.6, Not required
			Right Tilted	0.00	0.38	0.07	0.45	Σ SAR < 1.6, Not required
			Left Cheek	0.06	0.27	0.07	0.40	Σ SAR < 1.6, Not required
			Left Tilted	0.00	0.26	0.09	0.35	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.01	0.00	0.44	Σ SAR < 1.6, Not required
			Rear Face	0.67	0.86	0.00	1.53	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.01	0.00	0.44	Σ SAR < 1.6, Not required
			Rear Face	0.67	0.86	0.00	1.53	Σ SAR < 1.6, Not required
			Left Side	0.07	0.01	0.00	0.08	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.00	0.19	0.04	0.23	Σ SAR < 1.6, Not required
			Bottom Side	1.11	0.00	0.00	1.11	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
13	LTE 4 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.58	0.27	0.07	0.92	Σ SAR < 1.6, Not required
			Right Tilted	0.90	0.39	0.07	1.36	Σ SAR < 1.6, Not required
			Left Cheek	0.52	0.22	0.07	0.81	Σ SAR < 1.6, Not required
			Left Tilted	0.68	0.27	0.09	1.04	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.47	0.06	0.00	0.53	Σ SAR < 1.6, Not required
			Rear Face	0.75	0.06	0.00	0.81	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.47	0.06	0.00	0.53	Σ SAR < 1.6, Not required
			Rear Face	0.75	0.06	0.00	0.81	Σ SAR < 1.6, Not required
			Left Side	0.03	0.05	0.00	0.08	Σ SAR < 1.6, Not required
			Right Side	0.04	0.00	0.00	0.04	Σ SAR < 1.6, Not required
			Top Side	0.25	0.19	0.04	0.48	Σ SAR < 1.6, Not required
			Bottom Side	1.19	0.00	0.00	1.19	Σ SAR < 1.6, Not required
14	LTE 4 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.58	0.32	0.07	0.97	Σ SAR < 1.6, Not required
			Right Tilted	0.90	0.38	0.07	1.35	Σ SAR < 1.6, Not required
			Left Cheek	0.52	0.27	0.07	0.86	Σ SAR < 1.6, Not required
			Left Tilted	0.68	0.26	0.09	1.03	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.47	0.01	0.00	0.48	Σ SAR < 1.6, Not required
			Rear Face	0.75	0.86	0.00	1.61	Analyzed as below
		Hotspot	Front Face	0.47	0.01	0.00	0.48	Σ SAR < 1.6, Not required
			Rear Face	0.75	0.86	0.00	1.61	Analyzed as below
			Left Side	0.03	0.01	0.00	0.04	Σ SAR < 1.6, Not required
			Right Side	0.04	0.00	0.00	0.04	Σ SAR < 1.6, Not required
			Top Side	0.25	0.19	0.04	0.48	Σ SAR < 1.6, Not required
			Bottom Side	1.19	0.00	0.00	1.19	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
15	LTE 5 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.69	0.27	0.07	1.03	Σ SAR < 1.6, Not required
			Right Tilted	0.64	0.39	0.07	1.10	Σ SAR < 1.6, Not required
			Left Cheek	0.74	0.22	0.07	1.03	Σ SAR < 1.6, Not required
			Left Tilted	0.70	0.27	0.09	1.06	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.21	0.06	0.00	0.27	Σ SAR < 1.6, Not required
			Rear Face	0.30	0.06	0.00	0.36	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.21	0.06	0.00	0.27	Σ SAR < 1.6, Not required
			Rear Face	0.30	0.06	0.00	0.36	Σ SAR < 1.6, Not required
			Left Side	0.28	0.05	0.00	0.33	Σ SAR < 1.6, Not required
			Right Side	0.34	0.00	0.00	0.34	Σ SAR < 1.6, Not required
			Top Side	0.15	0.19	0.04	0.38	Σ SAR < 1.6, Not required
			Bottom Side	0.19	0.00	0.00	0.19	Σ SAR < 1.6, Not required
16	LTE 5 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.69	0.32	0.07	1.08	Σ SAR < 1.6, Not required
			Right Tilted	0.64	0.38	0.07	1.09	Σ SAR < 1.6, Not required
			Left Cheek	0.74	0.27	0.07	1.08	Σ SAR < 1.6, Not required
			Left Tilted	0.70	0.26	0.09	1.05	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.21	0.01	0.00	0.22	Σ SAR < 1.6, Not required
			Rear Face	0.30	0.86	0.00	1.16	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.21	0.01	0.00	0.22	Σ SAR < 1.6, Not required
			Rear Face	0.30	0.86	0.00	1.16	Σ SAR < 1.6, Not required
			Left Side	0.28	0.01	0.00	0.29	Σ SAR < 1.6, Not required
			Right Side	0.34	0.00	0.00	0.34	Σ SAR < 1.6, Not required
			Top Side	0.15	0.19	0.04	0.38	Σ SAR < 1.6, Not required
			Bottom Side	0.19	0.00	0.00	0.19	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
17	LTE 7 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.64	0.27	0.07	0.98	Σ SAR < 1.6, Not required
			Right Tilted	0.73	0.39	0.07	1.19	Σ SAR < 1.6, Not required
			Left Cheek	0.90	0.22	0.07	1.19	Σ SAR < 1.6, Not required
			Left Tilted	1.13	0.27	0.09	1.49	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.17	0.06	0.00	0.23	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.06	0.00	0.41	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.06	0.00	0.23	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.06	0.00	0.41	Σ SAR < 1.6, Not required
			Left Side	0.40	0.05	0.00	0.45	Σ SAR < 1.6, Not required
			Right Side	0.08	0.00	0.00	0.08	Σ SAR < 1.6, Not required
			Top Side	0.19	0.19	0.04	0.42	Σ SAR < 1.6, Not required
			Bottom Side	0.19	0.00	0.00	0.19	Σ SAR < 1.6, Not required
18	LTE 7 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.64	0.32	0.07	1.03	Σ SAR < 1.6, Not required
			Right Tilted	0.73	0.38	0.07	1.18	Σ SAR < 1.6, Not required
			Left Cheek	0.90	0.27	0.07	1.24	Σ SAR < 1.6, Not required
			Left Tilted	1.13	0.26	0.09	1.48	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.17	0.01	0.00	0.18	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.86	0.00	1.21	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.01	0.00	0.18	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.86	0.00	1.21	Σ SAR < 1.6, Not required
			Left Side	0.40	0.01	0.00	0.41	Σ SAR < 1.6, Not required
			Right Side	0.08	0.00	0.00	0.08	Σ SAR < 1.6, Not required
			Top Side	0.19	0.19	0.04	0.42	Σ SAR < 1.6, Not required
			Bottom Side	0.19	0.00	0.00	0.19	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
19	LTE 12 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.40	0.27	0.07	0.74	Σ SAR < 1.6, Not required
			Right Tilted	0.42	0.39	0.07	0.88	Σ SAR < 1.6, Not required
			Left Cheek	0.44	0.22	0.07	0.73	Σ SAR < 1.6, Not required
			Left Tilted	0.52	0.27	0.09	0.88	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.13	0.06	0.00	0.19	Σ SAR < 1.6, Not required
			Rear Face	0.15	0.06	0.00	0.21	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.13	0.06	0.00	0.19	Σ SAR < 1.6, Not required
			Rear Face	0.15	0.06	0.00	0.21	Σ SAR < 1.6, Not required
			Left Side	0.10	0.05	0.00	0.15	Σ SAR < 1.6, Not required
			Right Side	0.11	0.00	0.00	0.11	Σ SAR < 1.6, Not required
			Top Side	0.14	0.19	0.04	0.37	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
20	LTE 12 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.40	0.32	0.07	0.79	Σ SAR < 1.6, Not required
			Right Tilted	0.42	0.38	0.07	0.87	Σ SAR < 1.6, Not required
			Left Cheek	0.44	0.27	0.07	0.78	Σ SAR < 1.6, Not required
			Left Tilted	0.52	0.26	0.09	0.87	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.13	0.01	0.00	0.14	Σ SAR < 1.6, Not required
			Rear Face	0.15	0.86	0.00	1.01	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.13	0.01	0.00	0.14	Σ SAR < 1.6, Not required
			Rear Face	0.15	0.86	0.00	1.01	Σ SAR < 1.6, Not required
			Left Side	0.10	0.01	0.00	0.11	Σ SAR < 1.6, Not required
			Right Side	0.11	0.00	0.00	0.11	Σ SAR < 1.6, Not required
			Top Side	0.14	0.19	0.04	0.37	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
21	LTE 26 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.71	0.27	0.07	1.05	Σ SAR < 1.6, Not required
			Right Tilted	0.71	0.39	0.07	1.17	Σ SAR < 1.6, Not required
			Left Cheek	0.73	0.22	0.07	1.02	Σ SAR < 1.6, Not required
			Left Tilted	0.90	0.27	0.09	1.26	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.16	0.06	0.00	0.22	Σ SAR < 1.6, Not required
			Rear Face	0.22	0.06	0.00	0.28	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.16	0.06	0.00	0.22	Σ SAR < 1.6, Not required
			Rear Face	0.22	0.06	0.00	0.28	Σ SAR < 1.6, Not required
			Left Side	0.10	0.05	0.00	0.15	Σ SAR < 1.6, Not required
			Right Side	0.16	0.00	0.00	0.16	Σ SAR < 1.6, Not required
			Top Side	0.12	0.19	0.04	0.35	Σ SAR < 1.6, Not required
			Bottom Side	0.07	0.00	0.00	0.07	Σ SAR < 1.6, Not required
22	LTE 26 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.71	0.32	0.07	1.10	Σ SAR < 1.6, Not required
			Right Tilted	0.71	0.38	0.07	1.16	Σ SAR < 1.6, Not required
			Left Cheek	0.73	0.27	0.07	1.07	Σ SAR < 1.6, Not required
			Left Tilted	0.90	0.26	0.09	1.25	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.16	0.01	0.00	0.17	Σ SAR < 1.6, Not required
			Rear Face	0.22	0.86	0.00	1.08	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.16	0.01	0.00	0.17	Σ SAR < 1.6, Not required
			Rear Face	0.22	0.86	0.00	1.08	Σ SAR < 1.6, Not required
			Left Side	0.10	0.01	0.00	0.11	Σ SAR < 1.6, Not required
			Right Side	0.16	0.00	0.00	0.16	Σ SAR < 1.6, Not required
			Top Side	0.12	0.19	0.04	0.35	Σ SAR < 1.6, Not required
			Bottom Side	0.07	0.00	0.00	0.07	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
23	LTE 30 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.32	0.27	0.07	0.66	Σ SAR < 1.6, Not required
			Right Tilted	0.34	0.39	0.07	0.80	Σ SAR < 1.6, Not required
			Left Cheek	0.50	0.22	0.07	0.79	Σ SAR < 1.6, Not required
			Left Tilted	0.57	0.27	0.09	0.93	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.17	0.06	0.00	0.23	Σ SAR < 1.6, Not required
			Rear Face	0.36	0.06	0.00	0.42	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.06	0.00	0.23	Σ SAR < 1.6, Not required
			Rear Face	0.36	0.06	0.00	0.42	Σ SAR < 1.6, Not required
			Left Side	0.30	0.05	0.00	0.35	Σ SAR < 1.6, Not required
			Right Side	0.05	0.00	0.00	0.05	Σ SAR < 1.6, Not required
			Top Side	0.09	0.19	0.04	0.32	Σ SAR < 1.6, Not required
			Bottom Side	0.12	0.00	0.00	0.12	Σ SAR < 1.6, Not required
24	LTE 30 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.32	0.32	0.07	0.71	Σ SAR < 1.6, Not required
			Right Tilted	0.34	0.38	0.07	0.79	Σ SAR < 1.6, Not required
			Left Cheek	0.50	0.27	0.07	0.84	Σ SAR < 1.6, Not required
			Left Tilted	0.57	0.26	0.09	0.92	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.17	0.01	0.00	0.18	Σ SAR < 1.6, Not required
			Rear Face	0.36	0.86	0.00	1.22	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.01	0.00	0.18	Σ SAR < 1.6, Not required
			Rear Face	0.36	0.86	0.00	1.22	Σ SAR < 1.6, Not required
			Left Side	0.30	0.01	0.00	0.31	Σ SAR < 1.6, Not required
			Right Side	0.05	0.00	0.00	0.05	Σ SAR < 1.6, Not required
			Top Side	0.09	0.19	0.04	0.32	Σ SAR < 1.6, Not required
			Bottom Side	0.12	0.00	0.00	0.12	Σ SAR < 1.6, Not required

FCC SAR Test Report

No.	Conditions (SAR1 + SAR2 + SAR3)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
25	LTE 41 + WLAN (DTS) + BT (DSS)	Head	Right Cheek	0.43	0.27	0.07	0.77	Σ SAR < 1.6, Not required
			Right Tilted	0.51	0.39	0.07	0.97	Σ SAR < 1.6, Not required
			Left Cheek	0.64	0.22	0.07	0.93	Σ SAR < 1.6, Not required
			Left Tilted	1.11	0.27	0.09	1.47	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.23	0.06	0.00	0.29	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.06	0.00	0.41	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.23	0.06	0.00	0.29	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.06	0.00	0.41	Σ SAR < 1.6, Not required
			Left Side	0.40	0.05	0.00	0.45	Σ SAR < 1.6, Not required
			Right Side	0.04	0.00	0.00	0.04	Σ SAR < 1.6, Not required
			Top Side	0.12	0.19	0.04	0.35	Σ SAR < 1.6, Not required
			Bottom Side	0.17	0.00	0.00	0.17	Σ SAR < 1.6, Not required
26	LTE 41 + WLAN (NII) + BT (DSS)	Head	Right Cheek	0.43	0.32	0.07	0.82	Σ SAR < 1.6, Not required
			Right Tilted	0.51	0.38	0.07	0.96	Σ SAR < 1.6, Not required
			Left Cheek	0.64	0.27	0.07	0.98	Σ SAR < 1.6, Not required
			Left Tilted	1.11	0.26	0.09	1.46	Σ SAR < 1.6, Not required
		Body-Worn	Front Face	0.23	0.01	0.00	0.24	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.86	0.00	1.21	Σ SAR < 1.6, Not required
		Hotspot	Front Face	0.23	0.01	0.00	0.24	Σ SAR < 1.6, Not required
			Rear Face	0.35	0.86	0.00	1.21	Σ SAR < 1.6, Not required
			Left Side	0.40	0.01	0.00	0.41	Σ SAR < 1.6, Not required
			Right Side	0.04	0.00	0.00	0.04	Σ SAR < 1.6, Not required
			Top Side	0.12	0.19	0.04	0.35	Σ SAR < 1.6, Not required
			Bottom Side	0.17	0.00	0.00	0.17	Σ SAR < 1.6, Not required

FCC SAR Test Report

<SAR to Peak Location Separation Ratio Analysis>

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

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

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

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

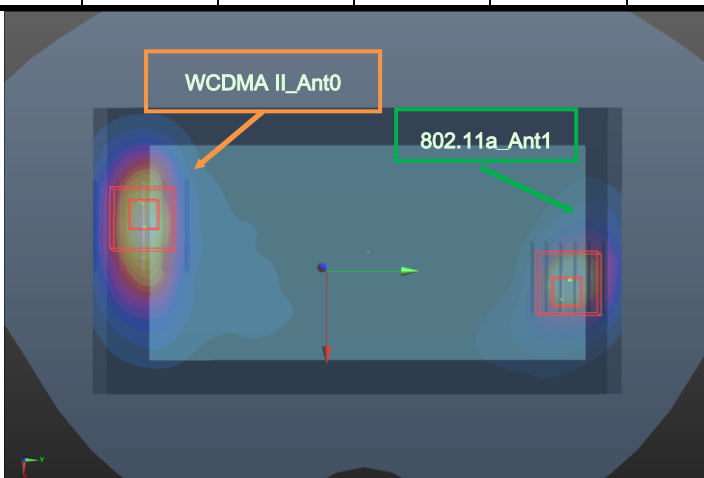
The SPLSR is determined by the following formula.

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

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

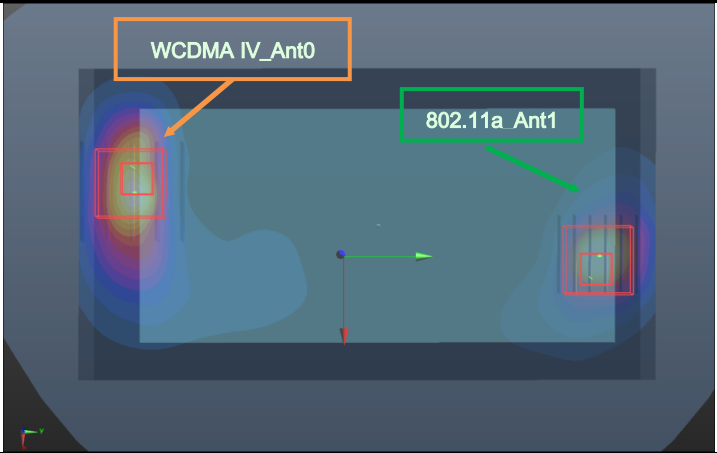
When the SPLSR is ≤ 0.04 , the simultaneous transmission SAR is not required. Otherwise, the enlarged zoom scan and volume scan post-processing procedures will be performed.

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i , mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA II Ch9262 Ant0	Body	Rear Face	0.81	-14.4	-77	-0.72	150.5	0.01	SPLSR ≤ 0.04 , Not required
WLAN5G Ch60 Ant1			0.86	15.5	70.5	-0.56			

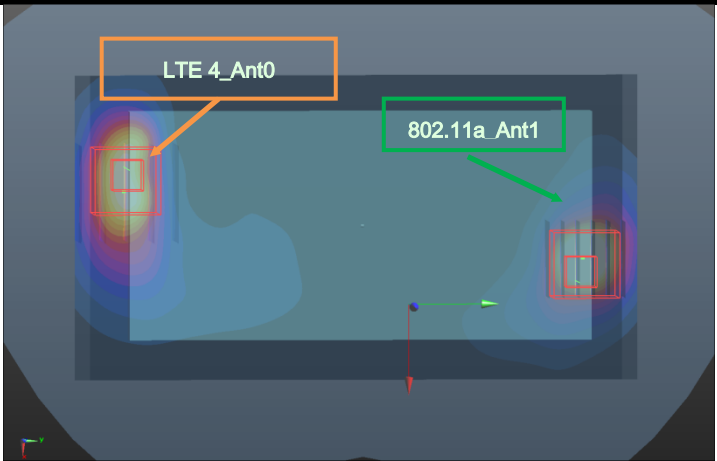


FCC SAR Test Report

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR
				x	y	z		
WCDMA IV Ch1312 Ant0	Body	Rear Face	0.89	-14.8	-75.4	-0.73	149.0	0.02
WLAN5G Ch60 Ant1			0.86	15.5	70.5	-0.56		



Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R _i , mm)	SPLSR
				x	y	z		
LTE 4 Ch20050 Ant0	Body	Rear Face	0.75	-16.8	-77.4	-0.73	151.4	0.01
WLAN5G Ch60 Ant1			0.86	15.5	70.5	-0.56		



Test Engineer : Eric Wu, and James Chu

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1013	Aug. 21, 2017	1 Year
System Validation Dipole	SPEAG	D835V2	4d121	Aug. 21, 2017	1 Year
System Validation Dipole	SPEAG	D1750V2	1055	Aug. 21, 2017	1 Year
System Validation Dipole	SPEAG	D1900V2	5d036	Jan. 18, 2018	1 Year
System Validation Dipole	SPEAG	D2300V2	1004	Jan. 17, 2018	1 Year
System Validation Dipole	SPEAG	D2450V2	737	Aug. 17, 2017	1 Year
System Validation Dipole	SPEAG	D2600V2	1020	Aug. 17, 2017	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1019	Aug. 23, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	Jul. 24, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3971	Mar. 24, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	ET3DV6	3578	May. 05, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3820	Jun. 27, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE3	360	Nov. 02, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE4	861	May. 22, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1431	Mar. 20, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE4	917	Dec. 14, 2017	1 Year
Wireless Communication Test Set	Agilent	E5515C	MY50260642	Nov. 23, 2017	1 Year
Radio Communication Analyzer	Anritsu	MT8820C	6201010285	Aug. 08, 2017	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201502978	Jul. 14, 2017	1 Year
Universal Radio Communication Tester	R&S	CMW500	152443	Sep. 20, 2017	1 Year
Spectrum Analyzer	R&S	FSL6	102006	Mar. 27, 2017	1 Year
EXA Spectrum Analyzer	Agilent	N9010A	MY53470455	May. 19, 2017	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214281	Jun. 09, 2017	1 Year
MXG Analog Signal Generator	Agilent	N5181A	MY50143868	Jul. 10, 2017	1 Year
Vector Signal Generator	Anritsu	MG3710A	6201599977	Mar. 27, 2017	1 Year
Power Meter	Anritsu	ML2495A	1218009	Jul. 12, 2017	1 Year
Power Sensor	Anritsu	MA2411B	1207252	Jul. 12, 2017	1 Year
Thermometer	YFE	YF-160A	130504591	Mar. 24, 2017	1 Year
Thermometer	YFE	YF-160A	120702369	Aug. 15, 2017	1 Year
Dielectric Assessment Kit	SPEAG	DAK-3.5	1047	Aug. 15, 2017	1 Year

FCC SAR Test Report

6. Measurement Uncertainty

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	3.9 / 2.06	Normal	1	1	1	3.9	2.1	35
Device Holder Uncertainty	2.9 / 4.1	Normal	1	1	1	2.9	4.1	11
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.1	Rectangular	√3	1	1	3.5	3.5	∞
Liquid Conductivity (Temperature Uncertainty)	3.24	Rectangular	√3	0.78	0.71	1.5	1.3	∞
Liquid Conductivity (Measured)	2.88	Normal	1	0.78	0.71	2.2	2.0	43
Liquid Permittivity (Temperature Uncertainty)	1.13	Rectangular	√3	0.23	0.26	0.2	0.2	∞
Liquid Permittivity (Measured)	2.50	Normal	1	0.23	0.26	0.6	0.7	54
Combined Standard Uncertainty						± 11.4 %	± 11.2 %	
Expanded Uncertainty (K=2)						± 22.8 %	± 22.4 %	

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

FCC SAR Test Report

Source of Uncertainty	Uncertainty ($\pm$ %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty ($\pm$ %, 1g)	Standard Uncertainty ($\pm$ %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	$\sqrt{3}$	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	$\sqrt{3}$	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	$\sqrt{3}$	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	$\sqrt{3}$	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	$\sqrt{3}$	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	6.7	Rectangular	$\sqrt{3}$	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	3.9 / 2.06	Normal	1	1	1	3.9	2.1	35
Device Holder Uncertainty	2.9 / 4.1	Normal	1	1	1	2.9	4.1	11
Power Drift of Measurement	5.0	Rectangular	$\sqrt{3}$	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.6	Rectangular	$\sqrt{3}$	1	1	3.8	3.8	∞
Liquid Conductivity (Temperature Uncertainty)	3.24	Rectangular	$\sqrt{3}$	0.78	0.71	1.5	1.3	∞
Liquid Conductivity (Measured)	2.88	Normal	1	0.78	0.71	2.2	2.0	43
Liquid Permittivity (Temperature Uncertainty)	1.13	Rectangular	$\sqrt{3}$	0.23	0.26	0.2	0.2	∞
Liquid Permittivity (Measured)	2.50	Normal	1	0.23	0.26	0.6	0.7	54
Combined Standard Uncertainty						± 12.5 %	± 12.3 %	
Expanded Uncertainty (K=2)						± 25.0 %	± 24.6 %	

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

FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
Test Sample Positioning	4.38 / 1.35	Normal	1	1	1	4.4	1.4	29
Device Holder Uncertainty	2.9 / 4.1	Normal	1	1	1	2.9	4.1	11
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Liquid Conductivity (Temperature Uncertainty)	3.24	Rectangular	√3	0.78	0.71	1.5	1.3	∞
Liquid Conductivity (Measured)	2.88	Normal	1	0.78	0.71	2.2	2.0	43
Liquid Permittivity (Temperature Uncertainty)	1.13	Rectangular	√3	0.23	0.26	0.2	0.2	∞
Liquid Permittivity (Measured)	2.50	Normal	1	0.23	0.26	0.6	0.7	54
Combined Standard Uncertainty						± 11.8 %	± 11.3 %	
Expanded Uncertainty (K=2)						± 23.6 %	± 22.6 %	

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

FCC SAR Test Report

Source of Uncertainty	Uncertainty ($\pm$ %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty ($\pm$ %, 1g)	Standard Uncertainty ($\pm$ %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	$\sqrt{3}$	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	$\sqrt{3}$	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	$\sqrt{3}$	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	$\sqrt{3}$	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	$\sqrt{3}$	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	6.7	Rectangular	$\sqrt{3}$	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	4.38 / 1.35	Normal	1	1	1	4.4	1.4	29
Device Holder Uncertainty	2.9 / 4.1	Normal	1	1	1	2.9	4.1	11
Power Drift of Measurement	5.0	Rectangular	$\sqrt{3}$	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.6	Rectangular	$\sqrt{3}$	1	1	4.4	4.4	∞
Liquid Conductivity (Temperature Uncertainty)	3.24	Rectangular	$\sqrt{3}$	0.78	0.71	1.5	1.3	∞
Liquid Conductivity (Measured)	2.88	Normal	1	0.78	0.71	2.2	2.0	43
Liquid Permittivity (Temperature Uncertainty)	1.13	Rectangular	$\sqrt{3}$	0.23	0.26	0.2	0.2	∞
Liquid Permittivity (Measured)	2.50	Normal	1	0.23	0.26	0.6	0.7	54
Combined Standard Uncertainty						± 12.8 %	± 12.4 %	
Expanded Uncertainty (K=2)						± 25.6 %	± 24.8 %	

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

7. Information on the Testing Laboratories

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

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

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

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