FCC SAR Test Report

Report No.	:	**SA170822C16D**
Applicant	:	**Fibocom Wireless Inc.**
Address	:	**5/F, Tower A, Technology Building II, 1057#Nanhai Blvd, Shenzhen 518067, China**
Product	:	**LTE module**
FCC ID	:	**ZMOL850GL**
Brand	:	**Fibocom**
Model No.	:	**L850-GL**
Standards	:	**FCC 47 CFR Part 2 (2.1093), IEEE C95.1:1992, IEEE Std 1528:2013 KDB 865664 D01 v01r04, KDB 865664 D02 v01r02, KDB 248227 D01 v02r02, KDB 447498 D01 v06, KDB 616217 D04 v01r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05**
Sample Received Date	:	**Apr. 18, 2018**
Date of Testing	:	**Jun. 06, 2018 ~ Jun. 18, 2018**
Lab Address	:	**No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.**
Test Location	:	**No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)**

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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Approved By : Eli Hsu / Senior Engineer

FCC Accredited No.: TW0003

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Release Control Record

Report No.	Reason for Change	Date Issued
SA170822C16D	Initial release	Jun. 29, 2018

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest SAR-1g Body Tested at 0 mm (W/kg)	
		Tablet PC Mode	Laptop PC Mode
PCB	WCDMA II	0.88	N/A
	WCDMA IV	0.86	N/A
	WCDMA V	0.67	N/A
	LTE 2	1.19	N/A
	LTE 4	1.14	N/A
	LTE 5	0.71	N/A
	LTE 7	0.36	N/A
	LTE 12	0.93	N/A
	LTE 13	1.19	N/A
	LTE 26	0.75	N/A
	LTE 30	0.61	N/A
	LTE 41	0.18	N/A
	LTE 66	1.03	N/A
DTS	2.4G WLAN	0.82	0.08
NII	5.2G WLAN	N/A	N/A
	5.3G WLAN	0.77	0.14
	5.6G WLAN	0.93	0.22
	5.8G WLAN	0.70	0.22
DSS	Bluetooth	0.08	N/A
DXX	NFC	N/A	N/A
Highest Simultaneous Transmission SAR		Body	Body
		1.57	N/A

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 66 and band 4. The frequency span of LTE band 66 can completely cover LTE band 4, and they has the same tune-up power. SAR was tested for LTE band 66 only.

2. Description of Equipment Under Test

EUT Type	LTE module
FCC ID	ZMOL850GL
Brand Name	Fibocom
Model Name	L850-GL
EUT Configuration	Sample 1: EUT with Black End-Product Sample 2: EUT with Silver End-Product
Tx Frequency Bands (Unit: MHz)	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 13 : 779.5 ~ 784.5 (BW: 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 30 : 2307.5 ~ 2312.5 (BW: 5M, 10M) LTE Band 41 : 2498.5 ~ 2687.5 (BW: 5M, 10M, 15M, 20M) LTE Band 66 : 1710.7 ~ 1779.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) NFC : 13.56
Uplink Modulations	WCDMA : QPSK LTE : QPSK, 16QAM 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:

1. The EUT is authorized for use in specific End-product. Please refer to below table for more details.

Product	Brand	Model
Convertible PC	Lenovo	TP00078C

2. The WLAN module (Brand: Intel, Model: 8265NGW) was installed in the End-product. The specification is listed as below.

WLAN module (Brand: Intel, Model: 8265NGW)	
Tx Frequency Bands (Unit: MHz)	WLAN : 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825 Bluetooth : 2402 ~ 2480
Uplink Modulations	802.11b : DSSS 802.11a/g/n : OFDM Bluetooth : GFSK, π/4-DQPSK, 8-DPSK
FCC ID	Contains ID: PD98265NG

3. The information of antenna of End-product is listed as below.

Antenna Type	Manufacturer	Part No.	Antenna Gain (dBi)									
			WCDMA II / LTE Band 2	WCDMA IV / LTE Band 4	WCDMA V / LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 13	LTE Band 17	LTE Band 30	LTE Band 41	LTE Band 66
PIFA	HUA CHENG TECHNOLOGY Co., Ltd	Main Antenna: DC33001WM60 Aux. Antenna: DC33001WM10 (Rx only)	-0.41	1.58	-2.23	-3.28	-2.78	-1.73	-2.78	1.35	-3.19	1.56

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.

List of Accessory of End-product:

Battery	**Brand Name**	Lenovo
	Model Name	SB10K97589
	Power Rating	15.2 Vdc, 3260mAh
	Type	Li-ion
WLAN Module	**Brand Name**	Intel
	Model Name	8265NGW
WWAN Module	**Brand Name**	Fibocom
	Model Name	L850-GL

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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

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

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

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

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

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

3.2 SPEAG 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 form the optical into digital electric signal of the DAE and transfers data to the PC.

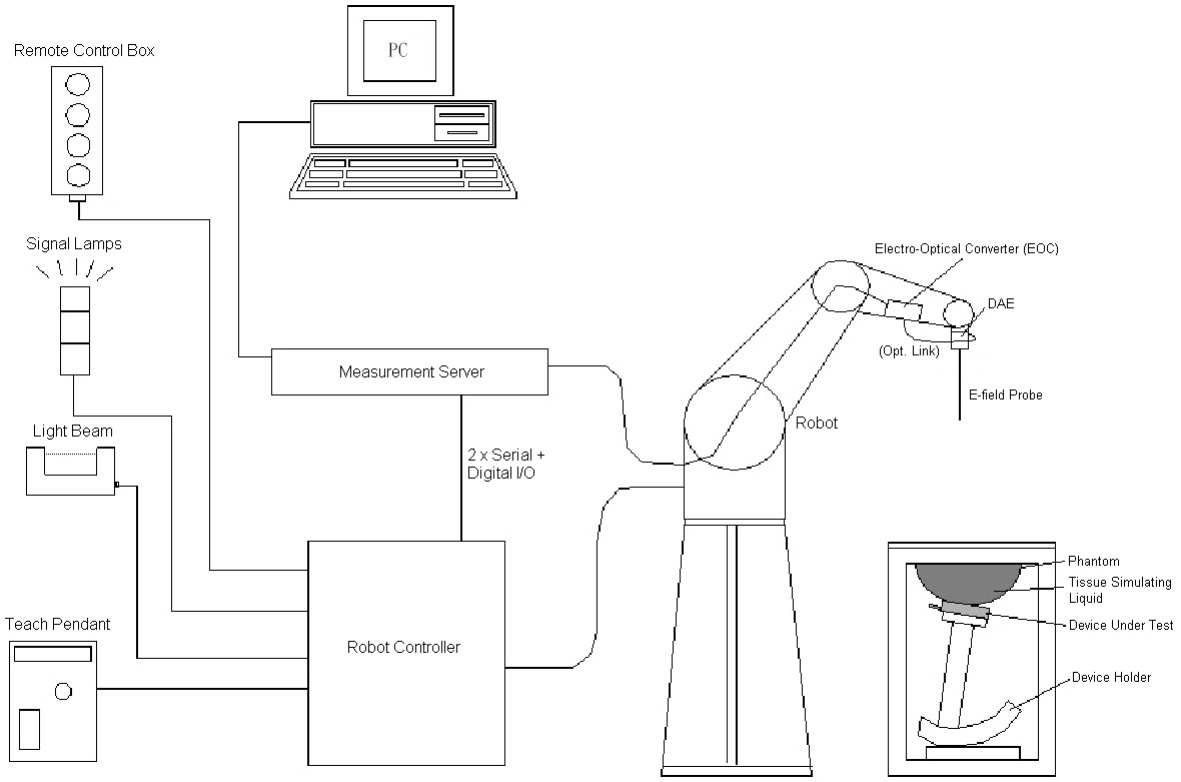


Fig-3.1 SPEAG DASY52 System Setup

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

3.2.2 Probes

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

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

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

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 µW/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	< 5µV (with auto zero)
Input Bias Current	< 50 fA
Dimensions	60 x 60 x 68 mm

3.2.4 Phantoms

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

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

3.2.5 Device Holder

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

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

3.2.6 System Validation Dipoles

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

3.2.7 Tissue Simulating Liquids

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

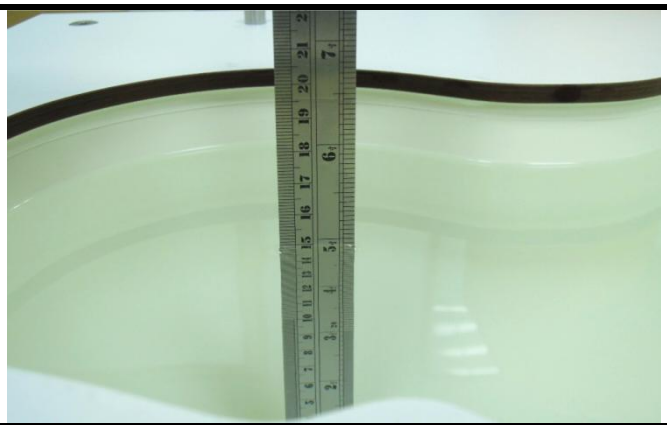
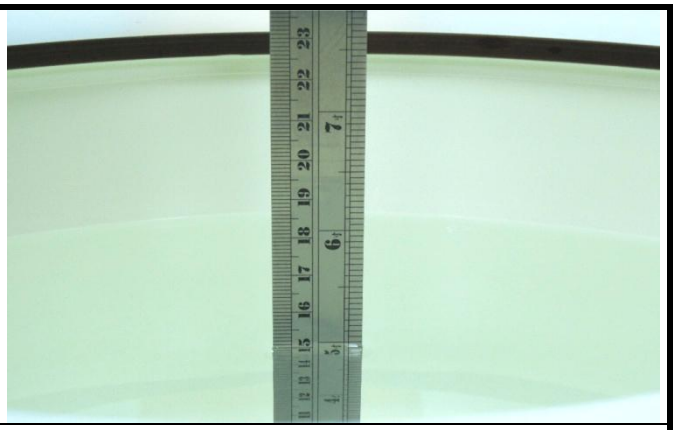
	

Photo of Liquid Height for Head Position	**Photo of Liquid Height for Body Position**

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

Table-3.1 Targets of Tissue Simulating Liquid

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

The following table gives the recipes for tissue simulating liquids.

Table-3.2 Recipes of Tissue Simulating Liquid

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

3.3 SAR System Verification

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

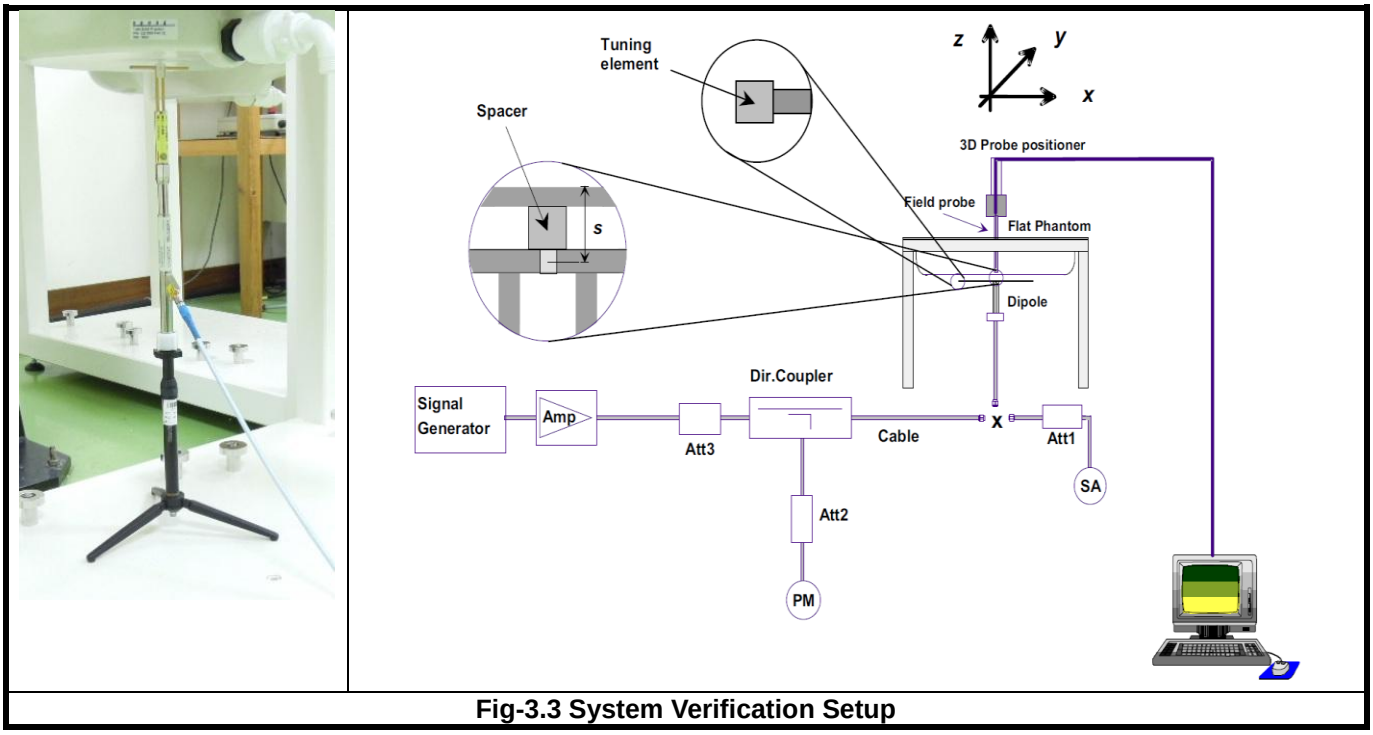


Fig-3.3 System Verification Setup

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:

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

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

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

3.4.1 Area & Zoom Scan Procedure

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

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

Note:

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

3.4.2 Volume Scan Procedure

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

3.4.3 Power Drift Monitoring

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

3.4.4 Spatial Peak SAR Evaluation

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

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

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

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

3.4.5 SAR Averaged Methods

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

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

4. SAR Measurement Evaluation

4.1 EUT Configuration and Setting

<Connections between EUT and System Simulator>

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

<Considerations Related to WCDMA for Setup and Testing>

Release 5 HSDPA Data Devices

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{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 Δ_{CQI} = 30/15 with β_{HS} = 30/15 * β_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 Δ_{NACK} = 30/15 with β_{HS} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{HS} = 24/15 * β_c.
Note 3: CM = 1 for β_c/β_d = 12/15, β_{HS}/β_c = 24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
Note 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 β_c = 11/15 and β_d = 15/15.

Release 6 HSUPA Data Devices

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

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{HS} (1)	β_{ec}	β_{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_{ed}1: 47/15 β_{ed}2: 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 Δ_{CQI} = 30/15 with β_{HS} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{HS} = 5/15 * β_c.
Note 2: CM = 1 for β_c/β_d = 12/15, β_{HS}/β_c = 24/15. For all other combinations of DPDCH, DPCCH, 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 β_c = 10/15 and β_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	β_c (3)	β_d	β_{HS} (1)	β_{ec}	β_{ed} (4) (2xSF2)	β_{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_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{HS} = 30/15 * β_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 β_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.

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**		
13			**V**	**V**		
17			**V**	**V**		
26	**V**	**V**	**V**	**V**	**V**	
30			**V**	**V**		
41			**V**	**V**	**V**	**V**
66	**V**	**V**	**V**	**V**	**V**	**V**

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

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

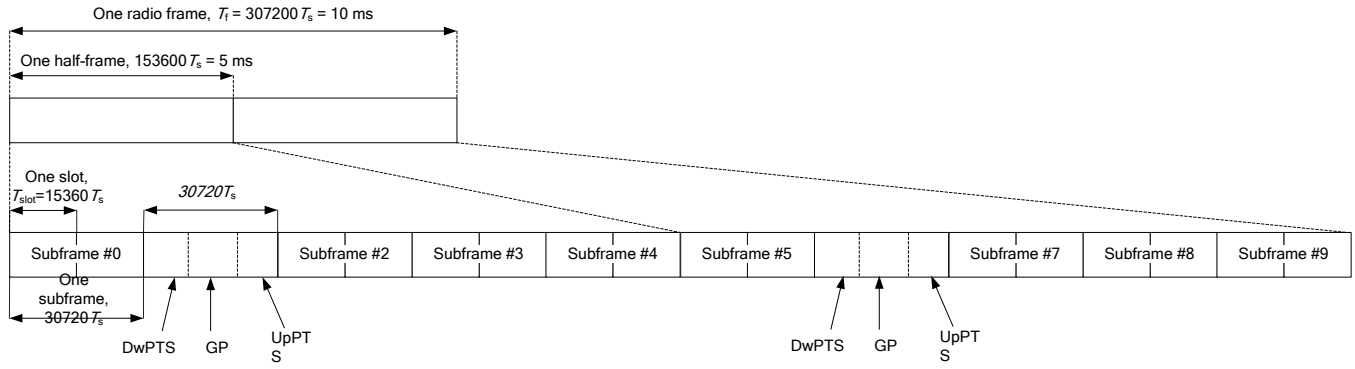
Note: MPR is according to the standard and implemented in the circuit (mandatory).

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

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

TDD-LTE Setup Configurations

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



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

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

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

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

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

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

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

<Considerations Related to WLAN for Setup and Testing>

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

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

Initial Test Configuration

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

Subsequent Test Configuration

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

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

4.2.1 Body Exposure Conditions

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

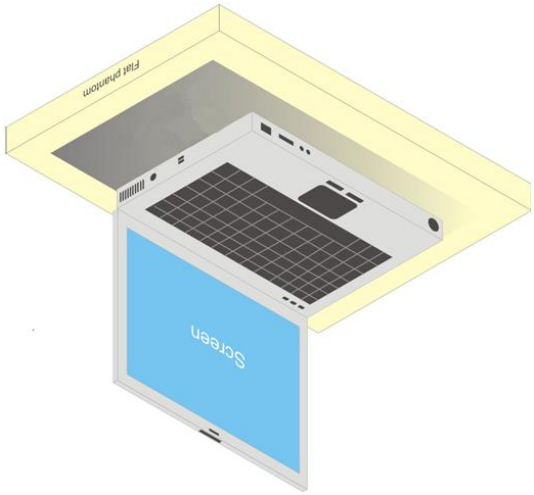


Fig-4.1 Illustration for Laptop Setup

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

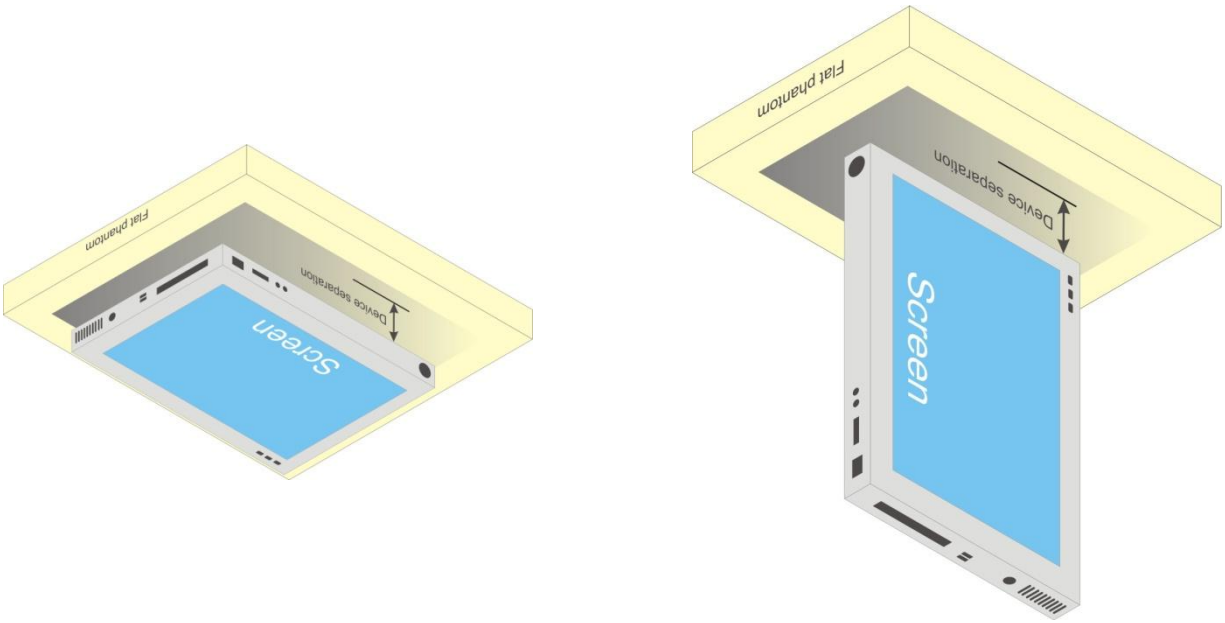


Fig-4.2 Illustration for Tablet Setup

4.2.2 SAR Test Exclusion Evaluations

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

1. For the test separation distance <= 50 mm

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

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

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

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

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

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

<For WWAN Ant>

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face			Left Side			Right Side			Top Side			Bottom Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
WCDMA II	18.5	71	5	19.61	**Yes**	193.4	1543 mW	No	38.65	2.54	No	1.95	19.61	**Yes**	209	1699 mW	No
WCDMA IV	18.5	71	5	18.8	**Yes**	193.4	1547 mW	No	38.65	2.43	No	1.95	18.8	**Yes**	209	1703 mW	No
WCDMA V	21.5	141	5	25.95	**Yes**	193.4	972 mW	No	38.65	3.36	**Yes**	1.95	25.95	**Yes**	209	1060 mW	No
LTE 2	18.5	71	5	19.62	**Yes**	193.4	1543 mW	No	38.65	2.54	No	1.95	19.62	**Yes**	209	1699 mW	No
LTE 4	19.0	79	5	20.93	**Yes**	193.4	1547 mW	No	38.65	2.71	No	1.95	20.93	**Yes**	209	1703 mW	No
LTE 5	22.0	158	5	29.12	**Yes**	193.4	974 mW	No	38.65	3.77	**Yes**	1.95	29.12	**Yes**	209	1063 mW	No
LTE 7	18.0	63	5	20.2	**Yes**	193.4	1528 mW	No	38.65	2.61	No	1.95	20.2	**Yes**	209	1684 mW	No
LTE 12	21.0	126	5	21.32	**Yes**	193.4	862 mW	No	38.65	2.76	No	1.95	21.32	**Yes**	209	936 mW	No
LTE 13	22.0	158	5	28.03	**Yes**	193.4	921 mW	No	38.65	3.63	**Yes**	1.95	28.03	**Yes**	209	1003 mW	No
LTE 17	21.0	126	5	21.32	**Yes**	193.4	862 mW	No	38.65	2.76	No	1.95	21.32	**Yes**	209	936 mW	No
LTE 26	22.0	158	5	29.12	**Yes**	193.4	974 mW	No	38.65	3.77	**Yes**	1.95	29.12	**Yes**	209	1063 mW	No
LTE 30	20.0	100	5	30.43	**Yes**	193.4	1533 mW	No	38.65	3.94	**Yes**	1.95	30.43	**Yes**	209	1689 mW	No
LTE 41	18.0	63	5	20.67	**Yes**	193.4	1525 mW	No	38.65	2.67	No	1.95	20.67	**Yes**	209	1681 mW	No
LTE 66	18.0	63	5	16.81	**Yes**	193.4	1546 mW	No	38.65	2.17	No	1.95	16.81	**Yes**	209	1702 mW	No

<For WLAN Ant-0>

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face			Left Side			Right Side			Top Side			Bottom Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
WLAN 2.4G	17.5	56	5	17.57	**Yes**	127.9	875 mW	No	146.65	1062 mW	No	209.2	1688 mW	No	5	17.57	**Yes**
WLAN 5.2G	16.0	40	5	18.31	**Yes**	127.9	845 mW	No	146.65	1032 mW	No	209.2	1658 mW	No	5	18.31	**Yes**
WLAN 5.3G	16.0	40	5	18.45	**Yes**	127.9	844 mW	No	146.65	1032 mW	No	209.2	1657 mW	No	5	18.45	**Yes**
WLAN 5.6G	16.0	40	5	19.13	**Yes**	127.9	842 mW	No	146.65	1029 mW	No	209.2	1655 mW	No	5	19.13	**Yes**
WLAN 5.8G	16.0	40	5	19.31	**Yes**	127.9	841 mW	No	146.65	1029 mW	No	209.2	1654 mW	No	5	19.31	**Yes**

<For BT/WLAN Ant-1>

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face			Left Side			Right Side			Top Side			Bottom Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
WLAN 2.4G	17.5	56	5	17.57	**Yes**	98.25	578 mW	No	193.25	1528 mW	No	4	17.57	**Yes**	209.3	1689 mW	No
WLAN 5.2G	16.0	40	5	18.31	**Yes**	98.25	548 mW	No	193.25	1498 mW	No	4	18.31	**Yes**	209.3	1659 mW	No
WLAN 5.3G	16.0	40	5	18.45	**Yes**	98.25	548 mW	No	193.25	1498 mW	No	4	18.45	**Yes**	209.3	1658 mW	No
WLAN 5.6G	16.0	40	5	19.13	**Yes**	98.25	545 mW	No	193.25	1495 mW	No	4	19.13	**Yes**	209.3	1656 mW	No
WLAN 5.8G	16.0	40	5	19.31	**Yes**	98.25	545 mW	No	193.25	1495 mW	No	4	19.31	**Yes**	209.3	1655 mW	No
BT	10.0	10	5	3.15	**Yes**	98.25	578 mW	No	193.25	1528 mW	No	4	3.15	**Yes**	209.3	1688 mW	No

<For WLAN Ant-0 + Ant-1>

Mode	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Rear Face			Left Side			Right Side			Top Side			Bottom Side		
			Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?	Ant. to Surface (mm)	Calculated Result	Require SAR Testing?
WLAN 2.4G	17.5	56	5	17.57	**Yes**	98.25	578 mW	No	146.65	1062 mW	No	4	17.57	**Yes**	5	17.57	**Yes**
WLAN 5.2G	16.0	40	5	18.31	**Yes**	98.25	548 mW	No	146.65	1032 mW	No	4	18.31	**Yes**	5	18.31	**Yes**
WLAN 5.3G	16.0	40	5	18.45	**Yes**	98.25	548 mW	No	146.65	1032 mW	No	4	18.45	**Yes**	5	18.45	**Yes**
WLAN 5.6G	16.0	40	5	19.13	**Yes**	98.25	545 mW	No	146.65	1029 mW	No	4	19.13	**Yes**	5	19.13	**Yes**
WLAN 5.8G	16.0	40	5	19.31	**Yes**	98.25	545 mW	No	146.65	1029 mW	No	4	19.31	**Yes**	5	19.31	**Yes**

4.3 Tissue Verification

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

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)
Jun. 07, 2018	Body	750	23.2	0.973	55.095	0.96	55.5	1.35	-0.73
Jun. 07, 2018	Body	750	23.2	0.975	55.099	0.96	55.5	1.56	-0.72
Jun. 07, 2018	Body	835	23.2	1.015	56.103	0.97	55.2	4.64	1.64
Jun. 07, 2018	Body	835	23.2	0.997	54.875	0.97	55.2	2.78	-0.59
Jun. 12, 2018	Body	835	23.5	1.014	54.848	0.97	55.2	4.54	-0.64
Jun. 06, 2018	Body	1750	23.3	1.437	52.601	1.49	53.4	-3.56	-1.50
Jun. 07, 2018	Body	1750	23.2	1.438	51.14	1.49	53.4	-3.49	-4.23
Jun. 12, 2018	Body	1750	23.5	1.442	51.72	1.49	53.4	-3.22	-3.15
Jun. 06, 2018	Body	1900	23.3	1.581	52.161	1.52	53.3	4.01	-2.14
Jun. 12, 2018	Body	1900	23.5	1.56	51.445	1.52	53.3	2.63	-3.48
Jun. 07, 2018	Body	2300	23.2	1.835	51.657	1.81	52.9	1.38	-2.35
Jun. 12, 2018	Body	2450	23.5	2.018	50.558	1.95	52.7	3.49	-4.06
Jun. 18, 2018	Body	2450	23.3	2.044	50.51	1.95	52.7	4.82	-4.16
Jun. 07, 2018	Body	2600	23.2	2.196	51.182	2.16	52.5	1.67	-2.51
Jun. 07, 2018	Body	2600	23.2	2.168	50.887	2.16	52.5	0.37	-3.07
Jun. 12, 2018	Body	5250	23.5	5.49	47.641	5.36	48.9	2.43	-2.57
Jun. 13, 2018	Body	5250	23.2	5.456	47.688	5.36	48.9	1.79	-2.48
Jun. 18, 2018	Body	5250	23.3	5.552	48.237	5.36	48.9	3.58	-1.36
Jun. 12, 2018	Body	5600	23.5	5.982	46.911	5.77	48.5	3.67	-3.28
Jun. 13, 2018	Body	5600	23.2	5.94	47.006	5.77	48.5	2.95	-3.08
Jun. 18, 2018	Body	5600	23.3	6.015	47.619	5.77	48.5	4.25	-1.82
Jun. 12, 2018	Body	5800	23.5	6.258	46.53	6	48.2	4.30	-3.46
Jun. 13, 2018	Body	5800	23.2	6.231	46.62	6	48.2	3.85	-3.28
Jun. 18, 2018	Body	5800	23.3	6.216	45.997	6	48.2	3.60	-4.57

Note:

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

4.4 System Validation

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

Test Date	Probe S/N	Calibration Point		Measured Conductivity (σ)	Measured Permittivity (ε_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Jun. 07, 2018	3971	Body	750	0.973	55.095	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3820	Body	750	0.975	55.099	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3971	Body	835	1.015	56.103	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3820	Body	835	0.997	54.875	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 12, 2018	3650	Body	835	1.014	54.848	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 06, 2018	3820	Body	1750	1.437	52.601	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3971	Body	1750	1.438	51.14	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 12, 2018	3650	Body	1750	1.442	51.72	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 06, 2018	3820	Body	1900	1.581	52.161	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 12, 2018	3650	Body	1900	1.56	51.445	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3971	Body	2300	1.835	51.657	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 12, 2018	3650	Body	2450	2.018	50.558	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 18, 2018	3650	Body	2450	2.044	50.51	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 07, 2018	3971	Body	2600	2.196	51.182	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 07, 2018	3820	Body	2600	2.168	50.887	Pass	Pass	Pass	N/A	N/A	N/A
Jun. 12, 2018	3650	Body	5250	5.49	47.641	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 13, 2018	3650	Body	5250	5.456	47.688	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 18, 2018	3650	Body	5250	5.552	48.237	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 12, 2018	3650	Body	5600	5.982	46.911	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 13, 2018	3650	Body	5600	5.94	47.006	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 18, 2018	3650	Body	5600	6.015	47.619	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 12, 2018	3650	Body	5800	6.258	46.53	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 13, 2018	3650	Body	5800	6.231	46.62	Pass	Pass	Pass	OFDM	N/A	Pass
Jun. 18, 2018	3650	Body	5800	6.216	45.997	Pass	Pass	Pass	OFDM	N/A	Pass

4.5 System Verification

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Jun. 07, 2018	Body	750	8.72	2.19	8.76	0.46	1013	3971	1431
Jun. 07, 2018	Body	750	8.72	2.22	8.88	1.83	1013	3820	917
Jun. 07, 2018	Body	835	9.61	2.38	9.52	-0.94	4d121	3971	1431
Jun. 07, 2018	Body	835	9.61	2.36	9.44	-1.77	4d121	3820	917
Jun. 12, 2018	Body	835	9.61	2.3	9.20	-4.27	4d121	3650	1277
Jun. 06, 2018	Body	1750	37.10	8.86	35.44	-4.47	1055	3820	917
Jun. 07, 2018	Body	1750	37.10	9.39	37.56	1.24	1055	3971	1431
Jun. 12, 2018	Body	1750	37.10	9.05	36.20	-2.43	1055	3650	1277
Jun. 06, 2018	Body	1900	40.20	9.86	39.44	-1.89	5d036	3820	917
Jun. 12, 2018	Body	1900	40.20	9.89	39.56	-1.59	5d036	3650	1277
Jun. 07, 2018	Body	2300	47.30	11.7	46.80	-1.06	1004	3971	1431
Jun. 12, 2018	Body	2450	49.70	12.3	49.20	-1.01	737	3650	1277
Jun. 18, 2018	Body	2450	49.70	12.1	48.40	-2.62	737	3650	1277
Jun. 07, 2018	Body	2600	54.30	13.7	54.80	0.92	1020	3971	1431
Jun. 07, 2018	Body	2600	54.30	13.8	55.20	1.66	1020	3820	917
Jun. 12, 2018	Body	5250	74.90	7.9	79.00	5.47	1019	3650	1277
Jun. 13, 2018	Body	5250	74.90	7.75	77.50	3.47	1019	3650	1277
Jun. 18, 2018	Body	5250	74.90	7.47	74.70	-0.27	1019	3650	1277
Jun. 12, 2018	Body	5600	79.30	8.08	80.80	1.89	1019	3650	1277
Jun. 13, 2018	Body	5600	79.30	7.66	76.60	-3.40	1019	3650	1277
Jun. 18, 2018	Body	5600	79.30	7.76	77.60	-2.14	1019	3650	1277
Jun. 12, 2018	Body	5800	75.20	7.75	77.50	3.06	1019	3650	1277
Jun. 13, 2018	Body	5800	75.20	7.94	79.40	5.59	1019	3650	1277
Jun. 18, 2018	Body	5800	75.20	7.92	79.20	5.32	1019	3650	1277

Note:

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

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.

Tablet PC Mode

Mode	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMC 12.2K	18.5	18.5	21.5
HSDPA / HSUPA / DC-HSDPA	18.5	18.5	21.5

Mode	LTE 2	LTE 4	LTE 5	LTE 7
Maximum Target Power	18.5	19.0	22.0	18.0

Mode	LTE 12	LTE 13	LTE 17	LTE 26
Maximum Target Power	21.0	22.0	21.0	22.0

Mode	LTE 30	LTE 41	LTE 66
Maximum Target Power	20.0	18.0	18.0

Laptop PC Mode

Mode	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMC 12.2K	24.5	24.5	24.5
HSDPA / HSUPA / DC-HSDPA	24.5	24.5	24.5

Mode	LTE 2	LTE 4	LTE 5	LTE 7
Maximum Target Power	24.0	24.0	24.0	24.0

Mode	LTE 12	LTE 13	LTE 17	LTE 26
Maximum Target Power	24.0	24.0	24.0	24.0

Mode	LTE 30	LTE 41	LTE 66
Maximum Target Power	24.0	24.0	24.0

Mode	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
802.11b	Ant 0: 17.5 Ant 1: 17.5 Ant 0+1: 17.5	N/A	N/A	N/A	N/A
802.11g	Ant 0: 17.5 Ant 1: 17.5 Ant 0+1: 17.5	N/A	N/A	N/A	N/A
802.11a	N/A	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0
802.11n HT20	Ant 0: 17.5 Ant 1: 17.5 Ant 0+1: 17.5	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0
802.11n HT40	Ant 0: 17.5 Ant 1: 17.5 Ant 0+1: 17.5	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0
802.11ac VHT80	N/A	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0	Ant 0: 16.0 Ant 1: 16.0 Ant 0+1: 16.0

Mode	2.4G Bluetooth
Bluetooth DH	10.0
Bluetooth LE	4.5

4.6.2 Measured Conducted Power Result

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

Tablet PC Mode

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	17.83	**18.01**	17.37	17.31	17.57	**17.85**	20.79	20.64	**21.16**	-
HSDPA Subtest-1	17.79	17.97	17.33	17.33	17.49	17.82	20.74	20.59	21.11	0
HSDPA Subtest-2	17.80	17.98	17.34	17.28	17.44	17.77	20.73	20.58	21.10	0
HSDPA Subtest-3	17.72	17.90	17.26	17.29	17.45	17.78	20.75	20.60	21.12	0.5
HSDPA Subtest-4	17.76	17.94	17.30	17.31	17.47	17.80	20.73	20.58	21.10	0.5
HSUPA Subtest-1	17.33	17.51	16.87	16.91	17.07	17.40	20.17	20.02	20.54	0
HSUPA Subtest-2	17.75	17.93	17.29	17.40	17.56	17.71	20.37	20.22	20.74	2
HSUPA Subtest-3	17.54	17.72	17.08	17.15	17.31	17.64	20.16	20.01	20.53	1
HSUPA Subtest-4	17.80	17.98	17.34	17.40	17.56	17.85	20.74	20.59	21.11	2
HSUPA Subtest-5	17.80	17.98	17.34	17.35	17.51	17.84	20.73	20.58	21.10	0

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	**18.49**	18.46	18.41	0	15M	QPSK	1	0	18.43	18.41	18.31	0
		1	50	18.37	18.23	18.07	0			1	37	18.33	18.19	18.05	0
		1	99	18.39	18.25	18.09	0			1	74	18.32	18.20	17.99	0
		50	0	18.46	18.41	18.39	1			36	0	18.39	18.39	18.31	1
		50	25	18.38	18.24	18.08	1			36	19	18.36	18.20	18.00	1
		50	50	18.39	18.25	18.09	1			36	39	18.39	18.16	17.99	1
		100	0	18.47	18.38	18.22	1			75	0	18.39	18.30	18.22	1
	16QAM	1	0	18.39	18.40	18.34	1		16QAM	1	0	18.36	18.32	18.27	1
		1	50	18.27	18.23	17.97	1			1	37	18.32	18.10	17.93	1
		1	99	18.36	18.21	17.99	1			1	74	18.23	18.08	17.96	1
		50	0	18.36	18.38	18.36	2			36	0	18.42	18.33	18.33	2
		50	25	18.31	18.23	18.02	2			36	19	18.30	18.16	17.94	2
		50	50	18.35	18.16	18.02	2			36	39	18.23	18.15	18.02	2
		100	0	18.39	18.30	18.21	2			75	0	18.41	18.28	18.13	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		18650	18900	19150				Channel		18625	18900	19175	
		Frequency (MHz)		1855.0	1880.0	1905.0				Frequency (MHz)		1852.5	1880.0	1907.5	
10M	QPSK	1	0	18.48	18.31	18.35	0	5M	QPSK	1	0	18.40	18.27	18.40	0
		1	24	18.26	18.17	17.89	0			1	12	18.16	18.05	17.94	0
		1	49	18.37	18.13	17.98	0			1	24	18.19	18.17	17.83	0
		25	0	18.37	18.31	18.32	1			12	0	18.28	18.31	18.05	1
		25	12	18.30	18.03	17.94	1			12	6	18.21	18.15	17.96	1
		25	25	18.19	18.15	17.99	1			12	13	18.22	18.14	17.98	1
		50	0	18.41	18.16	18.15	1			25	0	18.44	18.29	18.03	1
	16QAM	1	0	18.30	18.24	18.25	1		16QAM	1	0	18.39	18.42	18.13	1
		1	24	18.07	17.96	17.87	1			1	12	18.24	18.11	17.92	1
		1	49	18.27	18.10	17.83	1			1	24	18.11	18.17	17.82	1
		25	0	18.32	18.20	18.21	2			12	0	18.32	18.19	18.22	2
		25	12	18.23	18.08	17.96	2			12	6	18.14	18.02	17.88	2
		25	25	18.29	18.09	17.93	2			12	13	18.19	17.94	18.01	2
		50	0	18.38	18.26	18.05	2			25	0	18.23	18.23	18.11	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		18615	18900	19185				Channel		18607	18900	19193	
		Frequency (MHz)		1851.5	1880.0	1908.5				Frequency (MHz)		1850.7	1880.0	1909.3	
3M	QPSK	1	0	18.26	18.38	18.36	0	1.4M	QPSK	1	0	18.29	18.34	18.37	0
		1	7	18.25	18.11	17.94	0			1	2	18.25	18.05	17.87	0
		1	14	18.30	18.20	17.97	0			1	5	18.16	18.21	17.85	0
		8	0	18.42	18.31	18.31	1			3	0	18.44	18.20	18.18	0
		8	3	18.33	18.01	18.04	1			3	1	18.13	18.11	17.92	0
		8	7	18.32	18.18	17.94	1			3	3	18.25	18.04	17.98	0
		15	0	18.24	18.23	18.21	1			6	0	18.35	18.22	18.11	1
	16QAM	1	0	18.26	18.28	18.36	1		16QAM	1	0	18.32	18.34	18.26	1
		1	7	18.26	18.06	17.77	1			1	2	18.23	18.05	17.76	1
		1	14	18.15	18.00	17.81	1			1	5	18.20	18.13	17.83	1
		8	0	18.22	18.35	18.17	2			3	0	18.32	18.28	18.11	1
		8	3	18.12	18.07	17.91	2			3	1	18.26	18.09	17.86	1
		8	7	18.19	18.04	17.97	2			3	3	18.10	18.09	17.88	1
		15	0	18.22	18.08	18.04	2			6	0	18.24	18.28	18.08	2

LTE Band 4

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	17.94	**17.99**	17.96	0	15M	QPSK	1	0	17.94	17.89	17.93	0
		1	50	17.76	17.84	17.86	0			1	37	17.75	17.77	17.85	0
		1	99	17.73	17.98	17.83	0			1	74	17.63	17.96	17.80	0
		50	0	17.90	17.98	17.97	1			36	0	17.84	17.94	17.90	1
		50	25	17.76	17.93	17.86	1			36	19	17.75	17.91	17.82	1
		50	50	17.75	17.96	17.85	1			36	39	17.71	17.90	17.77	1
		100	0	17.86	17.96	17.93	1			75	0	17.79	17.88	17.88	1
	16QAM	1	0	17.88	17.89	17.90	1		16QAM	1	0	17.92	17.82	17.84	1
		1	50	17.71	17.77	17.76	1			1	37	17.64	17.66	17.70	1
		1	99	17.65	17.98	17.80	1			1	74	17.64	17.92	17.68	1
		50	0	17.85	17.90	17.93	2			36	0	17.79	17.83	17.83	2
		50	25	17.70	17.91	17.84	2			36	19	17.66	17.75	17.79	2
		50	50	17.67	17.94	17.77	2			36	39	17.67	17.83	17.73	2
		100	0	17.76	17.91	17.87	2			75	0	17.77	17.80	17.76	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		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	17.89	17.89	17.87	0	5M	QPSK	1	0	17.85	17.91	17.84	0
		1	24	17.61	17.80	17.80	0			1	12	17.60	17.65	17.60	0
		1	49	17.66	17.89	17.67	0			1	24	17.59	17.83	17.62	0
		25	0	17.81	17.82	17.88	1			12	0	17.69	17.85	17.78	1
		25	12	17.61	17.87	17.75	1			12	6	17.64	17.88	17.75	1
		25	25	17.55	17.87	17.80	1			12	13	17.59	17.83	17.66	1
		50	0	17.70	17.74	17.82	1			25	0	17.73	17.73	17.76	1
	16QAM	1	0	17.60	17.87	17.90	1		16QAM	1	0	17.62	17.83	17.79	1
		1	24	17.63	17.64	17.69	1			1	12	17.62	17.69	17.66	1
		1	49	17.57	17.68	17.57	1			1	24	17.52	17.80	17.61	1
		25	0	17.69	17.81	17.81	2			12	0	17.70	17.85	17.92	2
		25	12	17.58	17.81	17.67	2			12	6	17.54	17.88	17.82	2
		25	25	17.54	17.78	17.71	2			12	13	17.61	17.78	17.63	2
		50	0	17.64	17.90	17.69	2			25	0	17.77	17.75	17.80	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		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	17.72	17.80	17.86	0	1.4M	QPSK	1	0	17.70	17.96	17.88	0
		1	7	17.60	17.71	17.75	0			1	2	17.68	17.68	17.85	0
		1	14	17.62	17.94	17.75	0			1	5	17.59	17.90	17.64	0
		8	0	17.67	17.96	17.83	1			3	0	17.69	17.85	17.90	0
		8	3	17.63	17.75	17.77	1			3	1	17.67	17.93	17.78	0
		8	7	17.55	17.83	17.76	1			3	3	17.57	17.78	17.62	0
		15	0	17.73	17.77	17.73	1			6	0	17.72	17.83	17.87	1
	16QAM	1	0	17.77	17.81	17.66	1		16QAM	1	0	17.72	17.81	17.75	1
		1	7	17.61	17.78	17.69	1			1	2	17.51	17.62	17.69	1
		1	14	17.60	17.84	17.69	1			1	5	17.46	17.72	17.64	1
		8	0	17.60	17.84	17.73	2			3	0	17.80	17.82	17.75	1
		8	3	17.62	17.60	17.62	2			3	1	17.66	17.67	17.78	1
		8	7	17.55	17.84	17.67	2			3	3	17.58	17.78	17.60	1
		15	0	17.78	17.78	17.86	2			6	0	17.71	17.86	17.62	2

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	20.74	20.67	20.56	0	5M	QPSK	1	0	20.72	20.57	20.52	0
		1	24	20.64	20.57	20.46	0			1	12	20.56	20.52	20.38	0
		1	49	**20.80**	20.73	20.62	0			1	24	20.73	20.71	20.60	0
		25	0	20.63	20.56	20.45	1			12	0	20.58	20.52	20.36	1
		25	12	20.64	20.57	20.46	1			12	6	20.57	20.52	20.37	1
		25	25	20.75	20.68	20.57	1			12	13	20.67	20.64	20.57	1
		50	0	20.76	20.69	20.58	1			25	0	20.69	20.62	20.54	1
	16QAM	1	0	20.68	20.58	20.49	1		16QAM	1	0	20.72	20.52	20.43	1
		1	24	20.64	20.49	20.44	1			1	12	20.48	20.55	20.30	1
		1	49	20.72	20.71	20.54	1			1	24	20.62	20.68	20.45	1
		25	0	20.56	20.46	20.36	2			12	0	20.54	20.54	20.39	2
		25	12	20.54	20.56	20.39	2			12	6	20.53	20.50	20.32	2
		25	25	20.73	20.63	20.49	2			12	13	20.59	20.58	20.54	2
		50	0	20.75	20.64	20.51	2			25	0	20.62	20.67	20.48	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		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	20.63	20.46	20.45	0	1.4M	QPSK	1	0	20.60	20.55	20.30	0
		1	7	20.49	20.36	20.39	0			1	2	20.44	20.34	20.31	0
		1	14	20.74	20.60	20.51	0			1	5	20.65	20.65	20.50	0
		8	0	20.60	20.36	20.38	1			3	0	20.51	20.39	20.20	0
		8	3	20.46	20.40	20.45	1			3	1	20.45	20.36	20.24	0
		8	7	20.72	20.58	20.37	1			3	3	20.62	20.51	20.45	0
		15	0	20.72	20.56	20.45	1			6	0	20.70	20.67	20.48	1
	16QAM	1	0	20.47	20.48	20.40	1		16QAM	1	0	20.60	20.56	20.40	1
		1	7	20.48	20.37	20.21	1			1	2	20.39	20.36	20.29	1
		1	14	20.57	20.55	20.52	1			1	5	20.49	20.61	20.42	1
		8	0	20.35	20.33	20.40	2			3	0	20.45	20.42	20.32	1
		8	3	20.59	20.38	20.16	2			3	1	20.34	20.47	20.22	1
		8	7	20.46	20.37	20.52	2			3	3	20.46	20.43	20.47	1
		15	0	20.59	20.63	20.36	2			6	0	20.54	20.46	20.38	2

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	16.62	16.55	16.60	0	15M	QPSK	1	0	16.52	16.48	16.57	0
		1	50	**16.99**	16.92	16.97	0			1	37	16.93	16.91	16.95	0
		1	99	16.78	16.71	16.76	0			1	74	16.69	16.68	16.70	0
		50	0	16.80	16.73	16.78	1			36	0	16.78	16.68	16.72	1
		50	25	16.83	16.76	16.81	1			36	19	16.81	16.70	16.78	1
		50	50	16.84	16.77	16.82	1			36	39	16.79	16.68	16.78	1
		100	0	16.89	16.82	16.87	1			75	0	16.79	16.77	16.86	1
	16QAM	1	0	16.62	16.50	16.58	1		16QAM	1	0	16.57	16.42	16.48	1
		1	50	16.89	16.85	16.95	1			1	37	16.88	16.80	16.84	1
		1	99	16.73	16.61	16.71	1			1	74	16.74	16.61	16.65	1
		50	0	16.70	16.64	16.69	2			36	0	16.65	16.61	16.73	2
		50	25	16.81	16.74	16.81	2			36	19	16.73	16.70	16.73	2
		50	50	16.81	16.77	16.75	2			36	39	16.79	16.73	16.70	2
		100	0	16.80	16.77	16.83	2			75	0	16.72	16.69	16.76	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		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	16.47	16.32	16.48	0	5M	QPSK	1	0	16.43	16.44	16.44	0
		1	24	16.86	16.79	16.90	0			1	12	16.96	16.73	16.68	0
		1	49	16.69	16.59	16.59	0			1	24	16.62	16.62	16.46	0
		25	0	16.60	16.68	16.61	1			12	0	16.74	16.59	16.70	1
		25	12	16.73	16.63	16.68	1			12	6	16.71	16.66	16.57	1
		25	25	16.67	16.63	16.69	1			12	13	16.63	16.59	16.72	1
		50	0	16.76	16.70	16.73	1			25	0	16.74	16.63	16.65	1
	16QAM	1	0	16.39	16.37	16.40	1		16QAM	1	0	16.52	16.42	16.31	1
		1	24	16.84	16.84	16.68	1			1	12	16.76	16.80	16.82	1
		1	49	16.61	16.57	16.54	1			1	24	16.65	16.56	16.47	1
		25	0	16.62	16.49	16.58	2			12	0	16.65	16.66	16.60	2
		25	12	16.54	16.45	16.69	2			12	6	16.65	16.71	16.57	2
		25	25	16.77	16.57	16.80	2			12	13	16.62	16.66	16.76	2
		50	0	16.60	16.76	16.59	2			25	0	16.57	16.50	16.69	2

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	19.60	**19.74**	19.64	0	5M	QPSK	1	0	19.52	19.66	19.60	0
		1	24	19.50	19.64	19.54	0			1	12	19.49	19.58	19.50	0
		1	49	19.51	19.65	19.55	0			1	24	19.49	19.64	19.48	0
		25	0	19.52	19.66	19.56	1			12	0	19.52	19.65	19.48	1
		25	12	19.50	19.64	19.54	1			12	6	19.44	19.58	19.49	1
		25	25	19.49	19.63	19.53	1			12	13	19.41	19.53	19.53	1
		50	0	19.55	19.69	19.59	1			25	0	19.55	19.63	19.51	1
	16QAM	1	0	19.59	19.73	19.57	1		16QAM	1	0	19.42	19.60	19.50	1
		1	24	19.48	19.64	19.45	1			1	12	19.31	19.51	19.42	1
		1	49	19.49	19.65	19.55	1			1	24	19.39	19.53	19.39	1
		25	0	19.44	19.63	19.50	2			12	0	19.40	19.61	19.42	2
		25	12	19.41	19.63	19.48	2			12	6	19.42	19.47	19.51	2
		25	25	19.47	19.59	19.47	2			12	13	19.41	19.53	19.42	2
		50	0	19.50	19.69	19.50	2			25	0	19.44	19.57	19.52	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		23025	23095	23165				Channel		23017	23095	23173	
		Frequency (MHz)		700.5	707.5	714.5				Frequency (MHz)		699.7	707.5	715.3	
3M	QPSK	1	0	19.45	19.64	19.57	0	1.4M	QPSK	1	0	19.41	19.72	19.42	0
		1	7	19.49	19.49	19.36	0			1	2	19.40	19.43	19.40	0
		1	14	19.35	19.47	19.45	0			1	5	19.41	19.42	19.26	0
		8	0	19.38	19.48	19.41	1			3	0	19.43	19.56	19.33	0
		8	3	19.40	19.59	19.34	1			3	1	19.28	19.52	19.44	0
		8	7	19.29	19.47	19.37	1			3	3	19.34	19.45	19.36	0
		15	0	19.49	19.61	19.37	1			6	0	19.40	19.54	19.43	1
	16QAM	1	0	19.51	19.49	19.57	1		16QAM	1	0	19.44	19.56	19.38	1
		1	7	19.48	19.45	19.36	1			1	2	19.26	19.43	19.29	1
		1	14	19.39	19.38	19.35	1			1	5	19.24	19.49	19.34	1
		8	0	19.38	19.51	19.30	2			3	0	19.29	19.51	19.25	1
		8	3	19.38	19.56	19.36	2			3	1	19.41	19.53	19.35	1
		8	7	19.29	19.41	19.27	2			3	3	19.45	19.41	19.34	1
		15	0	19.24	19.54	19.51	2			6	0	19.41	19.62	19.41	2

LTE Band 13

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			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		**20.99**		0	5M	QPSK	1	0	20.91	20.94	20.84	0
		1	24		20.84		0			1	12	20.76	20.79	20.69	0
		1	49		20.98		0			1	24	20.90	20.93	20.83	0
		25	0		20.96		1			12	0	20.88	20.91	20.81	1
		25	12		20.92		1			12	6	20.84	20.87	20.77	1
		25	25		20.95		1			12	13	20.87	20.90	20.80	1
		50	0		20.92		1			25	0	20.84	20.87	20.77	1
	16QAM	1	0		20.98		1		16QAM	1	0	20.90	20.93	20.83	1
		1	24		20.83		1			1	12	20.75	20.78	20.68	1
		1	49		20.91		1			1	24	20.83	20.86	20.76	1
		25	0		20.92		2			12	0	20.84	20.87	20.77	2
		25	12		20.88		2			12	6	20.80	20.83	20.73	2
		25	25		20.92		2			12	13	20.84	20.87	20.77	2
		50	0		20.92		2			25	0	20.84	20.87	20.77	2

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	**19.96**	19.92	19.87	0	5M	QPSK	1	0	19.87	19.83	19.83	0
		1	24	19.83	19.79	19.74	0			1	12	19.83	19.73	19.70	0
		1	49	19.86	19.82	19.77	0			1	24	19.77	19.81	19.76	0
		25	0	19.82	19.78	19.73	1			12	0	19.72	19.69	19.73	1
		25	12	19.81	19.77	19.72	1			12	6	19.79	19.76	19.66	1
		25	25	19.81	19.77	19.72	1			12	13	19.81	19.67	19.68	1
		50	0	19.83	19.79	19.74	1			25	0	19.75	19.71	19.66	1
	16QAM	1	0	19.90	19.87	19.86	1		16QAM	1	0	19.94	19.80	19.82	1
		1	24	19.74	19.76	19.70	1			1	12	19.75	19.62	19.70	1
		1	49	19.83	19.74	19.76	1			1	24	19.79	19.71	19.76	1
		25	0	19.73	19.77	19.73	2			12	0	19.80	19.65	19.69	2
		25	12	19.77	19.76	19.65	2			12	6	19.77	19.69	19.59	2
		25	25	19.72	19.71	19.64	2			12	13	19.70	19.68	19.67	2
		50	0	19.79	19.78	19.68	2			25	0	19.67	19.73	19.66	2

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	20.68	20.76	20.61	0	10M	QPSK	1	0	20.59	20.66	20.61	0
		1	37	20.59	20.67	20.52	0			1	24	20.52	20.65	20.44	0
		1	74	20.80	**20.88**	20.73	0			1	49	20.76	20.86	20.67	0
		36	0	20.50	20.58	20.43	1			25	0	20.47	20.54	20.37	1
		36	19	20.69	20.77	20.62	1			25	12	20.65	20.77	20.62	1
		36	39	20.74	20.82	20.67	1			25	25	20.74	20.76	20.67	1
		75	0	20.72	20.80	20.65	1			50	0	20.72	20.71	20.61	1
	16QAM	1	0	20.60	20.76	20.58	1		16QAM	1	0	20.51	20.71	20.44	1
		1	37	20.59	20.63	20.42	1			1	24	20.47	20.64	20.50	1
		1	74	20.80	20.84	20.65	1			1	49	20.74	20.77	20.60	1
		36	0	20.41	20.56	20.43	2			25	0	20.37	20.51	20.36	2
		36	19	20.59	20.75	20.54	2			25	12	20.50	20.67	20.48	2
		36	39	20.72	20.78	20.61	2			25	25	20.61	20.71	20.51	2
		75	0	20.69	20.70	20.65	2			50	0	20.60	20.60	20.59	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		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	20.63	20.62	20.45	0	3M	QPSK	1	0	20.57	20.57	20.33	0
		1	12	20.53	20.63	20.42	0			1	7	20.59	20.59	20.37	0
		1	24	20.57	20.82	20.60	0			1	14	20.61	20.75	20.57	0
		12	0	20.36	20.51	20.33	1			8	0	20.35	20.48	20.17	1
		12	6	20.63	20.63	20.57	1			8	3	20.50	20.58	20.35	1
		12	13	20.68	20.65	20.50	1			8	7	20.67	20.74	20.39	1
		25	0	20.54	20.77	20.51	1			15	0	20.63	20.67	20.36	1
	16QAM	1	0	20.62	20.48	20.34	1		16QAM	1	0	20.49	20.56	20.45	1
		1	12	20.45	20.52	20.38	1			1	7	20.34	20.51	20.32	1
		1	24	20.53	20.62	20.49	1			1	14	20.69	20.72	20.68	1
		12	0	20.33	20.41	20.33	2			8	0	20.20	20.41	20.37	2
		12	6	20.64	20.65	20.51	2			8	3	20.55	20.61	20.52	2
		12	13	20.68	20.54	20.49	2			8	7	20.51	20.68	20.45	2
		25	0	20.53	20.68	20.37	2			15	0	20.51	20.64	20.45	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)								
		Channel		26697	26865	27033									
		Frequency (MHz)		814.7	831.5	848.3									
1.4M	QPSK	1	0	20.55	20.56	20.46	0								
		1	2	20.47	20.54	20.49	0								
		1	5	20.76	20.66	20.60	0								
		3	0	20.29	20.41	20.34	0								
		3	1	20.52	20.67	20.44	0								
		3	3	20.60	20.67	20.64	0								
		6	0	20.61	20.72	20.43	1								
	16QAM	1	0	20.56	20.52	20.49	1								
		1	2	20.49	20.50	20.30	1								
		1	5	20.48	20.72	20.51	1								
		3	0	20.30	20.43	20.36	1								
		3	1	20.48	20.65	20.46	1								
		3	3	20.61	20.66	20.50	1								
		6	0	20.55	20.71	20.43	2								

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		**18.87**		0	5M	QPSK	1	0	18.74	18.84	18.82	0
		1	24		18.81		0			1	12	18.64	18.74	18.72	0
		1	49		18.82		0			1	24	18.63	18.73	18.71	0
		25	0		18.83		1			12	0	18.63	18.73	18.71	1
		25	12		18.81		1			12	6	18.62	18.72	18.70	1
		25	25		18.75		1			12	13	18.55	18.65	18.63	1
		50	0		18.86		1			25	0	18.72	18.82	18.80	1
	16QAM	1	0		18.83		1		16QAM	1	0	18.73	18.80	18.81	1
		1	24		18.77		1			1	12	18.56	18.69	18.67	1
		1	49		18.73		1			1	24	18.61	18.64	18.65	1
		25	0		18.78		2			12	0	18.54	18.72	18.64	2
		25	12		18.75		2			12	6	18.61	18.66	18.70	2
		25	25		18.75		2			12	13	18.45	18.59	18.59	2
		50	0		18.78		2			25	0	18.69	18.80	18.70	2

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	16.91	**16.99**	16.68	16.71	16.74	0	15M	QPSK	1	0	16.81	16.90	16.59	16.62	16.74	0
		1	50	16.82	16.90	16.59	16.62	16.65	0			1	37	16.72	16.90	16.51	16.61	16.55	0
		1	99	16.78	16.86	16.55	16.58	16.61	0			1	74	16.75	16.83	16.54	16.53	16.60	0
		50	0	16.80	16.88	16.57	16.60	16.63	1			36	0	16.70	16.83	16.50	16.56	16.59	1
		50	25	16.70	16.78	16.47	16.50	16.53	1			36	19	16.63	16.78	16.44	16.41	16.46	1
		50	50	16.73	16.81	16.50	16.53	16.56	1			36	39	16.72	16.80	16.43	16.49	16.55	1
		100	0	16.75	16.83	16.52	16.55	16.58	1			75	0	16.67	16.82	16.52	16.49	16.57	1
	16QAM	1	0	16.85	16.91	16.68	16.65	16.72	1		16QAM	1	0	16.89	16.95	16.66	16.69	16.67	1
		1	50	16.79	16.89	16.59	16.53	16.57	1			1	37	16.76	16.80	16.54	16.61	16.56	1
		1	99	16.69	16.79	16.48	16.58	16.51	1			1	74	16.78	16.86	16.46	16.56	16.54	1
		50	0	16.75	16.79	16.55	16.54	16.56	2			36	0	16.72	16.84	16.50	16.51	16.57	2
		50	25	16.69	16.77	16.44	16.47	16.48	2			36	19	16.65	16.69	16.39	16.48	16.47	2
		50	50	16.67	16.72	16.41	16.48	16.46	2			36	39	16.70	16.78	16.50	16.44	16.56	2
		100	0	16.72	16.79	16.50	16.55	16.57	2			75	0	16.71	16.79	16.50	16.51	16.50	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel		39700	40160	40620	41080	41540				Channel		39675	40148	40620	41093	41565	
		Frequency (MHz)		2501.0	2547.0	2593.0	2639.0	2685.0				Frequency (MHz)		2498.5	2545.8	2593.0	2640.3	2687.5	
10M	QPSK	1	0	16.91	16.89	16.56	16.62	16.55	0	5M	QPSK	1	0	16.85	16.94	16.64	16.57	16.61	0
		1	24	16.74	16.72	16.54	16.45	16.59	0			1	12	16.79	16.75	16.41	16.47	16.55	0
		1	49	16.62	16.72	16.44	16.45	16.48	0			1	24	16.71	16.81	16.44	16.50	16.53	0
		25	0	16.72	16.78	16.50	16.53	16.61	1			12	0	16.75	16.77	16.42	16.48	16.54	1
		25	12	16.63	16.73	16.45	16.45	16.41	1			12	6	16.57	16.67	16.35	16.37	16.43	1
		25	25	16.55	16.71	16.45	16.41	16.44	1			12	13	16.64	16.80	16.35	16.39	16.45	1
		50	0	16.62	16.70	16.35	16.43	16.45	1			25	0	16.61	16.69	16.35	16.45	16.49	1
	16QAM	1	0	16.85	16.90	16.53	16.61	16.64	1		16QAM	1	0	16.81	16.89	16.56	16.57	16.59	1
		1	24	16.76	16.72	16.54	16.43	16.51	1			1	12	16.79	16.75	16.42	16.54	16.57	1
		1	49	16.61	16.74	16.42	16.50	16.49	1			1	24	16.68	16.77	16.48	16.53	16.51	1
		25	0	16.72	16.78	16.44	16.55	16.58	2			12	0	16.72	16.68	16.46	16.51	16.45	2
		25	12	16.67	16.68	16.40	16.39	16.34	2			12	6	16.52	16.70	16.36	16.37	16.40	2
		25	25	16.58	16.79	16.38	16.43	16.37	2			12	13	16.62	16.77	16.32	16.36	16.47	2
		50	0	16.59	16.77	16.41	16.42	16.51	2			25	0	16.59	16.75	16.32	16.45	16.47	2

LTE Band 66																
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572				Channel		132047	132322	132597	
		Frequency (MHz)		1720.0	1745.0	1770.0				Frequency (MHz)		1717.5	1745.0	1772.5	
20M	QPSK	1	0	17.92	17.93	**17.99**	0	15M	QPSK	1	0	17.83	17.90	17.97	0
		1	50	17.44	17.50	17.98	0			1	37	17.38	17.47	17.97	0
		1	99	17.52	17.58	17.94	0			1	74	17.48	17.56	17.92	0
		50	0	17.86	17.88	17.95	1			36	0	17.82	17.82	17.90	1
		50	25	17.47	17.53	17.89	1			36	19	17.47	17.51	17.85	1
		50	50	17.49	17.55	17.88	1			36	39	17.39	17.46	17.85	1
		100	0	17.64	17.70	17.94	1			75	0	17.54	17.61	17.84	1
	16QAM	1	0	17.91	17.92	17.96	1		16QAM	1	0	17.77	17.84	17.87	1
		1	50	17.43	17.49	17.98	1			1	37	17.36	17.36	17.83	1
		1	99	17.43	17.48	17.93	1			1	74	17.45	17.48	17.87	1
		50	0	17.79	17.88	17.85	2			36	0	17.77	17.83	17.89	2
		50	25	17.45	17.49	17.81	2			36	19	17.31	17.45	17.84	2
		50	50	17.46	17.55	17.81	2			36	39	17.34	17.41	17.74	2
		100	0	17.56	17.62	17.86	2			75	0	17.59	17.59	17.86	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		132022	132322	132622				Channel		131997	132322	132647	
		Frequency (MHz)		1715.0	1745.0	1775.0				Frequency (MHz)		1712.5	1745.0	1777.5	
10M	QPSK	1	0	17.82	17.79	17.82	0	5M	QPSK	1	0	17.83	17.74	17.83	0
		1	24	17.26	17.43	17.88	0			1	12	17.23	17.35	17.78	0
		1	49	17.35	17.49	17.80	0			1	24	17.42	17.45	17.76	0
		25	0	17.79	17.72	17.84	1			12	0	17.69	17.74	17.69	1
		25	12	17.32	17.40	17.72	1			12	6	17.33	17.33	17.73	1
		25	25	17.27	17.36	17.74	1			12	13	17.41	17.49	17.53	1
		50	0	17.49	17.62	17.83	1			25	0	17.53	17.57	17.73	1
	16QAM	1	0	17.81	17.75	17.82	1		16QAM	1	0	17.82	17.75	17.87	1
		1	24	17.22	17.34	17.76	1			1	12	17.26	17.33	17.91	1
		1	49	17.33	17.46	17.69	1			1	24	17.32	17.35	17.82	1
		25	0	17.62	17.72	17.72	2			12	0	17.66	17.70	17.74	2
		25	12	17.30	17.33	17.74	2			12	6	17.23	17.31	17.74	2
		25	25	17.30	17.33	17.76	2			12	13	17.28	17.40	17.66	2
		50	0	17.52	17.55	17.76	2			25	0	17.39	17.49	17.75	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		131987	132322	132657				Channel		131979	132322	132665	
		Frequency (MHz)		1711.5	1745.5	1778.5				Frequency (MHz)		1710.7	1745.0	1779.3	
3M	QPSK	1	0	17.84	17.81	17.92	0	1.4M	QPSK	1	0	17.78	17.71	17.81	0
		1	7	17.37	17.41	17.84	0			1	2	17.33	17.36	17.95	0
		1	14	17.39	17.51	17.77	0			1	5	17.46	17.44	17.88	0
		8	0	17.73	17.80	17.83	1			3	0	17.76	17.79	17.79	0
		8	3	17.36	17.35	17.74	1			3	1	17.38	17.41	17.80	0
		8	7	17.31	17.55	17.74	1			3	3	17.31	17.32	17.75	0
		15	0	17.46	17.48	17.78	1			6	0	17.49	17.63	17.74	1
	16QAM	1	0	17.76	17.71	17.83	1		16QAM	1	0	17.71	17.89	17.85	1
		1	7	17.24	17.25	17.70	1			1	2	17.31	17.27	17.82	1
		1	14	17.24	17.38	17.83	1			1	5	17.45	17.34	17.68	1
		8	0	17.75	17.70	17.82	2			3	0	17.78	17.62	17.79	1
		8	3	17.26	17.22	17.81	2			3	1	17.27	17.36	17.63	1
		8	7	17.40	17.35	17.66	2			3	3	17.25	17.36	17.70	1
		15	0	17.52	17.55	17.85	2			6	0	17.42	17.57	17.69	2

Laptop PC Mode

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	23.98	**24.11**	23.53	23.32	23.60	**23.94**	23.75	23.57	**23.96**	-
HSDPA Subtest-1	23.90	24.03	23.45	23.26	23.54	23.88	23.65	23.47	23.86	0
HSDPA Subtest-2	23.00	23.13	22.55	22.80	23.08	23.42	22.72	22.54	22.93	0
HSDPA Subtest-3	22.74	22.87	22.29	22.31	22.59	22.93	22.40	22.22	22.61	0.5
HSDPA Subtest-4	22.51	22.64	22.06	22.05	22.33	22.67	22.19	22.01	22.40	0.5
HSUPA Subtest-1	23.39	23.52	22.94	22.80	23.08	23.42	23.09	22.91	23.30	0
HSUPA Subtest-2	21.18	21.31	20.73	20.60	20.88	21.22	20.90	20.72	21.11	2
HSUPA Subtest-3	21.96	22.09	21.51	21.51	21.79	22.13	21.79	21.61	22.00	1
HSUPA Subtest-4	21.44	21.57	20.99	20.81	21.09	21.43	21.17	20.99	21.38	2
HSUPA Subtest-5	23.52	23.65	23.07	22.84	23.12	23.46	23.14	22.96	23.35	0

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	**23.92**	23.89	23.68	0	15M	QPSK	1	0	23.56	23.52	23.31	0
		1	50	23.63	23.60	23.39	0			1	37	23.28	23.29	23.00	0
		1	99	23.73	23.70	23.49	0			1	74	23.43	23.32	23.13	0
		50	0	22.69	22.66	22.45	1			36	0	22.33	22.35	22.07	1
		50	25	22.62	22.59	22.38	1			36	19	22.27	22.22	22.05	1
		50	50	22.66	22.63	22.42	1			36	39	22.35	22.25	22.04	1
		100	0	22.80	22.77	22.56	1			75	0	22.46	22.46	22.25	1
	16QAM	1	0	22.54	22.54	22.36	1		16QAM	1	0	22.60	22.55	22.21	1
		1	50	22.33	22.28	22.02	1			1	37	22.23	22.30	21.98	1
		1	99	22.37	22.31	22.17	1			1	74	22.34	22.28	22.14	1
		50	0	21.37	21.28	21.14	2			36	0	21.28	21.27	21.04	2
		50	25	21.25	21.27	21.02	2			36	19	21.19	21.18	21.06	2
		50	50	21.29	21.31	21.02	2			36	39	21.30	21.19	20.93	2
		100	0	21.45	21.39	21.23	2			75	0	21.43	21.36	21.13	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		18650	18900	19150				Channel		18625	18900	19175	
		Frequency (MHz)		1855.0	1880.0	1905.0				Frequency (MHz)		1852.5	1880.0	1907.5	
10M	QPSK	1	0	23.42	23.41	23.28	0	5M	QPSK	1	0	23.44	23.48	23.11	0
		1	24	23.20	23.15	22.93	0			1	12	23.25	23.16	23.03	0
		1	49	23.23	23.26	23.08	0			1	24	23.30	23.38	23.04	0
		25	0	22.20	22.35	22.09	1			12	0	22.19	22.25	21.99	1
		25	12	22.26	22.17	22.00	1			12	6	22.31	22.20	22.00	1
		25	25	22.31	22.18	21.89	1			12	13	22.24	22.20	21.89	1
		50	0	22.42	22.36	22.03	1			25	0	22.44	22.34	22.00	1
	16QAM	1	0	22.42	22.38	22.11	1		16QAM	1	0	22.42	22.49	22.23	1
		1	24	22.22	22.00	21.86	1			1	12	22.23	22.10	21.83	1
		1	49	22.30	22.19	21.97	1			1	24	22.31	22.21	22.04	1
		25	0	21.25	21.25	21.00	2			12	0	21.24	21.18	21.05	2
		25	12	21.17	21.20	20.81	2			12	6	21.15	21.17	20.97	2
		25	25	21.21	21.15	20.91	2			12	13	21.15	21.13	20.90	2
		50	0	21.30	21.30	21.02	2			25	0	21.45	21.13	21.08	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		18615	18900	19185				Channel		18607	18900	19193	
		Frequency (MHz)		1851.5	1880.0	1908.5				Frequency (MHz)		1850.7	1880.0	1909.3	
3M	QPSK	1	0	23.51	23.44	23.21	0	1.4M	QPSK	1	0	23.49	23.49	23.28	0
		1	7	23.14	23.12	22.99	0			1	2	23.21	23.21	22.88	0
		1	14	23.35	23.22	23.06	0			1	5	23.29	23.35	23.07	0
		8	0	22.34	22.22	22.07	1			3	0	23.24	23.15	23.09	0
		8	3	22.14	22.17	21.91	1			3	1	23.25	23.24	22.91	0
		8	7	22.22	22.17	21.98	1			3	3	23.29	23.22	23.01	0
		15	0	22.36	22.33	22.15	1			6	0	22.45	22.22	22.14	1
	16QAM	1	0	22.40	22.46	22.27	1		16QAM	1	0	22.40	22.50	22.12	1
		1	7	22.11	22.03	21.87	1			1	2	22.20	22.09	21.97	1
		1	14	22.39	22.28	21.94	1			1	5	22.18	22.24	22.08	1
		8	0	21.20	21.13	21.03	2			3	0	22.25	22.19	21.91	1
		8	3	21.18	21.12	21.02	2			3	1	22.09	22.14	21.85	1
		8	7	21.29	21.20	20.92	2			3	3	22.11	22.15	22.05	1
		15	0	21.29	21.38	21.00	2			6	0	21.47	21.27	21.22	2

LTE Band 4

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	23.34	**23.55**	23.38	0	15M	QPSK	1	0	22.84	23.07	22.88	0
		1	50	23.09	23.30	23.13	0			1	37	22.61	22.86	22.70	0
		1	99	23.14	23.35	23.18	0			1	74	22.70	22.95	22.71	0
		50	0	22.23	22.44	22.27	1			36	0	21.83	21.98	21.79	1
		50	25	22.08	22.29	22.12	1			36	19	21.63	21.82	21.71	1
		50	50	22.13	22.34	22.17	1			36	39	21.72	21.84	21.77	1
		100	0	22.24	22.45	22.28	1			75	0	21.75	21.98	21.88	1
	16QAM	1	0	21.94	22.05	21.90	1		16QAM	1	0	21.87	22.13	21.80	1
		1	50	21.66	21.81	21.65	1			1	37	21.60	21.79	21.72	1
		1	99	21.70	21.95	21.71	1			1	74	21.71	21.84	21.60	1
		50	0	20.76	21.02	20.84	2			36	0	20.70	20.92	20.78	2
		50	25	20.64	20.80	20.70	2			36	19	20.60	20.75	20.54	2
		50	50	20.71	20.89	20.77	2			36	39	20.67	20.91	20.67	2
		100	0	20.80	20.96	20.84	2			75	0	20.70	20.88	20.83	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		20000	20175	20350				Channel		19975	20175	20375	
		Frequency (MHz)		1715.0	1732.5	1750.0				Frequency (MHz)		1712.5	1732.5	1752.5	
10M	QPSK	1	0	22.74	22.98	22.87	0	5M	QPSK	1	0	22.76	23.00	22.77	0
		1	24	22.60	22.81	22.68	0			1	12	22.56	22.71	22.62	0
		1	49	22.57	22.87	22.72	0			1	24	22.63	22.92	22.67	0
		25	0	21.64	21.91	21.70	1			12	0	21.71	21.92	21.63	1
		25	12	21.43	21.81	21.52	1			12	6	21.54	21.79	21.44	1
		25	25	21.58	21.78	21.64	1			12	13	21.53	21.84	21.60	1
		50	0	21.78	21.90	21.81	1			25	0	21.63	22.03	21.80	1
	16QAM	1	0	21.81	21.93	21.84	1		16QAM	1	0	21.83	22.02	21.82	1
		1	24	21.61	21.77	21.59	1			1	12	21.52	21.80	21.56	1
		1	49	21.57	21.79	21.72	1			1	24	21.63	21.85	21.59	1
		25	0	20.67	20.91	20.61	2			12	0	20.80	20.93	20.79	2
		25	12	20.48	20.67	20.50	2			12	6	20.46	20.75	20.58	2
		25	25	20.62	20.77	20.66	2			12	13	20.67	20.68	20.68	2
		50	0	20.70	20.93	20.75	2			25	0	20.64	20.78	20.72	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		19965	20175	20385				Channel		19957	20175	20393	
		Frequency (MHz)		1711.5	1732.5	1753.5				Frequency (MHz)		1710.7	1732.5	1754.3	
3M	QPSK	1	0	22.84	22.96	22.79	0	1.4M	QPSK	1	0	22.82	22.94	22.92	0
		1	7	22.50	22.73	22.54	0			1	2	22.48	22.76	22.61	0
		1	14	22.65	22.76	22.70	0			1	5	22.59	22.74	22.77	0
		8	0	21.75	21.87	21.68	1			3	0	22.73	22.92	22.67	0
		8	3	21.57	21.85	21.66	1			3	1	22.62	22.74	22.50	0
		8	7	21.70	21.78	21.68	1			3	3	22.63	22.77	22.60	0
		15	0	21.69	21.98	21.79	1			6	0	21.78	21.95	21.69	1
	16QAM	1	0	21.79	21.94	21.93	1		16QAM	1	0	21.73	21.97	21.89	1
		1	7	21.49	21.57	21.50	1			1	2	21.51	21.68	21.58	1
		1	14	21.61	21.88	21.68	1			1	5	21.62	21.88	21.53	1
		8	0	20.59	20.82	20.66	2			3	0	21.70	21.94	21.66	1
		8	3	20.62	20.65	20.63	2			3	1	21.37	21.72	21.54	1
		8	7	20.57	20.90	20.72	2			3	3	21.58	21.73	21.66	1
		15	0	20.70	20.79	20.65	2			6	0	20.70	20.89	20.69	2

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	**23.03**	22.93	22.88	0	5M	QPSK	1	0	22.57	22.53	22.39	0
		1	24	22.88	22.78	22.73	0			1	12	22.46	22.34	22.32	0
		1	49	22.91	22.81	22.76	0			1	24	22.44	22.40	22.30	0
		25	0	22.03	21.93	21.88	1			12	0	21.62	21.49	21.42	1
		25	12	21.98	21.88	21.83	1			12	6	21.57	21.38	21.37	1
		25	25	22.00	21.90	21.85	1			12	13	21.50	21.40	21.43	1
		50	0	22.02	21.92	21.87	1			25	0	21.58	21.42	21.40	1
	16QAM	1	0	21.63	21.50	21.41	1		16QAM	1	0	21.60	21.42	21.42	1
		1	24	21.46	21.35	21.26	1			1	12	21.33	21.28	21.25	1
		1	49	21.42	21.39	21.33	1			1	24	21.41	21.26	21.28	1
		25	0	20.60	20.43	20.42	2			12	0	20.54	20.48	20.35	2
		25	12	20.53	20.38	20.39	2			12	6	20.47	20.33	20.32	2
		25	25	20.53	20.49	20.40	2			12	13	20.55	20.40	20.42	2
		50	0	20.52	20.52	20.44	2			25	0	20.48	20.39	20.40	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		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	22.51	22.46	22.30	0	1.4M	QPSK	1	0	22.48	22.37	22.32	0
		1	7	22.24	22.26	22.17	0			1	2	22.41	22.25	22.18	0
		1	14	22.38	22.32	22.21	0			1	5	22.27	22.29	22.20	0
		8	0	21.54	21.47	21.38	1			3	0	22.51	22.31	22.34	0
		8	3	21.41	21.36	21.27	1			3	1	22.37	22.42	22.34	0
		8	7	21.52	21.41	21.34	1			3	3	22.50	22.41	22.30	0
		15	0	21.57	21.40	21.37	1			6	0	21.51	21.48	21.32	1
	16QAM	1	0	21.39	21.36	21.36	1		16QAM	1	0	21.48	21.33	21.24	1
		1	7	21.31	21.16	21.14	1			1	2	21.27	21.21	21.11	1
		1	14	21.38	21.20	21.20	1			1	5	21.31	21.30	21.19	1
		8	0	20.51	20.30	20.21	2			3	0	21.51	21.31	21.36	1
		8	3	20.33	20.29	20.15	2			3	1	21.48	21.28	21.37	1
		8	7	20.49	20.26	20.24	2			3	3	21.43	21.24	21.36	1
		15	0	20.34	20.32	20.38	2			6	0	20.37	20.29	20.36	2

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	23.22	23.19	23.12	0	15M	QPSK	1	0	22.72	22.70	22.70	0
		1	50	23.34	23.31	23.24	0			1	37	22.86	22.89	22.74	0
		1	99	**23.39**	23.36	23.29	0			1	74	22.94	22.90	22.87	0
		50	0	22.38	22.35	22.28	1			36	0	21.97	21.95	21.88	1
		50	25	22.46	22.43	22.36	1			36	19	21.96	21.96	21.93	1
		50	50	22.42	22.39	22.32	1			36	39	21.99	21.93	21.82	1
		100	0	22.54	22.51	22.44	1			75	0	22.11	22.06	22.00	1
	16QAM	1	0	21.74	21.76	21.65	1		16QAM	1	0	21.65	21.67	21.61	1
		1	50	21.91	21.89	21.82	1			1	37	21.77	21.80	21.80	1
		1	99	21.89	21.93	21.88	1			1	74	21.96	21.90	21.72	1
		50	0	20.90	20.85	20.82	2			36	0	20.85	20.87	20.80	2
		50	25	21.02	20.94	20.94	2			36	19	20.99	20.90	20.85	2
		50	50	20.94	20.97	20.86	2			36	39	20.90	20.92	20.75	2
		100	0	21.11	21.11	21.00	2			75	0	21.14	21.08	20.94	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		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	22.68	22.68	22.71	0	5M	QPSK	1	0	22.61	22.65	22.54	0
		1	24	22.88	22.80	22.64	0			1	12	22.84	22.76	22.53	0
		1	49	22.86	22.86	22.80	0			1	24	22.88	22.83	22.79	0
		25	0	21.89	21.81	21.67	1			12	0	21.81	21.78	21.60	1
		25	12	21.87	21.79	21.83	1			12	6	21.98	21.85	21.79	1
		25	25	21.94	21.89	21.86	1			12	13	21.94	21.79	21.74	1
		50	0	21.96	22.03	21.99	1			25	0	22.04	21.92	21.88	1
	16QAM	1	0	21.67	21.65	21.44	1		16QAM	1	0	21.73	21.74	21.57	1
		1	24	21.64	21.61	21.68	1			1	12	21.70	21.70	21.66	1
		1	49	21.88	21.88	21.70	1			1	24	21.77	21.71	21.70	1
		25	0	20.68	20.88	20.75	2			12	0	20.80	20.83	20.61	2
		25	12	20.80	20.95	20.74	2			12	6	20.89	20.89	20.77	2
		25	25	20.80	20.71	20.73	2			12	13	20.79	20.84	20.71	2
		50	0	20.90	20.99	20.80	2			25	0	20.98	21.00	20.98	2

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	22.91	**23.02**	22.93	0	5M	QPSK	1	0	22.43	22.60	22.53	0
		1	24	22.85	22.96	22.87	0			1	12	22.41	22.50	22.38	0
		1	49	22.89	23.00	22.91	0			1	24	22.40	22.50	22.51	0
		25	0	21.95	22.06	21.97	1			12	0	21.53	21.64	21.50	1
		25	12	21.99	22.10	22.01	1			12	6	21.49	21.68	21.59	1
		25	25	21.93	22.04	21.95	1			12	13	21.44	21.57	21.45	1
		50	0	22.06	22.17	22.08	1			25	0	21.64	21.68	21.61	1
	16QAM	1	0	21.42	21.55	21.44	1		16QAM	1	0	21.39	21.47	21.43	1
		1	24	21.35	21.50	21.45	1			1	12	21.34	21.37	21.30	1
		1	49	21.41	21.60	21.43	1			1	24	21.42	21.48	21.40	1
		25	0	20.50	20.56	20.55	2			12	0	20.46	20.65	20.47	2
		25	12	20.55	20.68	20.57	2			12	6	20.50	20.60	20.55	2
		25	25	20.47	20.57	20.52	2			12	13	20.36	20.63	20.46	2
		50	0	20.57	20.70	20.58	2			25	0	20.56	20.68	20.61	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		23025	23095	23165				Channel		23017	23095	23173	
		Frequency (MHz)		700.5	707.5	714.5				Frequency (MHz)		699.7	707.5	715.3	
3M	QPSK	1	0	22.31	22.46	22.44	0	1.4M	QPSK	1	0	22.30	22.59	22.40	0
		1	7	22.20	22.44	22.30	0			1	2	22.34	22.47	22.46	0
		1	14	22.44	22.42	22.39	0			1	5	22.40	22.51	22.37	0
		8	0	21.37	21.55	21.52	1			3	0	22.35	22.46	22.36	0
		8	3	21.53	21.51	21.46	1			3	1	22.42	22.58	22.54	0
		8	7	21.43	21.55	21.44	1			3	3	22.44	22.45	22.38	0
		15	0	21.48	21.65	21.57	1			6	0	21.56	21.66	21.53	1
	16QAM	1	0	21.30	21.42	21.41	1		16QAM	1	0	21.45	21.49	21.42	1
		1	7	21.38	21.37	21.24	1			1	2	21.14	21.34	21.27	1
		1	14	21.31	21.39	21.29	1			1	5	21.35	21.35	21.35	1
		8	0	20.36	20.52	20.42	2			3	0	21.33	21.49	21.43	1
		8	3	20.45	20.56	20.42	2			3	1	21.41	21.59	21.50	1
		8	7	20.32	20.52	20.46	2			3	3	21.33	21.55	21.30	1
		15	0	20.40	20.57	20.54	2			6	0	20.49	20.52	20.50	2

LTE Band 13

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			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		23.35		0	5M	QPSK	1	0	22.84	22.88	22.82	0
		1	24		23.21		0			1	12	22.72	22.76	22.70	0
		1	49		**23.39**		0			1	24	22.91	22.95	22.89	0
		25	0		22.35		1			12	0	21.89	21.93	21.87	1
		25	12		22.27		1			12	6	21.74	21.78	21.72	1
		25	25		22.38		1			12	13	21.94	21.98	21.92	1
		50	0		22.44		1			25	0	21.97	22.01	21.95	1
	16QAM	1	0		21.87		1		16QAM	1	0	21.74	21.78	21.72	1
		1	24		21.72		1			1	12	21.61	21.65	21.59	1
		1	49		21.96		1			1	24	21.92	21.96	21.90	1
		25	0		20.89		2			12	0	20.83	20.87	20.81	2
		25	12		20.78		2			12	6	20.75	20.79	20.73	2
		25	25		20.97		2			12	13	20.80	20.84	20.78	2
		50	0		21.00		2			25	0	20.98	21.02	20.96	2

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	**23.24**	23.22	23.15	0	5M	QPSK	1	0	22.76	22.81	22.69	0
		1	24	23.09	23.07	23.00	0			1	12	22.67	22.59	22.56	0
		1	49	23.22	23.20	23.13	0			1	24	22.80	22.70	22.71	0
		25	0	22.22	22.20	22.13	1			12	0	21.80	21.70	21.66	1
		25	12	22.19	22.17	22.10	1			12	6	21.76	21.70	21.69	1
		25	25	22.21	22.19	22.12	1			12	13	21.78	21.69	21.65	1
		50	0	22.20	22.18	22.11	1			25	0	21.78	21.75	21.61	1
	16QAM	1	0	22.16	22.15	22.09	1		16QAM	1	0	21.74	21.69	21.55	1
		1	24	21.63	21.62	21.55	1			1	12	21.57	21.57	21.49	1
		1	49	21.81	21.79	21.68	1			1	24	21.81	21.69	21.62	1
		25	0	20.76	20.77	20.66	2			12	0	20.72	20.68	20.64	2
		25	12	20.75	20.74	20.61	2			12	6	20.64	20.67	20.60	2
		25	25	20.80	20.69	20.63	2			12	13	20.72	20.64	20.60	2
		50	0	20.70	20.73	20.66	2			25	0	20.71	20.72	20.63	2

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	22.84	22.91	22.77	0	10M	QPSK	1	0	22.39	22.46	22.28	0
		1	37	22.85	**22.92**	22.78	0			1	24	22.45	22.50	22.32	0
		1	74	22.70	22.77	22.63	0			1	49	22.24	22.32	22.17	0
		36	0	21.87	21.94	21.80	1			25	0	21.45	21.47	21.40	1
		36	19	21.89	21.96	21.82	1			25	12	21.45	21.51	21.39	1
		36	39	21.79	21.86	21.72	1			25	25	21.32	21.41	21.30	1
		75	0	22.04	22.11	21.97	1			50	0	21.60	21.63	21.53	1
	16QAM	1	0	21.36	21.49	21.28	1		16QAM	1	0	21.34	21.45	21.30	1
		1	37	21.41	21.43	21.32	1			1	24	21.26	21.41	21.30	1
		1	74	21.26	21.37	21.17	1			1	49	21.29	21.33	21.12	1
		36	0	20.47	20.44	20.34	2			25	0	20.35	20.43	20.34	2
		36	19	20.45	20.54	20.32	2			25	12	20.42	20.53	20.33	2
		36	39	20.37	20.46	20.30	2			25	25	20.37	20.42	20.21	2
		75	0	20.57	20.66	20.48	2			50	0	20.61	20.67	20.44	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		26715	26865	27015				Channel		26705	26865	27025	
		Frequency (MHz)		816.5	831.5	846.5				Frequency (MHz)		815.5	831.5	847.5	
M	QPSK	1	0	22.32	22.29	22.24	0	3M	QPSK	1	0	22.29	22.45	22.12	0
		1	12	22.28	22.47	22.22	0			1	7	22.29	22.39	22.13	0
		1	24	22.16	22.36	22.09	0			1	14	22.21	22.29	22.01	0
		12	0	21.34	21.36	21.33	1			8	0	21.24	21.36	21.09	1
		12	6	21.44	21.43	21.35	1			8	3	21.34	21.40	21.17	1
		12	13	21.29	21.29	21.15	1			8	7	21.14	21.35	21.18	1
		25	0	21.49	21.53	21.46	1			15	0	21.46	21.60	21.29	1
	16QAM	1	0	21.24	21.40	21.17	1		16QAM	1	0	21.30	21.21	21.22	1
		1	12	21.22	21.38	21.18	1			1	7	21.24	21.42	21.11	1
		1	24	21.08	21.16	21.03	1			1	14	21.14	21.25	21.04	1
		12	0	20.29	20.41	20.25	2			8	0	20.27	20.38	20.19	2
		12	6	20.35	20.29	20.27	2			8	3	20.24	20.46	20.17	2
		12	13	20.22	20.29	20.14	2			8	7	20.23	20.29	20.20	2
		25	0	20.55	20.63	20.51	2			15	0	20.57	20.66	20.44	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)								
		Channel		26697	26865	27033									
		Frequency (MHz)		814.7	831.5	848.3									
1.4M	QPSK	1	0	22.19	22.35	22.24	0								
		1	2	22.42	22.41	22.25	0								
		1	5	22.12	22.22	22.17	0								
		3	0	22.44	22.44	22.20	0								
		3	1	22.41	22.37	22.30	0								
		3	3	22.39	22.38	22.22	0								
		6	0	21.51	21.50	21.38	1								
	16QAM	1	0	21.25	21.37	21.24	1								
		1	2	21.26	21.32	21.11	1								
		1	5	21.18	21.21	21.07	1								
		3	0	21.32	21.42	21.11	1								
		3	1	21.26	21.41	21.13	1								
		3	3	21.26	21.24	21.18	1								
		6	0	20.63	20.50	20.49	2								

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		***22.95***		0	5M	QPSK	1	0	22.40	22.47	22.44	0
		1	24		22.88		0			1	12	22.40	22.47	22.44	0
		1	49		22.86		0			1	24	22.38	22.45	22.42	0
		25	0		21.96		1			12	0	21.45	21.52	21.49	1
		25	12		21.93		1			12	6	21.43	21.50	21.47	1
		25	25		21.85		1			12	13	21.37	21.44	21.41	1
		50	0		21.97		1			25	0	21.41	21.48	21.45	1
	16QAM	1	0		21.55		1		16QAM	1	0	21.35	21.42	21.39	1
		1	24		21.46		1			1	12	21.27	21.34	21.31	1
		1	49		21.43		1			1	24	21.28	21.35	21.32	1
		25	0		20.56		2			12	0	20.40	20.47	20.44	2
		25	12		20.48		2			12	6	20.42	20.49	20.46	2
		25	25		20.40		2			12	13	20.27	20.34	20.31	2
		50	0		20.56		2			25	0	20.45	20.52	20.49	2

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	23.31	**23.34**	23.12	23.03	23.21	0	15M	QPSK	1	0	22.81	22.87	22.63	22.62	22.80	0
		1	50	23.15	23.18	22.96	22.87	23.05	0			1	37	22.68	22.74	22.50	22.38	22.55	0
		1	99	23.13	23.16	22.94	22.85	23.03	0			1	74	22.73	22.66	22.51	22.43	22.60	0
		50	0	22.15	22.18	21.96	21.87	22.05	1			36	0	21.68	21.77	21.50	21.44	21.56	1
		50	25	22.10	22.13	21.91	21.82	22.00	1			36	19	21.61	21.72	21.42	21.39	21.58	1
		50	50	22.14	22.17	21.95	21.86	22.04	1			36	39	21.71	21.76	21.50	21.44	21.57	1
		100	0	22.17	22.20	21.98	21.89	22.07	1			75	0	21.71	21.74	21.49	21.49	21.62	1
	16QAM	1	0	21.81	21.88	21.64	21.55	21.72	1		16QAM	1	0	21.81	21.94	21.69	21.63	21.71	1
		1	50	21.65	21.71	21.54	21.39	21.65	1			1	37	21.74	21.77	21.49	21.45	21.65	1
		1	99	21.66	21.70	21.53	21.42	21.55	1			1	74	21.65	21.75	21.51	21.44	21.55	1
		50	0	20.71	20.75	20.52	20.41	20.65	2			36	0	20.71	20.71	20.56	20.37	20.64	2
		50	25	20.70	20.70	20.44	20.42	20.51	2			36	19	20.70	20.69	20.47	20.41	20.56	2
		50	50	20.68	20.70	20.51	20.43	20.60	2			36	39	20.71	20.67	20.51	20.43	20.55	2
		100	0	20.69	20.75	20.51	20.40	20.58	2			75	0	20.76	20.79	20.49	20.41	20.61	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	Mid	Mid	High	3GPP MPR (dB)
		Channel		39700	40160	40620	41080	41540				Channel		39675	40148	40620	41093	41565	
		Frequency (MHz)		2501.0	2547.0	2593.0	2639.0	2685.0				Frequency (MHz)		2498.5	2545.8	2593.0	2640.3	2687.5	
10M	QPSK	1	0	22.76	22.76	22.62	22.56	22.67	0	5M	QPSK	1	0	22.90	22.90	22.56	22.49	22.76	0
		1	24	22.69	22.62	22.47	22.39	22.59	0			1	12	22.68	22.65	22.45	22.35	22.50	0
		1	49	22.68	22.64	22.39	22.33	22.61	0			1	24	22.59	22.67	22.42	22.41	22.58	0
		25	0	21.61	21.61	21.47	21.35	21.57	1			12	0	21.69	21.61	21.41	21.35	21.64	1
		25	12	21.57	21.64	21.43	21.35	21.51	1			12	6	21.69	21.60	21.45	21.28	21.46	1
		25	25	21.64	21.59	21.48	21.43	21.54	1			12	13	21.59	21.72	21.43	21.31	21.53	1
		50	0	21.70	21.61	21.52	21.33	21.57	1			25	0	21.65	21.76	21.45	21.44	21.58	1
	16QAM	1	0	21.77	21.74	21.56	21.60	21.71	1		16QAM	1	0	21.89	21.93	21.57	21.47	21.76	1
		1	24	21.68	21.68	21.39	21.34	21.58	1			1	12	21.65	21.65	21.49	21.41	21.53	1
		1	49	21.63	21.62	21.42	21.39	21.58	1			1	24	21.64	21.71	21.46	21.40	21.53	1
		25	0	20.65	20.58	20.42	20.44	20.54	2			12	0	20.69	20.69	20.45	20.31	20.57	2
		25	12	20.62	20.60	20.45	20.34	20.52	2			12	6	20.63	20.64	20.51	20.32	20.42	2
		25	25	20.62	20.61	20.50	20.44	20.56	2			12	13	20.62	20.71	20.40	20.29	20.48	2
		50	0	20.64	20.68	20.53	20.37	20.59	2			25	0	20.65	20.69	20.50	20.47	20.56	2

LTE Band 66

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132072	132322	132572	
		Frequency (MHz)		1720.0	1745.0	1770.0	
20M	QPSK	1	0	23.10	23.08	**23.58**	0
		1	50	22.74	22.72	23.22	0
		1	99	22.96	22.94	23.44	0
		50	0	21.92	21.90	22.40	1
		50	25	21.86	21.84	22.34	1
		50	50	21.89	21.87	22.37	1
		100	0	22.09	22.07	22.57	1
	16QAM	1	0	21.61	21.61	22.14	1
		1	50	21.29	21.32	21.76	1
		1	99	21.47	21.53	21.96	1
		50	0	20.52	20.43	20.91	2
		50	25	20.42	20.34	20.85	2
		50	50	20.48	20.43	20.94	2
		100	0	20.59	20.66	21.10	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132047	132322	132597	
		Frequency (MHz)		1717.5	1745.0	1772.5	
15M	QPSK	1	0	22.68	22.66	23.11	0
		1	37	22.27	22.28	22.80	0
		1	74	22.54	22.44	23.04	0
		36	0	21.46	21.40	21.90	1
		36	19	21.42	21.35	21.85	1
		36	39	21.42	21.39	21.92	1
		75	0	21.66	21.60	22.07	1
	16QAM	1	0	21.58	21.49	22.00	1
		1	37	21.21	21.23	21.69	1
		1	74	21.48	21.41	21.98	1
		36	0	20.44	20.48	20.98	2
		36	19	20.36	20.27	20.81	2
		36	39	20.37	20.37	20.90	2
		75	0	20.57	20.48	21.07	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		132022	132322	132622	
		Frequency (MHz)		1715.0	1745.0	1775.0	
10M	QPSK	1	0	22.60	22.61	23.10	0
		1	24	22.17	22.11	22.77	0
		1	49	22.39	22.35	22.87	0
		25	0	21.49	21.44	21.88	1
		25	12	21.41	21.27	21.88	1
		25	25	21.36	21.31	21.73	1
		50	0	21.63	21.54	22.12	1
	16QAM	1	0	21.56	21.50	22.01	1
		1	24	21.22	21.15	21.62	1
		1	49	21.25	21.43	21.74	1
		25	0	20.32	20.36	20.85	2
		25	12	20.35	20.34	20.81	2
		25	25	20.28	20.22	20.88	2
		50	0	20.56	20.45	20.87	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131997	132322	132647	
		Frequency (MHz)		1712.5	1745.0	1777.5	
5M	QPSK	1	0	22.53	22.65	23.00	0
		1	12	22.23	22.18	22.59	0
		1	24	22.49	22.46	22.84	0
		12	0	21.40	21.50	21.73	1
		12	6	21.26	21.30	21.63	1
		12	13	21.42	21.32	21.84	1
		25	0	21.46	21.43	22.14	1
	16QAM	1	0	21.57	21.50	22.02	1
		1	12	21.25	21.21	21.64	1
		1	24	21.41	21.37	21.73	1
		12	0	20.40	20.24	20.81	2
		12	6	20.17	20.27	20.74	2
		12	13	20.20	20.31	20.90	2
		25	0	20.57	20.52	21.01	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131987	132322	132657	
		Frequency (MHz)		1711.5	1745.5	1778.5	
3M	QPSK	1	0	22.48	22.58	23.00	0
		1	7	22.17	22.16	22.67	0
		1	14	22.47	22.44	22.93	0
		8	0	21.49	21.38	21.85	1
		8	3	21.37	21.27	21.85	1
		8	7	21.32	21.38	21.78	1
		15	0	21.51	21.61	22.10	1
	16QAM	1	0	21.43	21.55	22.11	1
		1	7	21.15	21.26	21.66	1
		1	14	21.41	21.39	21.87	1
		8	0	20.39	20.45	20.69	2
		8	3	20.38	20.25	20.69	2
		8	7	20.27	20.31	20.74	2
		15	0	20.56	20.48	21.09	2

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		131979	132322	132665	
		Frequency (MHz)		1710.7	1745.0	1779.3	
1.4M	QPSK	1	0	22.46	22.59	23.03	0
		1	2	22.31	22.19	22.66	0
		1	5	22.46	22.40	22.86	0
		3	0	22.30	22.38	22.85	0
		3	1	22.39	22.41	22.88	0
		3	3	22.39	22.41	22.86	0
		6	0	21.63	21.63	22.02	1
	16QAM	1	0	21.45	21.63	22.02	1
		1	2	21.23	21.19	21.64	1
		1	5	21.36	21.36	21.98	1
		3	0	21.24	21.26	21.72	1
		3	1	21.37	21.35	21.77	1
		3	3	21.36	21.31	21.86	1
		6	0	20.49	20.53	21.05	2

<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	17.28	17.26	-
	6	2437	17.11	17.07	-
	11	2462	17.42	17.27	-
802.11n (HT40)	3	2422	-	-	17.29
	6	2437	-	-	17.34
	9	2452	-	-	17.24

<WLAN 5.3G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11ac (VHT80)	58	5290	15.99	15.97	15.95

<WLAN 5.6G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11ac (VHT80)	106	5530	15.98	15.99	15.99
	122	5610	15.93	15.98	15.94

<WLAN 5.8G>

Mode	Channel	Frequency (MHz)	Average Power (Ant-0)	Average Power (Ant-1)	Average Power (Ant-0 + Ant-1)
802.11ac (VHT80)	155	5775	15.95	15.98	15.95

<Bluetooth>

Mode	Channel	Frequency (MHz)	Average Power
Bluetooth EDR	0	2402	9.66
	39	2441	9.70
	78	2480	8.69
Bluetooth LE	0	2402	4.28
	19	2440	4.45
	39	2480	4.46

4.7 SAR Testing Results

4.7.1 SAR Test Reduction Considerations

<KDB 447498 D01, General RF Exposure Guidance>

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

(1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

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

(3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

<KDB 941225 D01, 3G SAR Measurement Procedures>

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

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

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

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

(2) QPSK with 100% RB allocation

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

(3) Higher order modulations

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

(4) Other channel bandwidth

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

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

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

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

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

(4) For WLAN MIMO mode, the power-based standalone SAR test exclusion or the sum of SAR provision in KDB 447498 to determine simultaneous transmission SAR test exclusion should be applied. Otherwise, SAR for MIMO mode will be measured with all applicable antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

4.7.2 SAR Results for Body Exposure Condition

Tablet PC Mode

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	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)
	WCDMA II	RMC12.2K	Rear Face	0	9400	1	18.5	18.01	1.12	-0.10	0.269	0.30
	WCDMA II	RMC12.2K	Top Side	0	9400	1	18.5	18.01	1.12	0.11	0.768	0.86
01	WCDMA II	RMC12.2K	Top Side	0	9262	1	18.5	17.83	1.17	-0.08	0.750	**0.88**
	WCDMA II	RMC12.2K	Top Side	0	9538	1	18.5	17.37	1.30	-0.03	0.58	0.75
	WCDMA II	RMC12.2K	Top Side	0	9262	2	18.5	17.83	1.17	0.05	0.744	0.87
	WCDMA II	RMC12.2K	Top Side	0	9400	2	18.5	18.01	1.12	-0.08	0.749	0.84
	WCDMA II	RMC12.2K	Top Side	0	9538	2	18.5	17.37	1.30	-0.08	0.604	0.78
	WCDMA II	RMC12.2K	Top Side	0	9262	1	18.5	17.83	1.17	-0.08	0.744	0.87
	WCDMA IV	RMC12.2K	Rear Face	0	1513	1	18.5	17.85	1.16	-0.02	0.276	0.32
02	WCDMA IV	RMC12.2K	Top Side	0	1513	1	18.5	17.85	1.16	-0.01	0.739	**0.86**
	WCDMA IV	RMC12.2K	Top Side	0	1312	1	18.5	17.31	1.32	-0.04	0.614	0.81
	WCDMA IV	RMC12.2K	Top Side	0	1413	1	18.5	17.57	1.24	-0.05	0.657	0.81
	WCDMA IV	RMC12.2K	Top Side	0	1513	2	18.5	17.85	1.16	0.06	0.674	0.78
	WCDMA IV	RMC12.2K	Top Side	0	1513	1	18.5	17.85	1.16	-0.03	0.718	0.83
	WCDMA V	RMC12.2K	Rear Face	0	4233	1	21.5	21.16	1.08	-0.02	0.373	0.40
	WCDMA V	RMC12.2K	Left Side	0	4233	1	21.5	21.16	1.08	0.00	0.001	0.00
	WCDMA V	RMC12.2K	Right Side	0	4233	1	21.5	21.16	1.08	0.02	0.057	0.06
	WCDMA V	RMC12.2K	Top Side	0	4233	1	21.5	21.16	1.08	0.14	0.464	0.50
	WCDMA V	RMC12.2K	Bottom Side	0	4233	1	21.5	21.16	1.08	0.00	0.001	0.00
03	WCDMA V	RMC12.2K	Top Side	0	4132	1	21.5	20.79	1.18	-0.16	0.567	**0.67**
	WCDMA V	RMC12.2K	Top Side	0	4182	1	21.5	20.64	1.22	0.19	0.448	0.55
	WCDMA V	RMC12.2K	Top Side	0	4132	2	21.5	20.79	1.18	-0.12	0.528	0.62

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	Separation Distance (cm)	Ch.	RB#	RB Offset	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)
	LTE 2	QPSK20M	Rear Face	0	18700	1	0	1	18.5	18.49	1.00	0.05	0.371	0.37
04	LTE 2	QPSK20M	Top Side	0	18700	1	0	1	18.5	18.49	1.00	-0.09	1.19	**1.19**
	LTE 2	QPSK20M	Rear Face	0	18700	50	0	1	18.5	18.46	1.01	0.08	0.339	0.34
	LTE 2	QPSK20M	Top Side	0	18700	50	0	1	18.5	18.46	1.01	-0.05	1.14	1.15
	LTE 2	QPSK20M	Top Side	0	18900	1	0	1	18.5	18.46	1.01	0.03	1.11	1.12
	LTE 2	QPSK20M	Top Side	0	19100	1	0	1	18.5	18.41	1.02	-0.12	0.868	0.89
	LTE 2	QPSK20M	Top Side	0	18900	50	0	1	18.5	18.41	1.02	0.08	0.998	1.02
	LTE 2	QPSK20M	Top Side	0	19100	50	0	1	18.5	18.39	1.03	0.02	0.806	0.83
	LTE 2	QPSK20M	Top Side	0	18700	100	0	1	18.5	18.47	1.01	0.11	1.12	1.13
	LTE 2	QPSK20M	Top Side	0	18700	1	0	2	18.5	18.49	1.00	0.05	1.18	1.18
	LTE 2	QPSK20M	Top Side	0	18900	1	0	2	18.5	18.46	1.01	0.03	1.08	1.09
	LTE 2	QPSK20M	Top Side	0	19100	1	0	2	18.5	18.41	1.02	0.06	0.856	0.87
	LTE 2	QPSK20M	Top Side	0	18700	1	0	1	18.5	18.49	1.00	-0.09	1.14	1.14
	LTE 4	QPSK20M	Rear Face	0	20175	1	0	1	19.0	17.99	1.26	0.02	0.271	0.34
	LTE 4	QPSK20M	Top Side	0	20175	1	0	1	19.0	17.99	1.26	0.02	0.853	1.08
	LTE 4	QPSK20M	Rear Face	0	20175	50	0	1	19.0	17.98	1.26	-0.04	0.248	0.31
	LTE 4	QPSK20M	Top Side	0	20175	50	0	1	19.0	17.98	1.26	0.05	0.816	1.03
	LTE 4	QPSK20M	Top Side	0	20050	1	0	1	19.0	17.94	1.28	-0.02	0.831	1.06
05	LTE 4	QPSK20M	Top Side	0	20300	1	0	1	19.0	17.96	1.27	-0.13	0.894	**1.14**
	LTE 4	QPSK20M	Top Side	0	20050	50	0	1	19.0	17.90	1.29	0.13	0.804	1.04
	LTE 4	QPSK20M	Top Side	0	20300	50	0	1	19.0	17.97	1.27	0.04	0.871	1.10
	LTE 4	QPSK20M	Top Side	0	20175	100	0	1	19.0	17.96	1.27	0.15	0.851	1.08
	LTE 4	QPSK20M	Top Side	0	20300	1	0	2	19.0	17.96	1.27	0.06	0.873	1.11
	LTE 4	QPSK20M	Top Side	0	20050	1	0	2	19.0	17.94	1.28	0.08	0.822	1.05
	LTE 4	QPSK20M	Top Side	0	20175	1	0	2	19.0	17.99	1.26	0.15	0.841	1.06
	LTE 4	QPSK20M	Top Side	0	20300	1	0	1	19.0	17.96	1.27	-0.13	0.882	1.12
	LTE 5	QPSK10M	Rear Face	0	20450	1	49	1	22.0	20.80	1.32	-0.06	0.274	0.36
	LTE 5	QPSK10M	Left Side	0	20450	1	49	1	22.0	20.80	1.32	0.00	0.001	0.00
	LTE 5	QPSK10M	Right Side	0	20450	1	49	1	22.0	20.80	1.32	0.09	0.049	0.06
06	LTE 5	QPSK10M	Top Side	0	20450	1	49	1	22.0	20.80	1.32	-0.04	0.539	**0.71**
	LTE 5	QPSK10M	Bottom Side	0	20450	1	49	1	22.0	20.80	1.32	0.00	0.001	0.00
	LTE 5	QPSK10M	Rear Face	0	20450	25	25	1	22.0	20.75	1.33	-0.09	0.271	0.36
	LTE 5	QPSK10M	Left Side	0	20450	25	25	1	22.0	20.75	1.33	0.00	0.001	0.00
	LTE 5	QPSK10M	Right Side	0	20450	25	25	1	22.0	20.75	1.33	0.16	0.048	0.06
	LTE 5	QPSK10M	Top Side	0	20450	25	25	1	22.0	20.75	1.33	-0.17	0.475	0.63
	LTE 5	QPSK10M	Bottom Side	0	20450	25	25	1	22.0	20.75	1.33	0.00	0.001	0.00
	LTE 5	QPSK10M	Top Side	0	20525	1	49	1	22.0	20.73	1.34	-0.11	0.412	0.55
	LTE 5	QPSK10M	Top Side	0	20600	1	49	1	22.0	20.62	1.37	0.09	0.4	0.55
	LTE 5	QPSK10M	Top Side	0	20450	1	49	2	22.0	20.80	1.32	0.08	0.501	0.66
07	LTE 7	QPSK20M	Rear Face	0	20850	1	50	1	18.0	16.99	1.26	-0.14	0.285	**0.36**
	LTE 7	QPSK20M	Top Side	0	20850	1	50	1	18.0	16.99	1.26	-0.11	0.209	0.26
	LTE 7	QPSK20M	Rear Face	0	20850	50	50	1	18.0	16.84	1.31	0.07	0.275	0.36
	LTE 7	QPSK20M	Top Side	0	20850	50	50	1	18.0	16.84	1.31	0.08	0.126	0.16
	LTE 7	QPSK20M	Rear Face	0	21100	1	50	1	18.0	16.92	1.28	-0.14	0.227	0.29
	LTE 7	QPSK20M	Rear Face	0	21350	1	50	1	18.0	16.97	1.27	0.16	0.186	0.24
	LTE 7	QPSK20M	Rear Face	0	20850	1	50	2	18.0	16.99	1.26	0.09	0.189	0.24

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	Separation Distance (cm)	Ch.	RB#	RB Offset	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)
	LTE 12	QPSK10M	Rear Face	0	23095	1	0	1	21.0	19.74	1.34	0.07	0.184	0.25
	LTE 12	QPSK10M	Right Side	0	23095	1	0	1	21.0	19.74	1.34	0.13	0.066	0.09
	LTE 12	QPSK10M	Top Side	0	23095	1	0	1	21.0	19.74	1.34	0.06	0.674	0.90
	LTE 12	QPSK10M	Rear Face	0	23095	25	0	1	21.0	19.66	1.36	0.14	0.174	0.24
	LTE 12	QPSK10M	Right Side	0	23095	25	0	1	21.0	19.66	1.36	-0.08	0.047	0.06
	LTE 12	QPSK10M	Top Side	0	23095	25	0	1	21.0	19.66	1.36	0.06	0.655	0.89
	LTE 12	QPSK10M	Top Side	0	23060	1	0	1	21.0	19.60	1.38	0.08	0.645	0.89
08	LTE 12	QPSK10M	Top Side	0	23130	1	0	1	21.0	19.64	1.37	-0.11	0.682	**0.93**
	LTE 12	QPSK10M	Top Side	0	23060	25	0	1	21.0	19.52	1.41	0.06	0.62	0.87
	LTE 12	QPSK10M	Top Side	0	23130	25	0	1	21.0	19.56	1.39	-0.11	0.669	0.93
	LTE 12	QPSK10M	Top Side	0	23095	50	0	1	21.0	19.69	1.35	0.07	0.643	0.87
	LTE 12	QPSK10M	Top Side	0	23130	1	0	2	21.0	19.64	1.37	-0.10	0.652	0.89
	LTE 12	QPSK10M	Top Side	0	23060	1	0	2	21.0	19.60	1.38	0.08	0.622	0.86
	LTE 12	QPSK10M	Top Side	0	23095	1	0	2	21.0	19.64	1.37	0.15	0.653	0.89
	LTE 12	QPSK10M	Top Side	0	23130	1	0	1	21.0	19.64	1.37	-0.04	0.658	0.90
	LTE 13	QPSK10M	Rear Face	0	23230	1	0	1	22.0	20.99	1.26	0.11	0.351	0.44
	LTE 13	QPSK10M	Left Side	0	23230	1	0	1	22.0	20.99	1.26	0.00	0.001	0.00
	LTE 13	QPSK10M	Right Side	0	23230	1	0	1	22.0	20.99	1.26	0.13	0.068	0.09
09	LTE 13	QPSK10M	Top Side	0	23230	1	0	1	22.0	20.99	1.26	-0.17	0.94	**1.19**
	LTE 13	QPSK10M	Bottom Side	0	23230	1	0	1	22.0	20.99	1.26	0.00	0.001	0.00
	LTE 13	QPSK10M	Rear Face	0	23230	25	0	1	22.0	20.96	1.27	0.04	0.345	0.44
	LTE 13	QPSK10M	Left Side	0	23230	25	0	1	22.0	20.96	1.27	0.00	0.001	0.00
	LTE 13	QPSK10M	Right Side	0	23230	25	0	1	22.0	20.96	1.27	-0.15	0.061	0.08
	LTE 13	QPSK10M	Top Side	0	23230	25	0	1	22.0	20.96	1.27	0.18	0.919	1.17
	LTE 13	QPSK10M	Bottom Side	0	23230	25	0	1	22.0	20.96	1.27	0.00	0.001	0.00
	LTE 13	QPSK10M	Top Side	0	23230	50	0	1	22.0	20.92	1.28	0.08	0.906	1.16
	LTE 13	QPSK10M	Top Side	0	23230	1	0	2	22.0	20.99	1.26	-0.09	0.895	1.13
	LTE 13	QPSK10M	Top Side	0	23230	1	0	1	22.0	20.99	1.26	-0.17	0.93	1.17
	LTE 26	QPSK15M	Rear Face	0	26865	1	74	1	22.0	20.88	1.29	0.09	0.333	0.43
	LTE 26	QPSK15M	Left Side	0	26865	1	74	1	22.0	20.88	1.29	0.00	0.001	0.00
	LTE 26	QPSK15M	Right Side	0	26865	1	74	1	22.0	20.88	1.29	-0.06	0.08	0.10
	LTE 26	QPSK15M	Top Side	0	26865	1	74	1	22.0	20.88	1.29	-0.11	0.503	0.65
	LTE 26	QPSK15M	Bottom Side	0	26865	1	74	1	22.0	20.88	1.29	0.00	0.001	0.00
	LTE 26	QPSK15M	Rear Face	0	26865	36	39	1	22.0	20.82	1.31	0.14	0.325	0.43
	LTE 26	QPSK15M	Left Side	0	26865	36	39	1	22.0	20.82	1.31	0.00	0.001	0.00
	LTE 26	QPSK15M	Right Side	0	26865	36	39	1	22.0	20.82	1.31	0.17	0.063	0.08
	LTE 26	QPSK15M	Top Side	0	26865	36	39	1	22.0	20.82	1.31	0.08	0.474	0.62
	LTE 26	QPSK15M	Bottom Side	0	26865	36	39	1	22.0	20.82	1.31	0.00	0.001	0.00
10	LTE 26	QPSK15M	Top Side	0	26765	1	74	1	22.0	20.80	1.32	-0.14	0.566	**0.75**
	LTE 26	QPSK15M	Top Side	0	26965	1	74	1	22.0	20.73	1.34	-0.09	0.542	0.73
	LTE 26	QPSK15M	Top Side	0	26765	1	74	2	22.0	20.80	1.32	0.01	0.561	0.74

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	Separation Distance (cm)	Ch.	RB#	RB Offset	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)
11	LTE 30	QPSK10M	Rear Face	0	27710	1	0	1	20.0	18.87	1.30	-0.01	0.473	**0.61**
	LTE 30	QPSK10M	Left Side	0	27710	1	0	1	20.0	18.87	1.30	0.02	0.001	0.00
	LTE 30	QPSK10M	Right Side	0	27710	1	0	1	20.0	18.87	1.30	-0.13	0.136	0.18
	LTE 30	QPSK10M	Top Side	0	27710	1	0	1	20.0	18.87	1.30	0.05	0.223	0.29
	LTE 30	QPSK10M	Rear Face	0	27710	25	0	1	20.0	18.83	1.31	-0.03	0.416	0.54
	LTE 30	QPSK10M	Left Side	0	27710	25	0	1	20.0	18.83	1.31	0.05	0.001	0.00
	LTE 30	QPSK10M	Right Side	0	27710	25	0	1	20.0	18.83	1.31	-0.03	0.131	0.17
	LTE 30	QPSK10M	Top Side	0	27710	25	0	1	20.0	18.83	1.31	0.05	0.218	0.29
	LTE 30	QPSK10M	Rear Face	0	27710	1	0	2	20.0	18.87	1.30	0.04	0.404	0.52
12	LTE 41	QPSK20M	Rear Face	0	40185	1	0	1	18.0	16.99	1.26	0.00	0.143	**0.18**
	LTE 41	QPSK20M	Top Side	0	40185	1	0	1	18.0	16.99	1.26	-0.17	0.101	0.13
	LTE 41	QPSK20M	Rear Face	0	40185	50	0	1	18.0	16.88	1.29	0.09	0.139	0.18
	LTE 41	QPSK20M	Top Side	0	40185	50	0	1	18.0	16.88	1.29	0.11	0.108	0.14
	LTE 41	QPSK20M	Rear Face	0	39750	1	0	1	18.0	16.91	1.29	-0.14	0.133	0.17
	LTE 41	QPSK20M	Rear Face	0	40620	1	0	1	18.0	16.68	1.36	0.19	0.079	0.11
	LTE 41	QPSK20M	Rear Face	0	41055	1	0	1	18.0	16.71	1.35	-0.07	0.085	0.11
	LTE 41	QPSK20M	Rear Face	0	41490	1	0	1	18.0	16.74	1.34	0.08	0.103	0.14
	LTE 41	QPSK20M	Rear Face	0	40185	1	0	2	18.0	16.99	1.26	0.04	0.128	0.16
	LTE 66	QPSK20M	Rear Face	0	132572	1	0	1	18.0	17.99	1.00	0.01	0.325	0.33
13	LTE 66	QPSK20M	Top Side	0	132572	1	0	1	18.0	17.99	1.00	-0.09	1.03	**1.03**
	LTE 66	QPSK20M	Rear Face	0	132572	50	0	1	18.0	17.95	1.01	0.05	0.319	0.32
	LTE 66	QPSK20M	Top Side	0	132572	50	0	1	18.0	17.95	1.01	0.03	1.01	1.02
	LTE 66	QPSK20M	Top Side	0	132072	1	0	1	18.0	17.92	1.02	-0.04	0.8	0.81
	LTE 66	QPSK20M	Top Side	0	132322	1	0	1	18.0	17.93	1.02	0.09	0.862	0.88
	LTE 66	QPSK20M	Top Side	0	132072	50	0	1	18.0	17.86	1.03	0.08	0.766	0.79
	LTE 66	QPSK20M	Top Side	0	132322	50	0	1	18.0	17.88	1.03	-0.01	0.832	0.86
	LTE 66	QPSK20M	Top Side	0	132572	1	0	2	18.0	17.99	1.00	0.12	1.02	1.02
	LTE 66	QPSK20M	Top Side	0	132072	1	0	2	18.0	17.92	1.02	-0.05	0.792	0.81
	LTE 66	QPSK20M	Top Side	0	132322	1	0	2	18.0	17.93	1.02	-0.11	0.855	0.87
	LTE 66	QPSK20M	Top Side	0	132572	1	0	1	18.0	17.99	1.00	-0.09	1.01	1.01

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	Separation Distance (cm)	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	Rear Face	0	11	1	Ant 0	17.5	17.42	1.02	0.00	0.001	0.00
	WLAN2.4G	802.11b	Left Side	0	11	1	Ant 0	17.5	17.42	1.02	0.02	0.021	0.02
	WLAN2.4G	802.11b	Right Side	0	11	1	Ant 0	17.5	17.42	1.02	0.00	0.001	0.00
	WLAN2.4G	802.11b	Top Side	0	11	1	Ant 0	17.5	17.42	1.02	0.00	0.001	0.00
	WLAN2.4G	802.11b	Bottom Side	0	11	1	Ant 0	17.5	17.42	1.02	0.03	0.676	0.69
	WLAN2.4G	802.11b	Rear Face	0	11	1	Ant 1	17.5	17.27	1.05	-0.05	0.151	0.16
	WLAN2.4G	802.11b	Left Side	0	11	1	Ant 1	17.5	17.27	1.05	0.03	0.079	0.08
	WLAN2.4G	802.11b	Right Side	0	11	1	Ant 1	17.5	17.27	1.05	0.00	0.001	0.00
	WLAN2.4G	802.11b	Top Side	0	11	1	Ant 1	17.5	17.27	1.05	-0.07	0.652	0.69
	WLAN2.4G	802.11b	Bottom Side	0	11	1	Ant 1	17.5	17.27	1.05	0.00	0.001	0.00
	WLAN2.4G	802.11n HT40	Rear Face	0	6	1	Ant 0+1	17.5	17.34	1.04	0.06	0.083	0.09
	WLAN2.4G	802.11n HT40	Left Side	0	6	1	Ant 0+1	17.5	17.34	1.04	0.02	0.058	0.06
	WLAN2.4G	802.11n HT40	Right Side	0	6	1	Ant 0+1	17.5	17.34	1.04	0.00	0.001	0.00
	WLAN2.4G	802.11n HT40	Top Side	0	6	1	Ant 0+1	17.5	17.34	1.04	-0.02	0.313	0.32
	WLAN2.4G	802.11n HT40	Bottom Side	0	6	1	Ant 0+1	17.5	17.34	1.04	-0.05	0.319	0.33
14	WLAN2.4G	802.11b	Bottom Side	0	1	1	Ant 0	17.5	17.28	1.05	-0.05	0.779	**0.82**
	WLAN2.4G	802.11b	Bottom Side	0	6	1	Ant 0	17.5	17.11	1.09	-0.12	0.703	0.77
	WLAN2.4G	802.11b	Bottom Side	0	1	2	Ant 0	17.5	17.28	1.05	0.07	0.461	0.48
	WLAN2.4G	802.11b	Bottom Side	0	1	1	Ant 0	17.5	17.28	1.05	0.08	0.755	0.79
	WLAN5G	802.11ac VH80	Rear Face	0	58	1	Ant 0	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	58	1	Ant 0	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	58	1	Ant 0	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	58	1	Ant 0	16.0	15.99	1.00	0.00	0.001	0.00
15	WLAN5G	802.11ac VH80	Bottom Side	0	58	1	Ant 0	16.0	15.99	1.00	-0.16	0.766	**0.77**
	WLAN5G	802.11ac VH80	Rear Face	0	58	1	Ant 1	16.0	15.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	58	1	Ant 1	16.0	15.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	58	1	Ant 1	16.0	15.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	58	1	Ant 1	16.0	15.97	1.01	-0.06	0.656	0.66
	WLAN5G	802.11ac VH80	Bottom Side	0	58	1	Ant 1	16.0	15.97	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Rear Face	0	58	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	58	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	58	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	58	1	Ant 0+1	16.0	15.95	1.01	0.03	0.221	0.22
	WLAN5G	802.11ac VH80	Bottom Side	0	58	1	Ant 0+1	16.0	15.95	1.01	-0.02	0.552	0.56
	WLAN5G	802.11ac VH80	Bottom Side	0	58	2	Ant 0	16.0	15.99	1.00	-0.07	0.621	0.62

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	Separation Distance (cm)	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	802.11ac VH80	Rear Face	0	106	1	Ant 0	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	106	1	Ant 0	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	106	1	Ant 0	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	106	1	Ant 0	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Bottom Side	0	106	1	Ant 0	16.0	15.98	1.00	-0.07	0.861	0.86
	WLAN5G	802.11ac VH80	Rear Face	0	106	1	Ant 1	16.0	15.99	1.00	0.06	0.105	0.11
	WLAN5G	802.11ac VH80	Left Side	0	106	1	Ant 1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	106	1	Ant 1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	106	1	Ant 1	16.0	15.99	1.00	-0.08	0.749	0.75
	WLAN5G	802.11ac VH80	Bottom Side	0	106	1	Ant 1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Rear Face	0	106	1	Ant 0+1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	106	1	Ant 0+1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	106	1	Ant 0+1	16.0	15.99	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	106	1	Ant 0+1	16.0	15.99	1.00	-0.05	0.479	0.48
	WLAN5G	802.11ac VH80	Bottom Side	0	106	1	Ant 0+1	16.0	15.99	1.00	-0.07	0.660	0.66
16	WLAN5G	802.11ac VH80	Bottom Side	0	106	1	Ant 0	16.0	15.98	1.00	-0.04	0.923	**0.93**
	WLAN5G	802.11ac VH80	Bottom Side	0	122	1	Ant 0	16.0	15.93	1.02	0.08	0.899	0.91
	WLAN5G	802.11ac VH80	Bottom Side	0	106	2	Ant 0	16.0	15.98	1.00	0.02	0.821	0.82
	WLAN5G	802.11ac VH80	Bottom Side	0	122	2	Ant 0	16.0	15.93	1.02	0.01	0.796	0.81
	WLAN5G	802.11ac VH80	Bottom Side	0	106	1	Ant 0	16.0	15.98	1.00	-0.07	0.894	0.90
	WLAN5G	802.11ac VH80	Rear Face	0	155	1	Ant 0	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	155	1	Ant 0	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	155	1	Ant 0	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	155	1	Ant 0	16.0	15.95	1.01	0.00	0.001	0.00
17	WLAN5G	802.11ac VH80	Bottom Side	0	155	1	Ant 0	16.0	15.95	1.01	-0.06	0.692	**0.70**
	WLAN5G	802.11ac VH80	Rear Face	0	155	1	Ant 1	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	155	1	Ant 1	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	155	1	Ant 1	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	155	1	Ant 1	16.0	15.98	1.00	-0.06	0.664	0.67
	WLAN5G	802.11ac VH80	Bottom Side	0	155	1	Ant 1	16.0	15.98	1.00	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Rear Face	0	155	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Left Side	0	155	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Right Side	0	155	1	Ant 0+1	16.0	15.95	1.01	0.00	0.001	0.00
	WLAN5G	802.11ac VH80	Top Side	0	155	1	Ant 0+1	16.0	15.95	1.01	0.05	0.295	0.30
	WLAN5G	802.11ac VH80	Bottom Side	0	155	1	Ant 0+1	16.0	15.95	1.01	0.09	0.676	0.68
	WLAN5G	802.11ac VH80	Bottom Side	0	155	2	Ant 0	16.0	15.95	1.01	-0.07	0.619	0.63

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	Separation Distance (cm)	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	Rear Face	0	39	1	10.0	9.70	1.07	0.00	0.001	0.00
	BT	BR / EDR	Left Side	0	39	1	10.0	9.70	1.07	0.00	0.001	0.00
	BT	BR / EDR	Right Side	0	39	1	10.0	9.70	1.07	0.00	0.001	0.00
18	BT	BR / EDR	Top Side	0	39	1	10.0	9.70	1.07	-0.05	0.077	**0.08**
	BT	BR / EDR	Bottom Side	0	39	1	10.0	9.70	1.07	0.00	0.001	0.00
	BT	BR / EDR	Top Side	0	0	1	10.0	9.66	1.08	-0.02	0.061	0.07
	BT	BR / EDR	Top Side	0	78	1	10.0	8.69	1.35	0.09	0.053	0.07
	BT	BR / EDR	Top Side	0	39	2	10.0	9.70	1.07	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.

Laptop PC Mode

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	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	Bottom	0	11	1	Ant 0	17.5	17.42	1.02	0.06	0.079	0.08
	WLAN2.4G	802.11n HT40	Bottom	0	6	1	Ant 0+1	17.5	17.34	1.04	0.13	0.033	0.03
19	WLAN2.4G	802.11b	Bottom	0	1	1	Ant 0	17.5	17.28	1.05	0.08	0.080	**0.08**
	WLAN2.4G	802.11b	Bottom	0	6	1	Ant 0	17.5	17.11	1.09	-0.10	0.076	0.08
	WLAN2.4G	802.11b	Bottom	0	1	2	Ant 0	17.5	17.28	1.05	0.05	0.067	0.07
20	WLAN5G	802.11ac VHT80	Bottom	0	58	1	Ant 0	16.0	15.99	1.00	0.20	0.137	**0.14**
	WLAN5G	802.11ac VHT80	Bottom	0	58	1	Ant 0+1	16.0	15.95	1.01	0.09	0.07	0.07
	WLAN5G	802.11ac VHT80	Bottom	0	58	2	Ant 0	16.0	15.99	1.00	0.11	0.119	0.12
21	WLAN5G	802.11ac VHT80	Bottom	0	106	1	Ant 0	16.0	15.98	1.00	0.11	0.217	**0.22**
	WLAN5G	802.11ac VHT80	Bottom	0	106	1	Ant 0+1	16.0	15.99	1.00	0.09	0.098	0.10
	WLAN5G	802.11ac VHT80	Bottom	0	122	1	Ant 0	16.0	15.93	1.02	0.16	0.208	0.21
	WLAN5G	802.11ac VHT80	Bottom	0	106	2	Ant 0	16.0	15.98	1.00	0.06	0.213	0.21
22	WLAN5G	802.11ac VHT80	Bottom	0	155	1	Ant 0	16.0	15.95	1.01	0.09	0.216	**0.22**
	WLAN5G	802.11ac VHT80	Bottom	0	155	1	Ant 0+1	16.0	15.95	1.01	0.14	0.122	0.12
	WLAN5G	802.11ac VHT80	Bottom	0	155	2	Ant 0	16.0	15.95	1.01	0.13	0.185	0.19

4.7.3 SAR Measurement Variability

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

SAR repeated measurement procedure:

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

Band	Mode	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
LTE 2	QPSK20M	Top Side	18700	1.19	1.14	1.04	N/A	N/A	N/A	N/A
LTE 4	QPSK20M	Top Side	20300	0.894	0.882	1.01	N/A	N/A	N/A	N/A
LTE 13	QPSK10M	Top Side	23230	0.94	0.93	1.01	N/A	N/A	N/A	N/A
LTE 66	QPSK20M	Top Side	132572	1.03	1.01	1.02	N/A	N/A	N/A	N/A
WLAN5G	802.11ac VH80	Bottom Side	106	0.923	0.894	1.03	N/A	N/A	N/A	N/A

4.7.4 Simultaneous Multi-band Transmission Evaluation

<Possibilities of Simultaneous Transmission>

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

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
1	WWAN + WLAN (DTS)	Yes
2	WWAN + WLAN (NII)	Yes
3	WWAN + BT	Yes
4	WWAN + WLAN (DTS) + BT	Yes
5	WWAN + WLAN (NII) + BT	Yes

Note :

1. The WLAN 2.4G and WLAN 5G cannot transmit simultaneously.
2. This device does not support voice transmission capability.

<Estimated SAR Calculation>

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

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

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

Mode / Band	Frequency (GHz)	Max. Tune-up Power (dBm)	Test Position	Separation Distance (mm)	Estimated SAR (W/kg)
WCDMA II	1.9076	18.5	Body	0	0.4
WCDMA IV	1.7526	18.5	Body	0	0.4
WCDMA V	0.8466	21.5	Body	0	0.4
LTE 2	1.91	18.5	Body	0	0.4
LTE 4	1.755	19.0	Body	0	0.4
LTE 5	0.849	22.0	Body	0	0.4
LTE 7	2.57	18.0	Body	0	0.4
LTE 12	0.716	21.0	Body	0	0.4
LTE 13	0.787	22.0	Body	0	0.4
LTE 17	0.716	21.0	Body	0	0.4
LTE 26	0.849	22.0	Body	0	0.4
LTE 30	2.315	20.0	Body	0	0.4
LTE 41	2.69	18.0	Body	0	0.4
LTE 66	1.78	18.0	Body	0	0.4

Note:

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

<SAR Summation Analysis>

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

Tablet PC Mode

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
1	WCDMA II + WLAN (DTS)	Body	Rear Face	0.30	0.16	-	0.46	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.88	0.69	-	1.57	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
2	WCDMA II + WLAN (NII)	Body	Rear Face	0.30	0.11	-	0.41	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.88	0.75	-	1.63	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
3	WCDMA II + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.30	0.00	0.00	0.30	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.88	0.00	0.08	0.96	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
4	WCDMA II + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.30	0.00	0.00	0.30	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.88	0.00	0.08	0.96	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
5	WCDMA IV + WLAN (DTS)	Body	Rear Face	0.32	0.16	-	0.48	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.86	0.69	-	1.55	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
6	WCDMA IV + WLAN (NII)	Body	Rear Face	0.32	0.11	-	0.43	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.86	0.75	-	1.61	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
7	WCDMA IV + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.32	0.00	0.00	0.32	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.86	0.00	0.08	0.94	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
8	WCDMA IV + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.32	0.00	0.00	0.32	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.86	0.00	0.08	0.94	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
9	WCDMA V + WLAN (DTS)	Body	Rear Face	0.40	0.16	-	0.56	Σ SAR < 1.6, Not required
			Left Side	0.00	0.08	-	0.08	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	-	0.06	Σ SAR < 1.6, Not required
			Top Side	0.67	0.69	-	1.36	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	-	0.82	Σ SAR < 1.6, Not required
10	WCDMA V + WLAN (NII)	Body	Rear Face	0.40	0.11	-	0.51	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	-	0.00	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	-	0.06	Σ SAR < 1.6, Not required
			Top Side	0.67	0.75	-	1.42	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	-	0.93	Σ SAR < 1.6, Not required
11	WCDMA V + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Left Side	0.00	0.02	0.00	0.02	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.67	0.00	0.08	0.75	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	0.00	0.82	Σ SAR < 1.6, Not required
12	WCDMA V + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.67	0.00	0.08	0.75	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	0.00	0.93	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
13	LTE 2 + WLAN (DTS)	Body	Rear Face	0.37	0.16	-	0.53	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.19	0.69	-	1.88	**Analyzed as below**
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
14	LTE 2 + WLAN (NII)	Body	Rear Face	0.37	0.11	-	0.48	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.19	0.75	-	1.94	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
15	LTE 2 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.37	0.00	0.00	0.37	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.19	0.00	0.08	1.27	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
16	LTE 2 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.37	0.00	0.00	0.37	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.19	0.00	0.08	1.27	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
17	LTE 4 + WLAN (DTS)	Body	Rear Face	0.34	0.16	-	0.50	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.14	0.69	-	1.83	**Analyzed as below**
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
18	LTE 4 + WLAN (NII)	Body	Rear Face	0.34	0.11	-	0.45	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.14	0.75	-	1.89	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
19	LTE 4 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.34	0.00	0.00	0.34	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.14	0.00	0.08	1.22	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
20	LTE 4 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.34	0.00	0.00	0.34	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.14	0.00	0.08	1.22	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
21	LTE 5 + WLAN (DTS)	Body	Rear Face	0.36	0.16	-	0.52	Σ SAR < 1.6, Not required
			Left Side	0.00	0.08	-	0.08	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	-	0.06	Σ SAR < 1.6, Not required
			Top Side	0.71	0.69	-	1.40	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	-	0.82	Σ SAR < 1.6, Not required
22	LTE 5 + WLAN (NII)	Body	Rear Face	0.36	0.11	-	0.47	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	-	0.00	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	-	0.06	Σ SAR < 1.6, Not required
			Top Side	0.71	0.75	-	1.46	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	-	0.93	Σ SAR < 1.6, Not required
23	LTE 5 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.36	0.00	0.00	0.36	Σ SAR < 1.6, Not required
			Left Side	0.00	0.02	0.00	0.02	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.71	0.00	0.08	0.79	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	0.00	0.82	Σ SAR < 1.6, Not required
24	LTE 5 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.36	0.00	0.00	0.36	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Right Side	0.06	0.00	0.00	0.06	Σ SAR < 1.6, Not required
			Top Side	0.71	0.00	0.08	0.79	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	0.00	0.93	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
25	LTE 7 + WLAN (DTS)	Body	Rear Face	0.36	0.16	-	0.52	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.26	0.69	-	0.95	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
26	LTE 7 + WLAN (NII)	Body	Rear Face	0.36	0.11	-	0.47	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.26	0.75	-	1.01	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
27	LTE 7 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.36	0.00	0.00	0.36	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.26	0.00	0.08	0.34	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
28	LTE 7 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.36	0.00	0.00	0.36	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.26	0.00	0.08	0.34	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
29	LTE 12 + WLAN (DTS)	Body	Rear Face	0.25	0.16	-	0.41	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	-	0.09	Σ SAR < 1.6, Not required
			Top Side	0.93	0.69	-	1.62	**Analyzed as below**
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
30	LTE 12 + WLAN (NII)	Body	Rear Face	0.25	0.11	-	0.36	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	-	0.09	Σ SAR < 1.6, Not required
			Top Side	0.93	0.75	-	1.68	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
31	LTE 12 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.25	0.00	0.00	0.25	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	0.00	0.09	Σ SAR < 1.6, Not required
			Top Side	0.93	0.00	0.08	1.01	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
32	LTE 12 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.25	0.00	0.00	0.25	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	0.00	0.09	Σ SAR < 1.6, Not required
			Top Side	0.93	0.00	0.08	1.01	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
33	LTE 13 + WLAN (DTS)	Body	Rear Face	0.44	0.16	-	0.60	Σ SAR < 1.6, Not required
			Left Side	0.00	0.08	-	0.08	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	-	0.09	Σ SAR < 1.6, Not required
			Top Side	1.19	0.69	-	1.88	**Analyzed as below**
			Bottom Side	0.00	0.82	-	0.82	Σ SAR < 1.6, Not required
34	LTE 13 + WLAN (NII)	Body	Rear Face	0.44	0.11	-	0.55	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	-	0.00	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	-	0.09	Σ SAR < 1.6, Not required
			Top Side	1.19	0.75	-	1.94	**Analyzed as below**
			Bottom Side	0.00	0.93	-	0.93	Σ SAR < 1.6, Not required
35	LTE 13 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.44	0.00	0.00	0.44	Σ SAR < 1.6, Not required
			Left Side	0.00	0.02	0.00	0.02	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	0.00	0.09	Σ SAR < 1.6, Not required
			Top Side	1.19	0.00	0.08	1.27	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	0.00	0.82	Σ SAR < 1.6, Not required
36	LTE 13 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.44	0.00	0.00	0.44	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Right Side	0.09	0.00	0.00	0.09	Σ SAR < 1.6, Not required
			Top Side	1.19	0.00	0.08	1.27	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	0.00	0.93	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
37	LTE 26 + WLAN (DTS)	Body	Rear Face	0.43	0.16	-	0.59	Σ SAR < 1.6, Not required
			Left Side	0.00	0.08	-	0.08	Σ SAR < 1.6, Not required
			Right Side	0.10	0.00	-	0.10	Σ SAR < 1.6, Not required
			Top Side	0.75	0.69	-	1.44	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	-	0.82	Σ SAR < 1.6, Not required
38	LTE 26 + WLAN (NII)	Body	Rear Face	0.43	0.11	-	0.54	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	-	0.00	Σ SAR < 1.6, Not required
			Right Side	0.10	0.00	-	0.10	Σ SAR < 1.6, Not required
			Top Side	0.75	0.75	-	1.50	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	-	0.93	Σ SAR < 1.6, Not required
39	LTE 26 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.43	0.00	0.00	0.43	Σ SAR < 1.6, Not required
			Left Side	0.00	0.02	0.00	0.02	Σ SAR < 1.6, Not required
			Right Side	0.10	0.00	0.00	0.10	Σ SAR < 1.6, Not required
			Top Side	0.75	0.00	0.08	0.83	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.82	0.00	0.82	Σ SAR < 1.6, Not required
40	LTE 26 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.43	0.00	0.00	0.43	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Right Side	0.10	0.00	0.00	0.10	Σ SAR < 1.6, Not required
			Top Side	0.75	0.00	0.08	0.83	Σ SAR < 1.6, Not required
			Bottom Side	0.00	0.93	0.00	0.93	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
41	LTE 30 + WLAN (DTS)	Body	Rear Face	0.61	0.16	-	0.77	Σ SAR < 1.6, Not required
			Left Side	0.00	0.08	-	0.08	Σ SAR < 1.6, Not required
			Right Side	0.18	0.00	-	0.18	Σ SAR < 1.6, Not required
			Top Side	0.29	0.69	-	0.98	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
42	LTE 30 + WLAN (NII)	Body	Rear Face	0.61	0.11	-	0.72	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	-	0.00	Σ SAR < 1.6, Not required
			Right Side	0.18	0.00	-	0.18	Σ SAR < 1.6, Not required
			Top Side	0.29	0.75	-	1.04	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
43	LTE 30 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.61	0.00	0.00	0.61	Σ SAR < 1.6, Not required
			Left Side	0.00	0.02	0.00	0.02	Σ SAR < 1.6, Not required
			Right Side	0.18	0.00	0.00	0.18	Σ SAR < 1.6, Not required
			Top Side	0.29	0.00	0.08	0.37	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
44	LTE 30 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.61	0.00	0.00	0.61	Σ SAR < 1.6, Not required
			Left Side	0.00	0.00	0.00	0.00	Σ SAR < 1.6, Not required
			Right Side	0.18	0.00	0.00	0.18	Σ SAR < 1.6, Not required
			Top Side	0.29	0.00	0.08	0.37	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
45	LTE 41 + WLAN (DTS)	Body	Rear Face	0.18	0.16	-	0.34	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.14	0.69	-	0.83	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
46	LTE 41 + WLAN (NII)	Body	Rear Face	0.18	0.11	-	0.29	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	0.14	0.75	-	0.89	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
47	LTE 41 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.18	0.00	0.00	0.18	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.14	0.00	0.08	0.22	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
48	LTE 41 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.18	0.00	0.00	0.18	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	0.14	0.00	0.08	0.22	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	Max. SAR3	SAR Summation	SPLSR Analysis
49	LTE 66 + WLAN (DTS)	Body	Rear Face	0.33	0.16	-	0.49	Σ SAR < 1.6, Not required
			Left Side	0.40	0.08	-	0.48	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.03	0.69	-	1.72	**Analyzed as below**
			Bottom Side	0.40	0.82	-	1.22	Σ SAR < 1.6, Not required
50	LTE 66 + WLAN (NII)	Body	Rear Face	0.33	0.11	-	0.44	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	-	0.40	Σ SAR < 1.6, Not required
			Top Side	1.03	0.75	-	1.78	**Analyzed as below**
			Bottom Side	0.40	0.93	-	1.33	Σ SAR < 1.6, Not required
51	LTE 66 + WLAN Ant-0 (DTS) + BT Ant-1 (DSS)	Body	Rear Face	0.33	0.00	0.00	0.33	Σ SAR < 1.6, Not required
			Left Side	0.40	0.02	0.00	0.42	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.03	0.00	0.08	1.11	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.82	0.00	1.22	Σ SAR < 1.6, Not required
52	LTE 66 + WLAN Ant-0 (NII) + BT Ant-1 (DSS)	Body	Rear Face	0.33	0.00	0.00	0.33	Σ SAR < 1.6, Not required
			Left Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Right Side	0.40	0.00	0.00	0.40	Σ SAR < 1.6, Not required
			Top Side	1.03	0.00	0.08	1.11	Σ SAR < 1.6, Not required
			Bottom Side	0.40	0.93	0.00	1.33	Σ SAR < 1.6, Not required

<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.

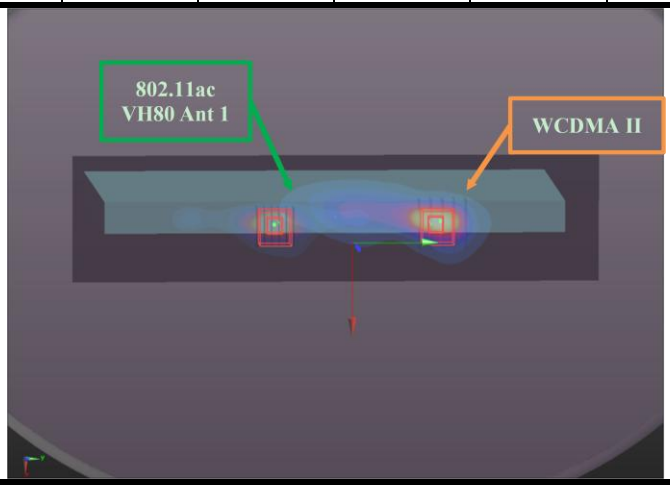
The SPLSR is determined by the following formula.

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

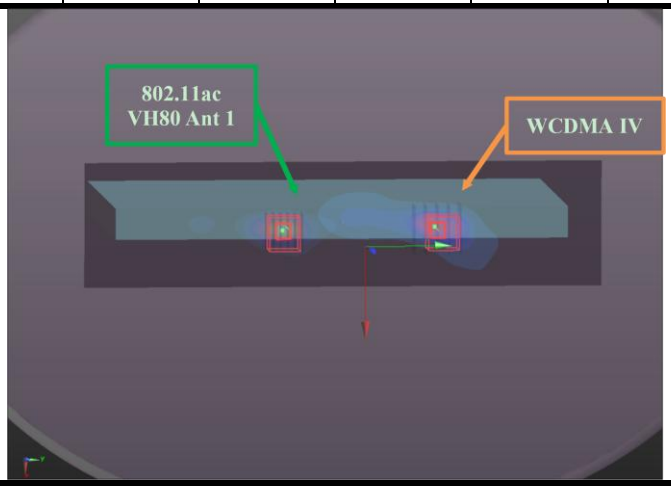
Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

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.

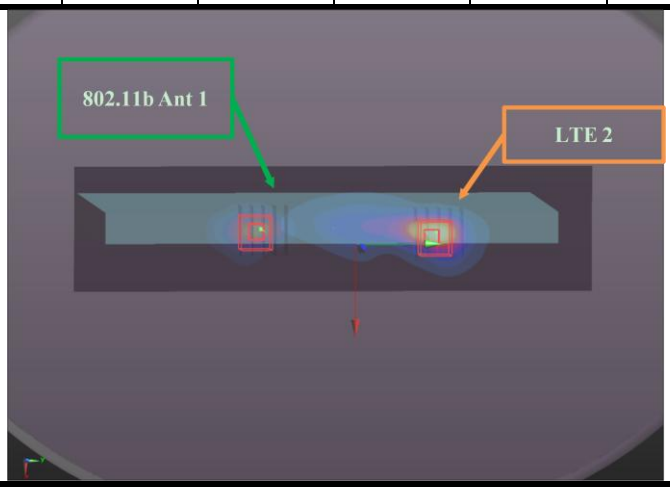
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA II RMC12.2K Ch9262	Body	Top Side	0.88	3.06	65.6	-2.91	107.1	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



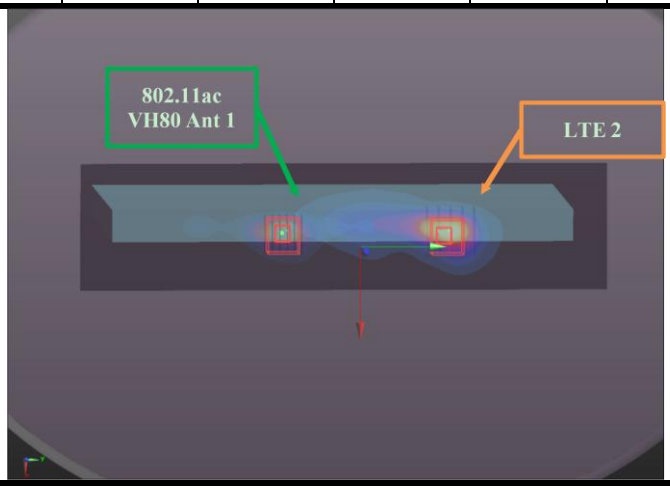
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
WCDMA IV RMC12.2K Ch1513	Body	Top Side	0.86	3.6	64	-2.91	105.5	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



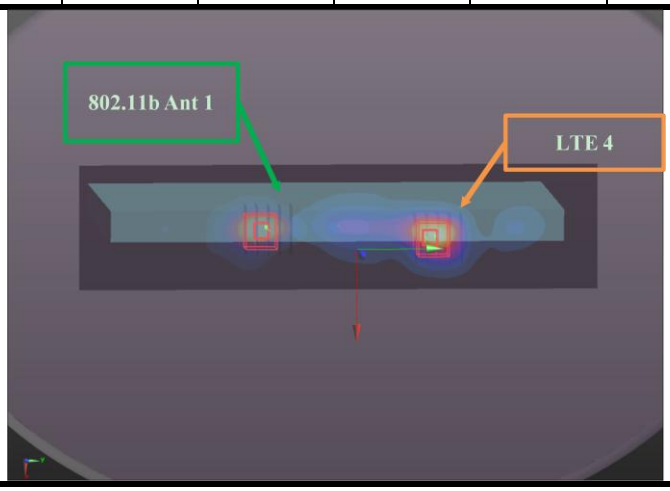
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 2 QPSK20M Ch18700	Body	Top Side	1.19	5.2	67.2	2.7	119.0	0.02	SPLSR ≤ 0.04, Not required
802.11b Ch11 Ant1			0.69	1.6	-51.6	-2.87			



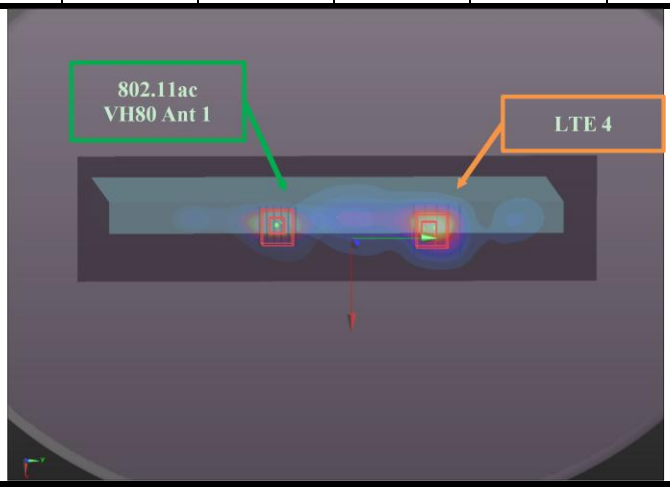
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 2 QPSK20M Ch18700	Body	Top Side	1.19	5.2	67.2	2.7	108.8	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



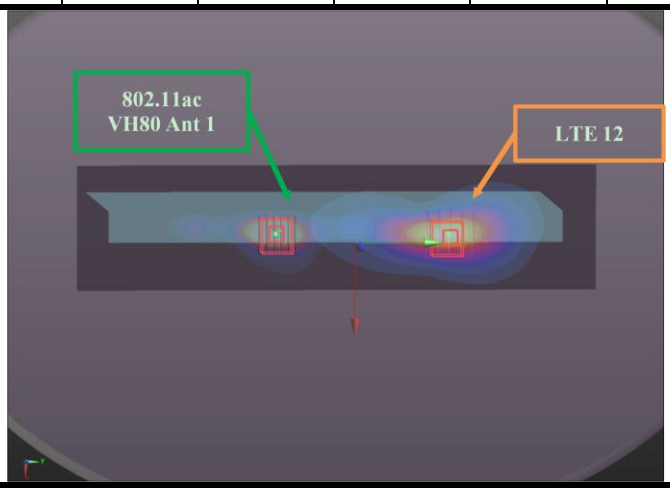
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 4 QPSK20K Ch20300	Body	Top Side	1.14	7.6	61.6	4.69	113.6	0.02	SPLSR ≤ 0.04, Not required
802.11b Ch11 Ant1			0.69	1.6	-51.6	-2.87			



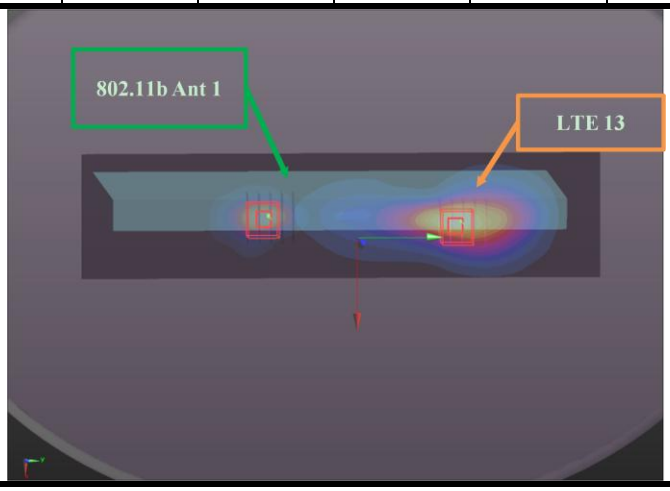
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 4 QPSK20K Ch20300	Body	Top Side	1.14	7.6	61.6	4.69	103.4	0.03	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



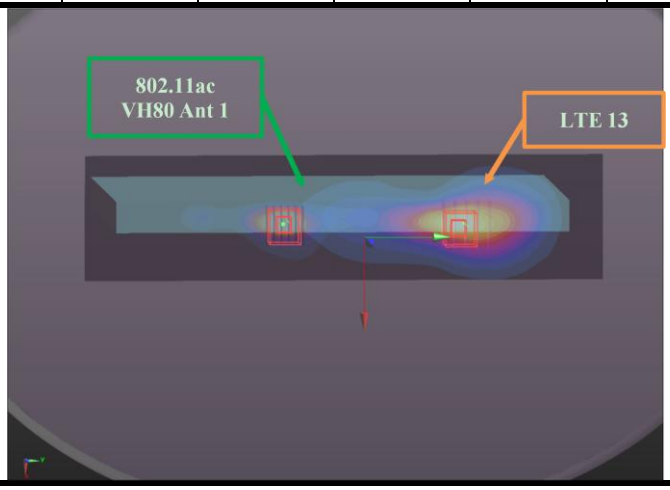
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 12 QPSK10M Ch23130	Body	Top Side	0.93	7.2	79.6	2.85	121.3	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



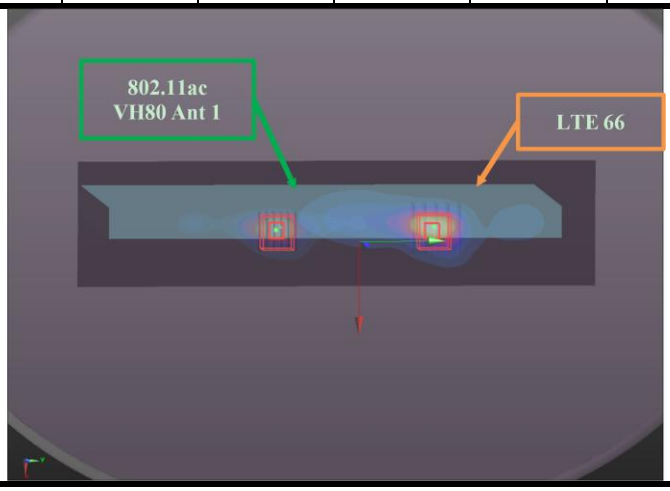
Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 13 QPSK10M Ch23230	Body	Top Side	1.19	7.2	79.2	2.93	131.0	0.02	SPLSR ≤ 0.04, Not required
802.11b Ch11 Ant1			0.69	1.6	-51.6	-2.87			



Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 13 QPSK10M Ch23230	Body	Top Side	1.19	7.2	79.2	2.93	120.9	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
LTE 66 QPSK20M Ch132572	Body	Top Side	1.03	5.2	64.8	2.67	106.4	0.02	SPLSR ≤ 0.04, Not required
802.11ac VH80 Ch122 Ant1			0.75	4.5	-41.5	-2.86			



Test Engineer：Louis Hsu, and Hance Chang

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	Mar. 22, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	Jul. 24, 2017	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3971	Mar. 26, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3820	Jun. 27, 2017	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1431	Mar. 16, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1277	Jan. 18, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE4	917	Dec. 14, 2017	1 Year
Radio Communication Analyzer	Anritsu	MT8820C	6201010285	Aug. 08, 2017	1 Year
Radio Communication Analyzer	Anritsu	MT8820C	6201381727	May. 09, 2018	1 Year
Spectrum Analyzer	R&S	FSL6	102006	Mar. 23, 2018	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46104190	Jan. 15, 2018	1 Year
MXG Analong Signal Generator	Agilent	N5181A	MY50143868	Jul. 10, 2017	1 Year
Vector Signal Generator	Anritsu	MG3710A	6201599977	Mar. 16, 2018	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. 23, 2018	1 Year
Dielectric Assessment Kit	SPEAG	DAK-3.5	1151	Aug. 15, 2017	1 Year

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	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

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	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	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	√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	√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)	7.6	Rectangular	√3	1	1	4.4	4.4	∞
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						± 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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