

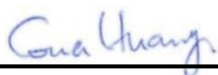
FCC SAR TEST REPORT

FCC ID : IHDT56XL1
Equipment : Mobile 5G MOD
Brand Name : Motorola
Applicant : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL
60654 USA
Manufacturer : Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL
60654 USA
Standard : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2013

The product was received on Sep. 28, 2018 and testing was started from Oct. 15, 2018 and completed on Dec. 18, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager

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Table of Contents

1. Statement of Compliance	4
2. Guidance Applied.....	4
3. Equipment Under Test (EUT) Information	5
3.1 General Information	5
3.2 General LTE SAR Test and Reporting Considerations	6
3.3 Proximity Sensor Triggering Test.....	8
4. RF Exposure Limits.....	14
4.1 Uncontrolled Environment.....	14
4.2 Controlled Environment.....	14
5. Specific Absorption Rate (SAR).....	15
5.1 Introduction	15
5.2 SAR Definition.....	15
6. System Description and Setup	16
6.1 E-Field Probe	17
6.2 Data Acquisition Electronics (DAE)	17
6.3 Phantom.....	18
6.4 Device Holder.....	19
7. Measurement Procedures	20
7.1 Spatial Peak SAR Evaluation.....	20
7.2 Power Reference Measurement.....	21
7.3 Area Scan	21
7.4 Zoom Scan.....	22
7.5 Volume Scan Procedures.....	22
7.6 Power Drift Monitoring.....	22
8. Test Equipment List.....	23
9. System Verification	24
9.1 Tissue Simulating Liquids.....	24
9.2 Tissue Verification	25
9.3 System Performance Check Results.....	27
10. RF Exposure Positions	29
10.1 Ear and handset reference point.....	29
10.2 Definition of the cheek position	30
10.3 Definition of the tilt position	31
10.4 Body Worn Accessory	31
10.5 Product Specific Exposure	32
10.6 Wireless Router.....	32
11. Conducted RF Output Power (Unit: dBm).....	33
12. Antenna Location	83
13. IHDT56XJ1 SAR Test results- with Mod attached.....	84
13.1 Head SAR	84
13.2 Hotspot SAR	86
13.3 Body Worn Accessory SAR.....	87
13.4 Product Specific SAR.....	88
14. Mod SAR Test Results : Mod attached on IHDT56XJ1.....	89
14.1 SAR Test Results (Phone WWAN Tx OFF)	90
14.2 Mod SAR Test Results: Mod attached on IHDT56XJ1 (Phone WWAN Tx ON).....	95
14.3 Repeated SAR Measurement	100
15. Simultaneous Transmission Analysis	101
15.1 Head Exposure Conditions	102
15.2 Hotspot Exposure Conditions.....	103
15.3 Body-Worn Accessory Exposure Conditions	105
15.4 Product Specific Exposure Conditions	106
15.5 SPLSR Evaluation and Analysis.....	107
16. Uncertainty Assessment	122
17. References.....	122
Appendix A. Plots of System Performance Check	
Appendix B. Plots of High SAR Measurement	
Appendix C. DASY Calibration Certificate	
Appendix D. Antenna Location & Test Setup Photos	



History of this test report

Report No.	Version	Description	Issued Date
FA890514A	01	Initial issue of report	Dec. 27, 2018
FA890514A	01	updated LTE B48 tune-up limit	Feb. 07, 2019

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Motorola Mobility LLC, Mobile 5G MOD are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 5mm)	Hotspot (Separation 5mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	LTE Band 2	0.31	1.38	1.38	0.40	1.59
	LTE Band 5	0.19	1.33	1.33	0.78	
	LTE Band 13	0.16	1.38	1.38	0.93	
	LTE Band 48	0.11	1.24	1.24	1.62	
	LTE Band 4 / 66	0.17	1.27	1.27	0.51	
Date of Testing:		2018/10/15 ~ 2018/12/18				

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test (FCC). This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 648474 D03 v01r04 Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile 5G MOD
Brand Name	Motorola
FCC ID	IHDT56XL1
Wireless Technology and Frequency Range	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz 5G NR n261: 27.5GHz~28.35GHz
Mode	LTE: QPSK, 16QAM, 64QAM 5G NR n261: QPSK, 16QAM, and 64QAM for CP-OFDM
HW Version	DVT2
SW Version	PPZ29.67
EUT Stage	Identical Prototype
Remark: 1. The device operates only when it's attached on the specific phone IHDT56XJ1. 2. This MOD has no capability to operate as a Wi-Fi wireless router. But Mobile Hotspot can be supported using Phone Wi-Fi wireless router when MOD is attached with the phone. 3. The device employs proximity sensors that detect the presence of the user's body and Product Specific of the device. When these conditions are detected, LTE B2/B4/B5/B66/B48 reduced power will be active. 4. When the Mod and the Phone WWAN transmit simultaneously, power reduction will be active to limit the maximum power of LTE B2/B4/B5/B66/B48 for different RF exposure conditions. 5. Detail power management scheme for different RF exposure conditions is illustrated in the Operation Description. 6. Simultaneous transmission analysis with 5G NR n261 power density were assessed in separate report (Sporton report number: FA890514B)	

3.2 General LTE SAR Test and Reporting Considerations

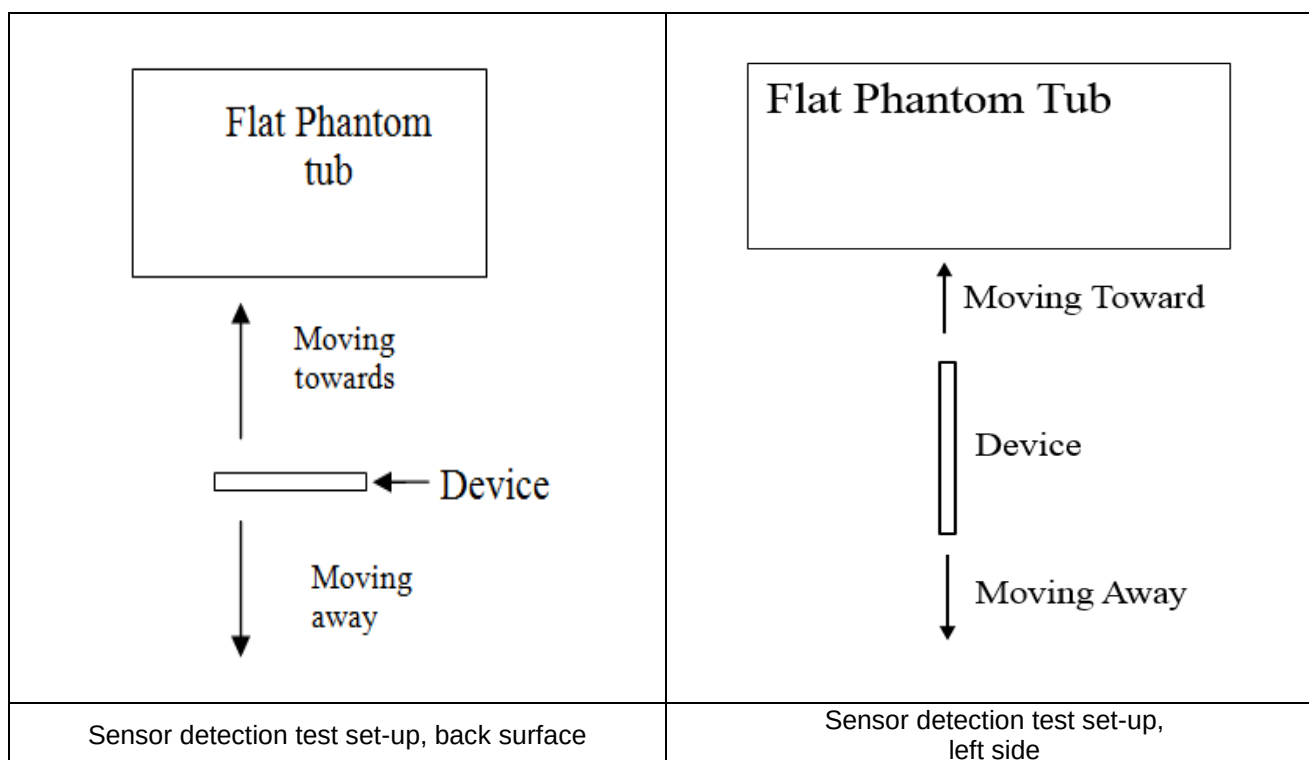
Summarized necessary items addressed in KDB 941225 D05 v02r05												
FCC ID	IHDT56XL1											
Equipment Name	Mobile 5G MOD											
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz											
Channel Bandwidth	LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz											
uplink modulations used	QPSK / 16QAM / 64QAM											
LTE Voice / Data requirements	Data only											
LTE MPR permanently built-in by design	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3											
	Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)				
		1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz					
	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1				
	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1				
	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2				
	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2				
	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3				
256 QAM	≥ 1						≤ 5					
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)											
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.											
Power reduction applied to satisfy SAR compliance	Yes, power reduction is active for LTE B2/B4/B5/B66/B48, the detail power reduction description is including in the operation description											
LTE Carrier Aggregation Combinations	DL Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 11. UL CA is NOT supported											
LTE Carrier Aggregation Additional Information	This device supports maximum of 5 carriers in the downlink Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.											
Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 48												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560				
L	55810	3607	55815	3607.5	55820	3608	55830	3609				
M	56170	3643	56165	3642.5	56160	3642	56150	3641				
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690				
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

3.3 Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3500MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements of the phone are utilized to determine when the device comes in proximity of the user's body at the back and left side of the device.
3. This device has designed to use the antennas as capacitor sensors. Antenna 1 (LTE Band 2/4/5/13/66) and Antenna 3 (LTE Band 48) are proximity cap sensor pads on this device. If the body is proximity to either one sensor, the sensor will be triggered independent by different sensor pads for different frequency bands.
4. The sensors used to detect the proximity of the user's body-worn condition and handheld condition at the back and left side of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
5. When the sensor is active, the device will reduced maximum output powers on the LTE B2/B4/B5/B66/B48 transmitter.
6. Sensor triggering capability is larger than the test separation used for SAR test (5mm for body exposure conditions, 0mm for extremity exposure conditions)



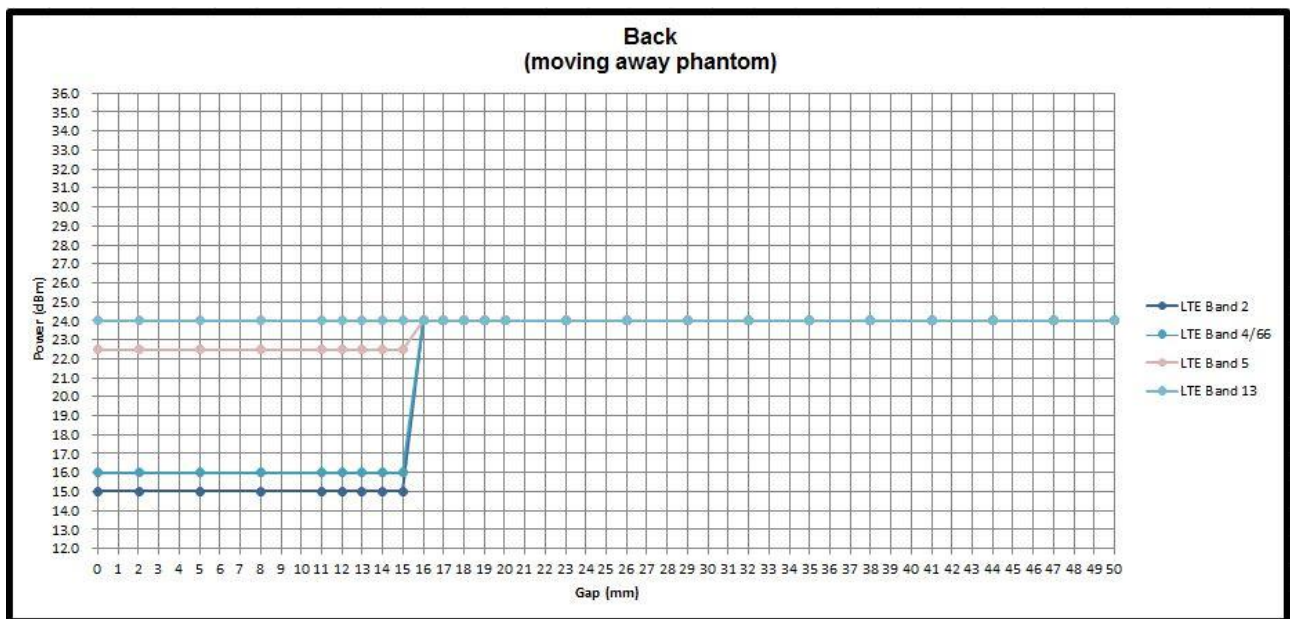
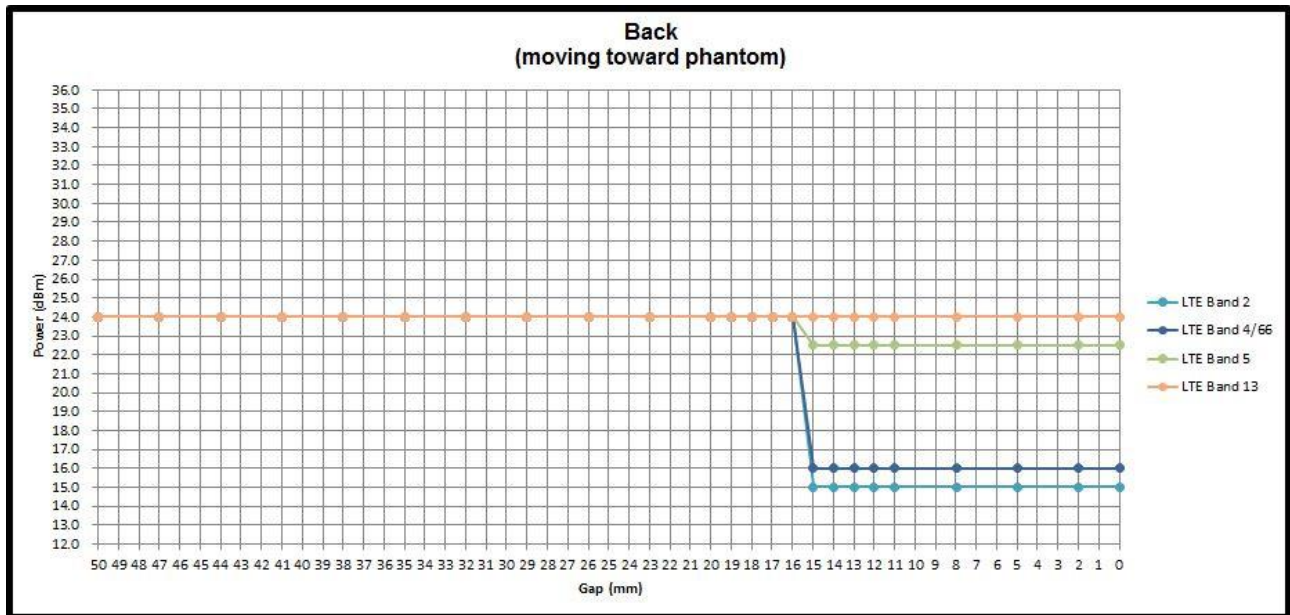


Proximity Sensor Trigger Distance (mm)		
Body Worn	Back Surface	
LTE Band 2/4/5/13/66	moved toward the phantom	moved back from the phantom
Trigger distance	15	15

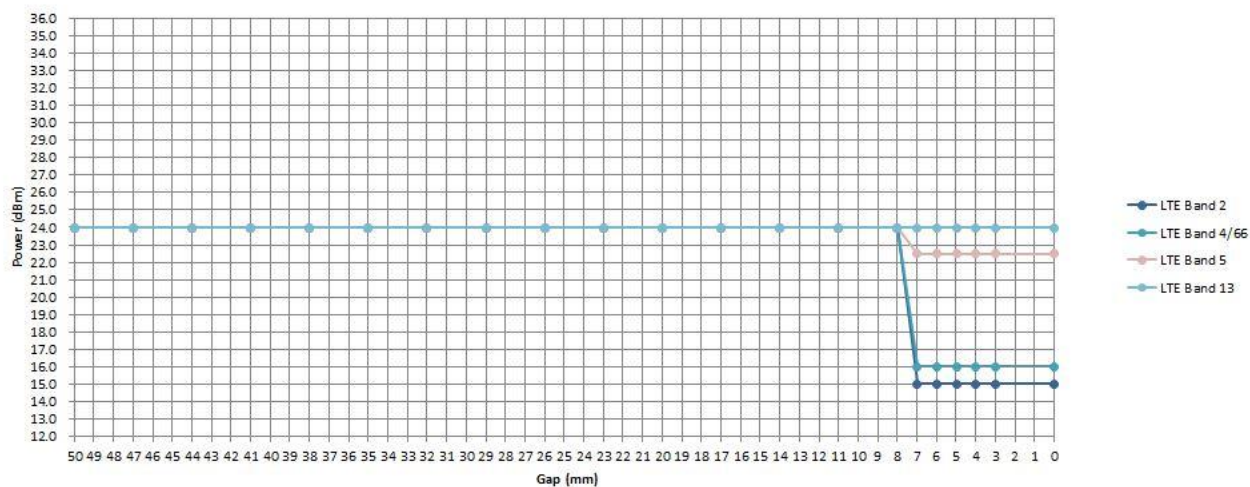
Proximity Sensor Trigger Distance (mm)		
Product Specific	Left Side (Front view)	
LTE Band 2/4/5/13/66	moved toward the phantom	moved back from the phantom
Trigger distance	11	11

Proximity Sensor Trigger Distance (mm)		
Body Worn	Back Surface	
LTE Band 48	moved toward the phantom	moved back from the phantom
Trigger distance	10	10

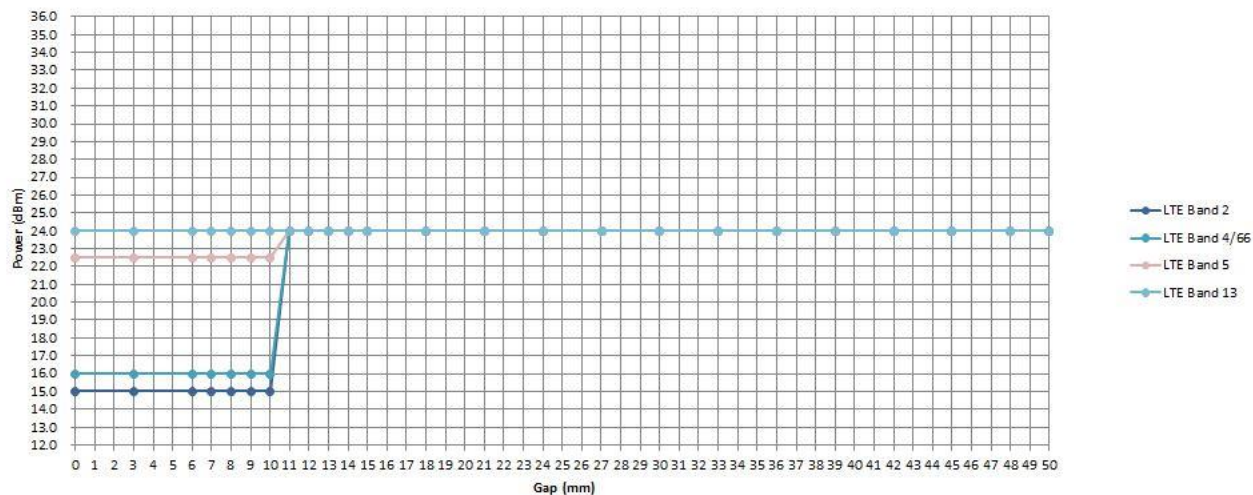
Proximity Sensor Trigger Distance (mm)		
Product Specific	Left Side (Front view)	
LTE Band 48	moved toward the phantom	moved back from the phantom
Trigger distance	3	3

<Sensor triggers distance V.S Measure power for LTE B2/B4/B5/B13/B66>


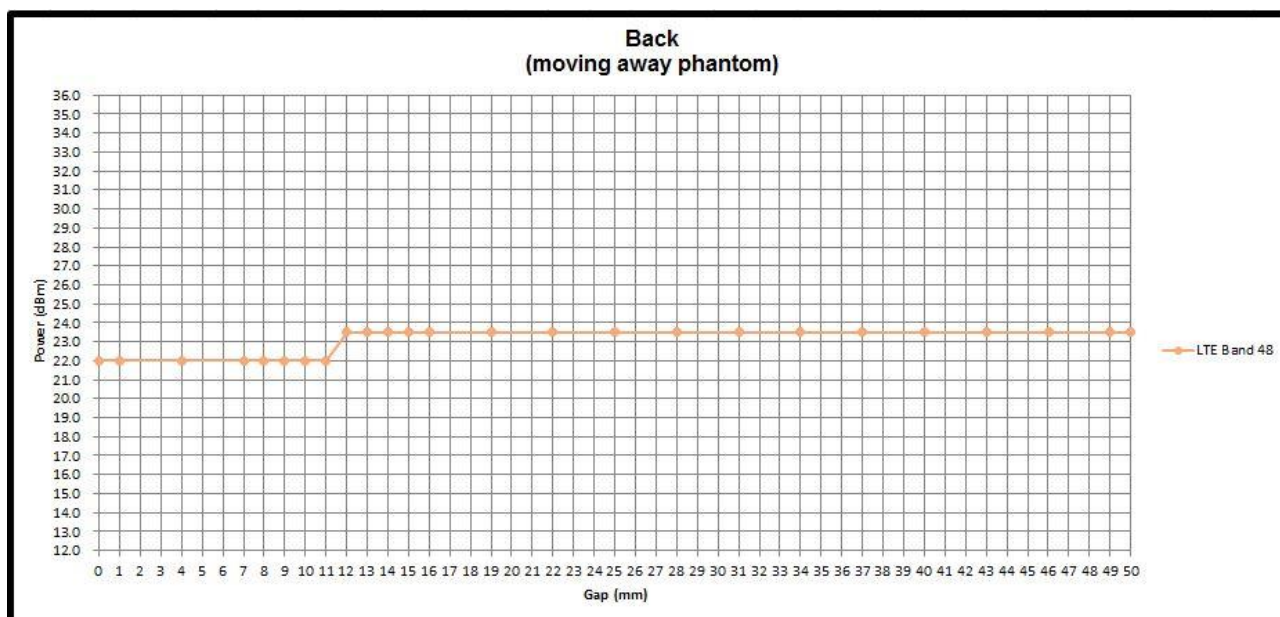
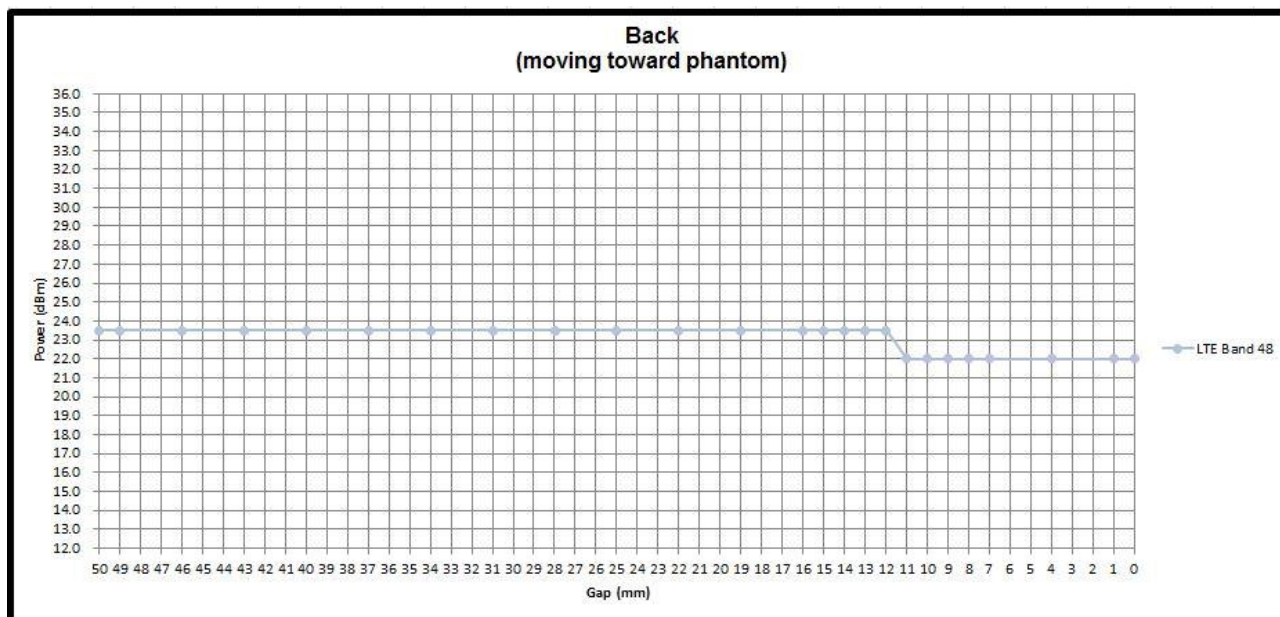
Left Side
(moving toward phantom)

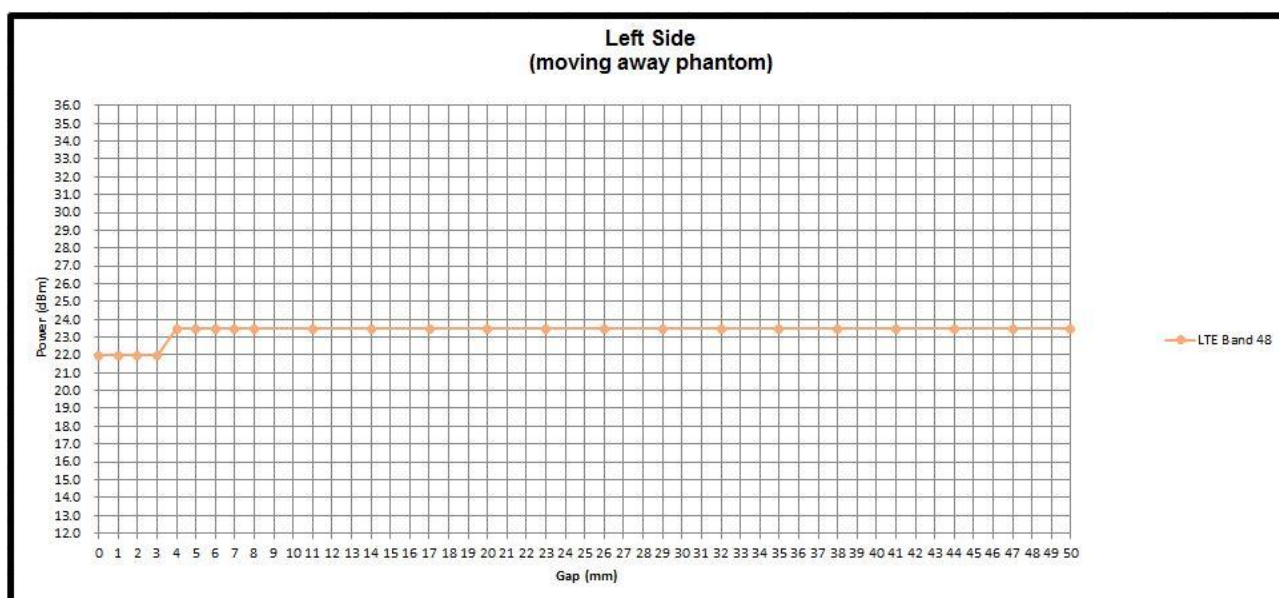


Left Side
(moving away phantom)



<Sensor triggers distance V.S Measure power for LTE B48>





4. RF Exposure Limits

4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

4.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

5. Specific Absorption Rate (SAR)

5.1 Introduction

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.

5.2 SAR Definition

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

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

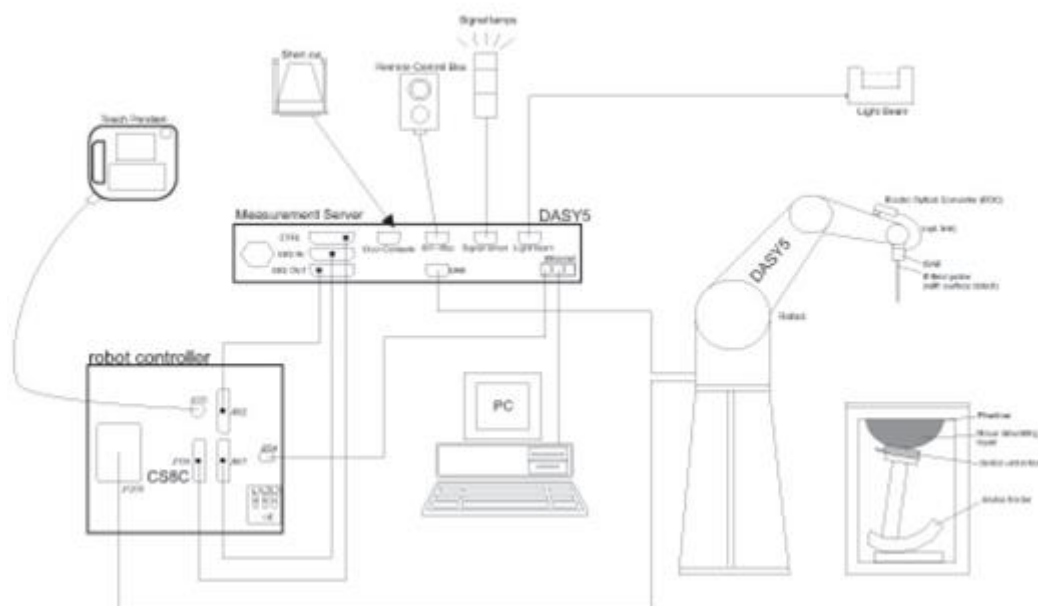
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

6. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). 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. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric 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 – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >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: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Fig 5.1 Photo of DAE

6.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

6.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

7. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the 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

7.1 Spatial Peak SAR Evaluation

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

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

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

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

7.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

7.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

7.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

7.5 Volume Scan Procedures

The volume scan is used to 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.

7.6 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 drifts more than 5%, the SAR will be retested.

8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1107	Feb. 27, 2018	Feb. 26, 2019
SPEAG	835MHz System Validation Kit	D835V2	4d167	Feb. 27, 2018	Feb. 26, 2019
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Feb. 28, 2018	Feb. 27, 2019
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 11, 2018	Sep. 10, 2019
SPEAG	2450MHz System Validation Kit	D2450V2	929	Mar. 01, 2018	Feb. 28, 2019
SPEAG	2600MHz System Validation Kit	D2600V2	1078	Mar. 01, 2018	Feb. 28, 2019
SPEAG	3700MHz System Validation Kit	D3700V2	1006	Mar. 02, 2018	Mar. 01, 2019
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 27, 2018	Sep. 26, 2019
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 19, 2018	Sep. 18, 2019
SPEAG	Data Acquisition Electronics	DAE4	854	Jun. 14, 2018	Jun. 13, 2019
SPEAG	Data Acquisition Electronics	DAE4	917	Dec. 14, 2017	Dec. 13, 2018
SPEAG	Data Acquisition Electronics	DAE4	1326	Sep. 18, 2018	Sep. 17, 2019
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 16, 2017	Nov. 15, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 24, 2018	Sep. 23, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7306	Jul. 26, 2018	Jul. 25, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7324	Jul. 16, 2018	Jul. 15, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7346	Feb. 28, 2018	Feb. 27, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3642	Apr. 27, 2018	Apr. 26, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 31, 2018	May. 30, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 27, 2018	Sep. 26, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	7515	Oct. 03, 2018	Oct. 02, 2019
WonDer	Thermometer	WD-5016	TM131-1	Mar. 16, 2018	Mar. 15, 2019
WonDer	Thermometer	WD-5016	TM132-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM685-2	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM281-2	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM560-2	Mar. 16, 2018	Mar. 15, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 17, 2018	Apr. 16, 2019
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	May. 21, 2018	May. 20, 2019
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 21, 2018	May. 20, 2019
R&S	BT Base Station	CBT	100815	Feb. 05, 2018	Feb. 04, 2019
SPEAG	Device Holder	N/A	N/A	N/A	N/A
R&S	Signal Generator	SMA100A	101091	Jul. 09, 2018	Jul. 08, 2019
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 17, 2018	Jan. 16, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1146	Jul. 24, 2018	Jul. 23, 2019
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 11, 2018	Sep. 10, 2019
Anritsu	Power Meter	ML2495A	1419002	May. 18, 2018	May. 17, 2019
Anritsu	Power Sensor	MA2411B	1339124	May. 18, 2018	May. 17, 2019
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 28, 2018	Aug. 27, 2019
Mini-Circuits	Power Amplifier	ZVE-8G+	6382	Aug. 09, 2018	Aug. 08, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	15542	Aug. 09, 2018	Aug. 08, 2019
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

- Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
- Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.

9. System Verification

9.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. 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, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

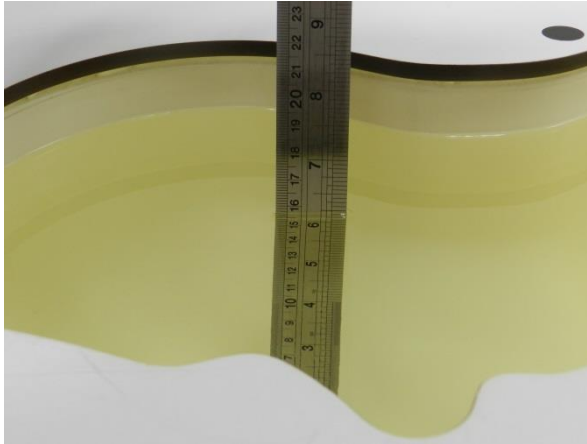


Fig 10.1 Photo of Liquid Height for Head SAR

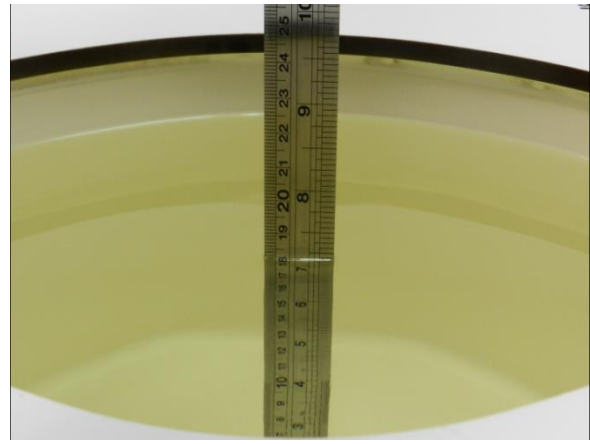


Fig 10.2 Photo of Liquid Height for Body SAR

**9.2 Tissue Verification**

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 3.5GHz-5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	HSL	22.5	0.895	43.349	0.89	41.90	0.56	3.46	±5	2018/9/20
750	HSL	22.3	0.895	43.349	0.89	41.90	0.56	3.46	±5	2018/10/18
750	MSL	22.5	0.973	53.678	0.96	55.50	1.35	-3.28	±5	2018/9/20
750	MSL	22.5	0.969	54.068	0.96	55.50	0.94	-2.58	±5	2018/10/15
835	HSL	22.5	0.888	42.242	0.90	41.50	-1.33	1.79	±5	2018/9/20
835	HSL	22.3	0.870	41.188	0.90	41.50	-3.33	-0.75	±5	2018/10/18
835	MSL	22.5	1.003	53.566	0.97	55.20	3.40	-2.96	±5	2018/9/20
835	MSL	22.5	0.998	56.904	0.97	55.20	2.89	3.09	±5	2018/10/15
835	MSL	22.6	0.940	55.206	0.97	55.20	-3.09	0.01	±5	2018/11/2
1750	HSL	22.5	1.390	40.959	1.37	40.10	1.46	2.14	±5	2018/9/20
1750	HSL	22.3	1.362	38.748	1.37	40.10	-0.58	-3.37	±5	2018/10/16
1750	MSL	22.6	1.463	55.350	1.49	53.40	-1.81	3.65	±5	2018/9/21
1750	MSL	22.7	1.478	55.240	1.49	53.40	-0.81	3.45	±5	2018/10/25
1750	MSL	22.3	1.474	55.128	1.49	53.40	-1.07	3.24	±5	2018/12/12
1750	MSL	22.8	1.474	55.128	1.49	53.40	-1.07	3.24	±5	2018/12/18
1900	HSL	22.5	1.431	39.593	1.40	40.00	2.21	-1.02	±5	2018/9/20
1900	HSL	22.3	1.448	38.266	1.40	40.00	3.43	-4.34	±5	2018/10/16
1900	MSL	22.6	1.551	51.650	1.52	53.30	2.04	-3.10	±5	2018/9/21
1900	MSL	22.4	1.506	54.622	1.52	53.30	-0.92	2.48	±5	2018/10/24
1900	MSL	22.3	1.582	54.608	1.52	53.30	4.08	2.45	±5	2018/12/12
1900	MSL	22.8	1.569	54.718	1.52	53.30	3.22	2.66	±5	2018/12/18
2450	HSL	22.7	1.845	40.185	1.80	39.20	2.50	2.51	±5	2018/9/21
2450	MSL	22.7	2.024	53.493	1.95	52.70	3.79	1.50	±5	2018/9/21
2600	HSL	22.7	2.025	39.601	1.96	39.00	3.32	1.54	±5	2018/9/21
2600	MSL	22.7	2.227	53.004	2.16	52.50	3.10	0.96	±5	2018/9/21
3700	HSL	22.6	3.218	38.674	3.12	37.68	3.14	2.64	±5	2018/10/18
3700	MSL	22.3	3.505	49.490	3.54	51.03	-0.99	-3.02	±5	2018/10/20
3700	MSL	22.6	3.499	49.480	3.54	51.03	-1.16	-3.04	±5	2018/10/26
3700	MSL	22.6	3.485	49.280	3.54	51.03	-1.55	-3.43	±5	2018/12/13
5250	HSL	22.7	4.641	37.021	4.71	35.95	-1.46	2.98	±5	2018/9/21
5250	MSL	22.6	5.268	47.866	5.36	48.95	-1.72	-2.21	±5	2018/9/22
5600	HSL	22.7	5.005	36.464	5.07	35.50	-1.28	2.72	±5	2018/9/21
5600	MSL	22.6	5.706	47.329	5.77	48.50	-1.11	-2.41	±5	2018/9/22
5750	HSL	22.7	5.140	36.313	5.22	35.35	-1.53	2.72	±5	2018/9/21
5750	MSL	22.6	5.907	47.097	5.94	48.28	-0.56	-2.45	±5	2018/9/22

9.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/9/20	750	HSL	250	D750V3-1107	EX3DV4 - SN7324	DAE4 Sn854	2.08	8.18	8.32	1.71
2018/10/18	750	HSL	250	D750V3-1107	EX3DV4 - SN7306	DAE3 Sn577	2.17	8.18	8.68	6.11
2018/9/20	750	MSL	250	D750V3-1107	EX3DV4 - SN7324	DAE4 Sn854	2.05	8.52	8.2	-3.76
2018/10/15	750	MSL	250	D750V3-1107	EX3DV4 - SN7306	DAE3 Sn577	2.28	8.76	9.12	4.11
2018/9/20	835	HSL	250	D835V2-4d167	EX3DV4 - SN7324	DAE4 Sn854	2.13	9.26	8.52	-7.99
2018/10/18	835	HSL	250	D835V2-4d167	EX3DV4 - SN7306	DAE3 Sn577	2.37	9.26	9.48	2.38
2018/9/20	835	MSL	250	D835V2-4d167	EX3DV4 - SN7324	DAE4 Sn854	2.17	9.62	8.68	-9.77
2018/10/15	835	MSL	250	D835V2-4d167	EX3DV4 - SN7306	DAE3 Sn577	2.46	9.62	9.84	2.29
2018/11/2	835	MSL	250	D835V2-4d167	EX3DV4 - SN7346	DAE4 Sn1399	2.44	9.62	9.76	1.46
2018/9/20	1750	HSL	250	D1750V2-1112	EX3DV4 - SN7306	DAE4 Sn854	9.48	37.90	37.92	0.05
2018/10/16	1750	HSL	250	D1750V2-1112	EX3DV4 - SN7306	DAE3 Sn577	9.25	37.90	37	-2.37
2018/9/21	1750	MSL	250	D1750V2-1112	EX3DV4 - SN7346	DAE4 Sn854	9.56	38.10	38.24	0.37
2018/10/25	1750	MSL	250	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn1326	9.05	38.10	36.2	-4.99
2018/12/12	1750	MSL	250	D1750V2-1112	EX3DV4 - SN7515	DAE4 Sn854	9.79	38.10	39.16	2.78
2018/12/18	1750	MSL	250	D1750V2-1112	ES3DV3 - SN3270	DAE4 Sn854	9.54	38.10	38.16	0.16
2018/9/20	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE4 Sn854	10.50	40.20	42	4.48
2018/10/16	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE3 Sn577	10.60	40.20	42.4	5.47
2018/9/21	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7346	DAE4 Sn854	10.20	40.20	40.8	1.49
2018/10/24	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7346	DAE4 Sn1399	10.20	40.20	40.8	1.49
2018/12/12	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7515	DAE4 Sn854	10.50	40.20	42	4.48
2018/12/18	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn854	10.60	40.20	42.4	5.47
2018/9/21	2450	HSL	250	D2450V2-929	EX3DV4 - SN7324	DAE4 Sn854	14.20	52.20	56.8	8.81
2018/9/21	2450	MSL	250	D2450V2-929	EX3DV4 - SN7324	DAE4 Sn854	13.40	52.30	53.6	2.49
2018/9/21	2600	HSL	250	D2600V2-1078	EX3DV4 - SN7306	DAE4 Sn917	14.60	56.50	58.4	3.36
2018/9/21	2600	MSL	250	D2600V2-1078	EX3DV4 - SN7324	DAE4 Sn854	12.80	54.10	51.2	-5.36
2018/10/18	3700	HSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE3 Sn577	6.58	69.50	65.8	-5.32
2018/10/20	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE3 Sn577	6.00	64.70	60	-7.26
2018/10/26	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE4 Sn1326	6.03	64.70	60.3	-6.80
2018/12/13	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3931	DAE4 Sn854	6.20	64.70	62	-4.17
2018/9/21	5250	HSL	100	D5GHzV2-1006-5250	EX3DV4 - SN7306	DAE4 Sn917	8.29	78.30	82.9	5.87
2018/9/22	5250	MSL	100	D5GHzV2-1006-5250	EX3DV4 - SN7306	DAE4 Sn917	7.36	77.00	73.6	-4.42
2018/9/21	5600	HSL	100	D5GHzV2-1006-5600	EX3DV4 - SN7324	DAE4 Sn854	8.64	85.00	86.4	1.65
2018/9/22	5600	MSL	100	D5GHzV2-1006-5600	EX3DV4 - SN7306	DAE4 Sn917	8.02	80.10	80.2	0.12
2018/9/21	5750	HSL	100	D5GHzV2-1006-5750	EX3DV4 - SN7324	DAE4 Sn854	8.00	78.50	80	1.91
2018/9/22	5750	MSL	100	D5GHzV2-1006-5750	EX3DV4 - SN7306	DAE4 Sn917	7.42	75.10	74.2	-1.20

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2018/9/20	750	HSL	250	D750V3-1107	EX3DV4 - SN7324	DAE4 Sn854	1.38	5.35	5.52	3.18
2018/10/18	750	HSL	250	D750V3-1107	EX3DV4 - SN7306	DAE3 Sn577	1.45	5.35	5.8	8.41
2018/9/20	750	MSL	250	D750V3-1107	EX3DV4 - SN7324	DAE4 Sn854	1.35	5.60	5.4	-3.57
2018/10/15	750	MSL	250	D750V3-1107	EX3DV4 - SN7306	DAE3 Sn577	1.53	5.97	6.12	2.51
2018/9/20	835	HSL	250	D835V2-4d167	EX3DV4 - SN7324	DAE4 Sn854	1.41	6.03	5.64	-6.47
2018/10/18	835	HSL	250	D835V2-4d167	EX3DV4 - SN7306	DAE3 Sn577	1.56	6.03	6.24	3.48
2018/9/20	835	MSL	250	D835V2-4d167	EX3DV4 - SN7324	DAE4 Sn854	1.43	6.27	5.72	-8.77
2018/10/15	835	MSL	250	D835V2-4d167	EX3DV4 - SN7306	DAE3 Sn577	1.63	6.27	6.52	3.99
2018/11/2	835	MSL	250	D835V2-4d167	EX3DV4 - SN7346	DAE4 Sn1399	1.64	6.27	6.56	4.63
2018/9/20	1750	HSL	250	D1750V2-1112	EX3DV4 - SN7306	DAE4 Sn854	5.08	20.00	20.32	1.60
2018/10/16	1750	HSL	250	D1750V2-1112	EX3DV4 - SN7306	DAE3 Sn577	4.96	20.00	19.84	-0.80
2018/9/21	1750	MSL	250	D1750V2-1112	EX3DV4 - SN7346	DAE4 Sn854	5.17	20.20	20.68	2.38
2018/10/25	1750	MSL	250	D1750V2-1112	EX3DV4 - SN3925	DAE4 Sn1326	4.87	20.20	19.48	-3.56
2018/12/12	1750	MSL	250	D1750V2-1112	EX3DV4 - SN7515	DAE4 Sn854	5.32	20.20	21.28	5.35
2018/12/18	1750	MSL	250	D1750V2-1112	ES3DV3 - SN3270	DAE4 Sn854	5.17	20.20	20.68	2.38
2018/9/20	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE4 Sn854	5.40	21.20	21.6	1.89
2018/10/16	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN7306	DAE3 Sn577	5.44	21.20	21.76	2.64
2018/9/21	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7346	DAE4 Sn854	5.35	21.50	21.4	-0.47
2018/10/24	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7346	DAE4 Sn1399	5.29	21.50	21.16	-1.58
2018/12/12	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN7515	DAE4 Sn854	5.52	21.50	22.08	2.70
2018/12/18	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn854	5.55	21.50	22.2	3.26
2018/9/21	2450	HSL	250	D2450V2-929	EX3DV4 - SN7324	DAE4 Sn854	6.56	24.20	26.24	8.43
2018/9/21	2450	MSL	250	D2450V2-929	EX3DV4 - SN7324	DAE4 Sn854	6.16	24.40	24.64	0.98
2018/9/21	2600	HSL	250	D2600V2-1078	EX3DV4 - SN7306	DAE4 Sn917	6.56	25.30	26.24	3.72
2018/9/21	2600	MSL	250	D2600V2-1078	EX3DV4 - SN7324	DAE4 Sn854	5.61	24.10	22.44	-6.89
2018/10/18	3700	HSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE3 Sn577	2.37	25.60	23.7	-7.42
2018/10/20	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE3 Sn577	2.14	23.30	21.4	-8.15
2018/10/26	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3642	DAE4 Sn1326	2.16	23.30	21.6	-7.30
2018/12/13	3700	MSL	100	D3700V2-1006	EX3DV4 - SN3931	DAE4 Sn854	2.17	23.30	21.7	-6.87
2018/9/21	5250	HSL	100	D5GHZV2-1006-5250	EX3DV4 - SN7306	DAE4 Sn917	2.34	22.50	23.4	4.00
2018/9/22	5250	MSL	100	D5GHZV2-1006-5250	EX3DV4 - SN7306	DAE4 Sn917	2.06	21.30	20.6	-3.29
2018/9/22	5600	MSL	100	D5GHZV2-1006-5600	EX3DV4 - SN7306	DAE4 Sn917	2.33	24.30	23.3	-4.12
2018/9/21	5750	HSL	100	D5GHZV2-1006-5750	EX3DV4 - SN7324	DAE4 Sn854	2.22	22.40	22.2	-0.89
2018/9/22	5750	MSL	100	D5GHZV2-1006-5750	EX3DV4 - SN7306	DAE4 Sn917	2.19	22.30	21.9	-1.79

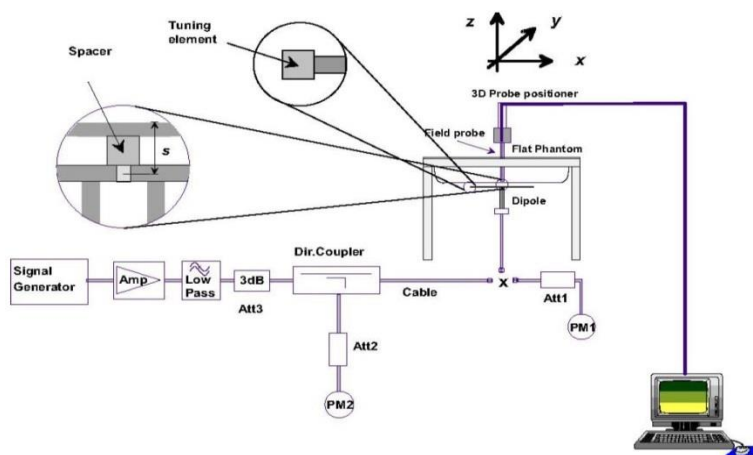


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

10. RF Exposure Positions

10.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled "M," the left ear reference point (ERP) is marked "LE," and the right ERP is marked "RE." Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

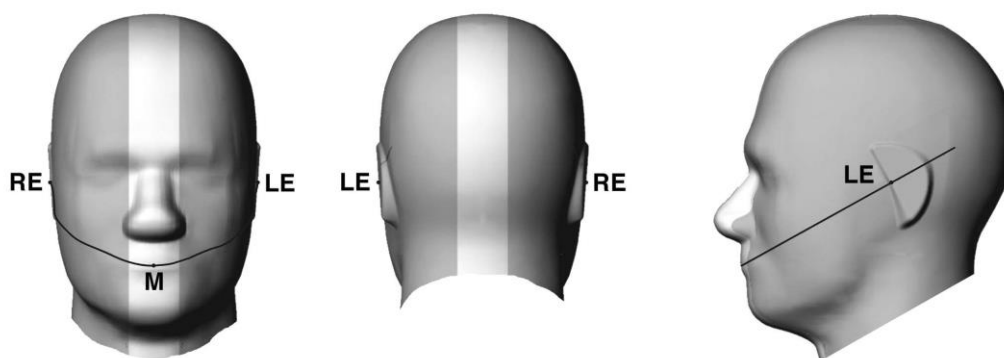


Fig 9.1.1 Front, back, and side views of SAM twin phantom

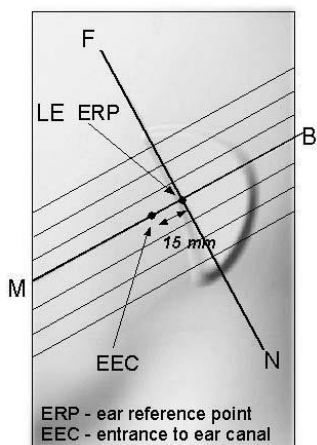


Fig 9.1.2 Close-up side view of phantom showing the ear region.

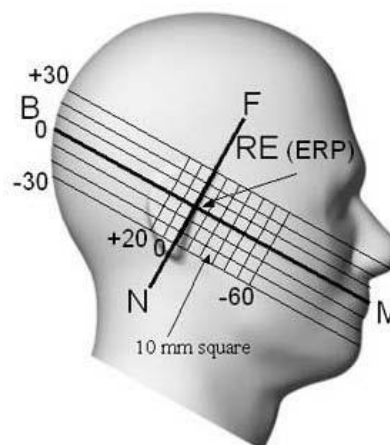


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

10.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

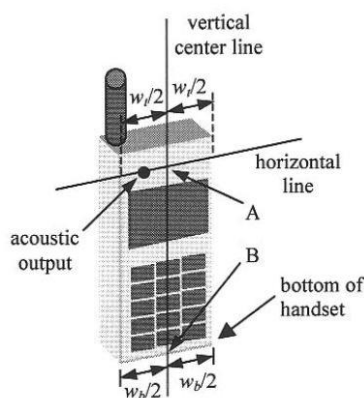


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

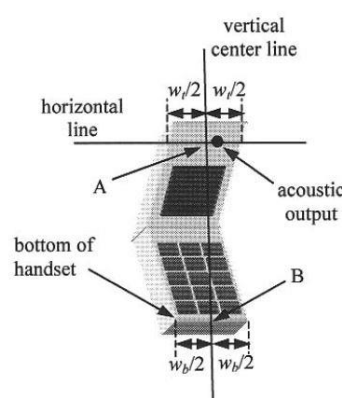


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

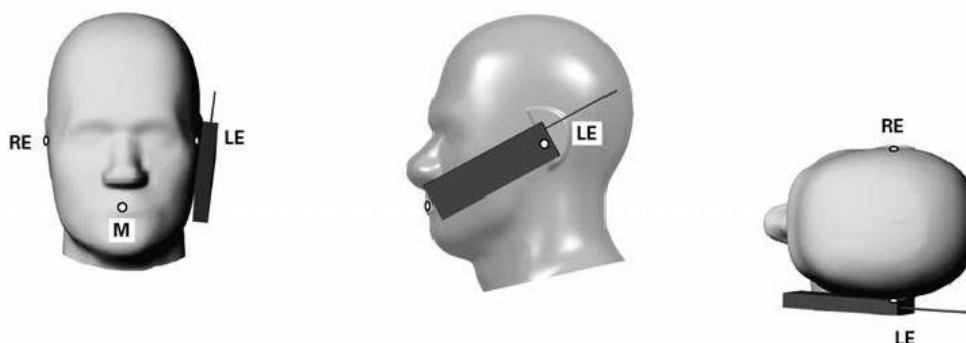


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

10.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

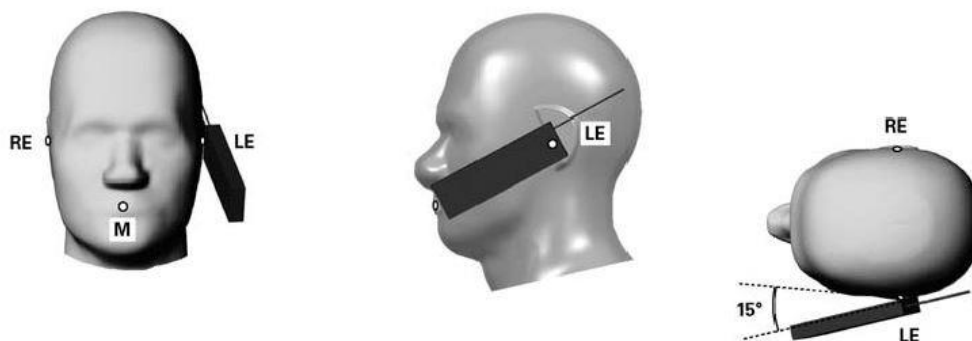


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

10.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

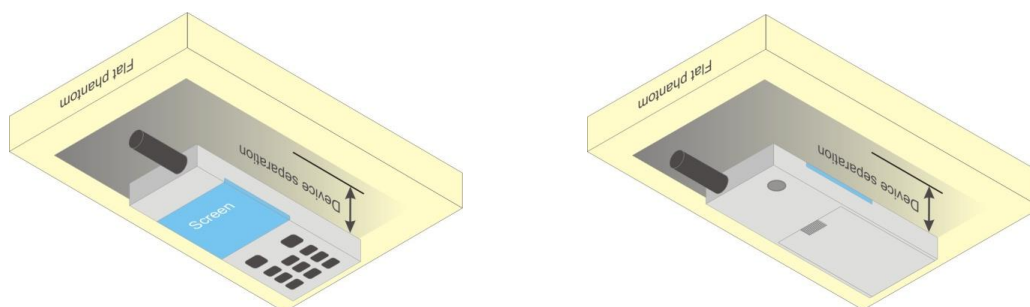


Fig 9.4 Body Worn Position



10.5 Product Specific Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g Product Specific SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.⁶ The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g Product Specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

10.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

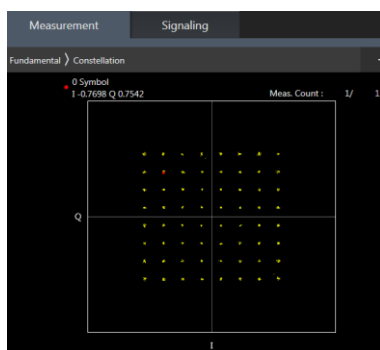
When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

11. Conducted RF Output Power (Unit: dBm)

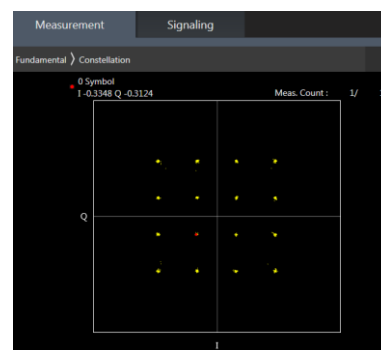
<LTE Conducted Power>

General Note:

1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation 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.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B5the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 4 SAR test was covered by Band 66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM



**Standalone mode - Phone WWAN Tx OFF:
(Head Power mode)**

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	23.99	23.73	23.75	24
20	QPSK	1	49	23.72	23.68	23.62	
20	QPSK	1	99	23.89	23.70	23.59	
20	QPSK	50	0	22.92	22.90	22.90	23
20	QPSK	50	24	22.85	22.82	22.85	
20	QPSK	50	50	22.80	22.78	22.76	
20	QPSK	100	0	22.87	22.84	22.83	
20	16QAM	1	0	22.96	22.94	22.86	23
20	16QAM	1	49	22.96	22.75	22.99	
20	16QAM	1	99	22.98	22.91	22.95	
20	16QAM	50	0	21.89	21.86	21.90	22
20	16QAM	50	24	21.85	21.79	21.80	
20	16QAM	50	50	21.85	21.72	21.79	
20	16QAM	100	0	21.83	21.77	21.79	
20	64QAM	1	0	22.00	21.99	21.85	22
20	64QAM	1	49	21.99	21.72	22.00	
20	64QAM	1	99	21.88	21.95	21.94	
20	64QAM	50	0	20.90	20.92	20.97	21
20	64QAM	50	24	20.79	20.78	20.89	
20	64QAM	50	50	20.83	20.79	20.76	
20	64QAM	100	0	20.76	20.76	20.82	
Channel				18675	18900	19125	
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	23.81	23.72	23.71	24
15	QPSK	1	37	23.65	23.62	23.62	
15	QPSK	1	74	23.72	23.74	23.60	
15	QPSK	36	0	22.87	22.86	22.86	23
15	QPSK	36	20	22.86	22.80	22.81	
15	QPSK	36	39	22.80	22.73	22.77	
15	QPSK	75	0	22.83	22.80	22.81	
15	16QAM	1	0	22.98	22.92	22.96	23
15	16QAM	1	37	22.99	22.99	22.98	
15	16QAM	1	74	22.92	22.87	22.95	
15	16QAM	36	0	21.88	21.80	21.79	22
15	16QAM	36	20	21.86	21.76	21.76	
15	16QAM	36	39	21.78	21.70	21.70	
15	16QAM	75	0	21.83	21.77	21.80	
15	64QAM	1	0	22.05	21.99	21.76	22
15	64QAM	1	37	21.99	21.75	21.91	
15	64QAM	1	74	22.02	21.89	22.03	
15	64QAM	36	0	20.97	20.80	20.92	21
15	64QAM	36	20	20.85	20.80	20.72	
15	64QAM	36	39	20.81	20.79	20.75	
15	64QAM	75	0	20.85	20.80	20.77	

Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	23.86	23.75	23.82	24
10	QPSK	1	25	23.85	23.80	23.70	
10	QPSK	1	49	23.81	23.66	23.76	
10	QPSK	25	0	22.93	22.85	22.82	23
10	QPSK	25	12	22.93	22.86	22.85	
10	QPSK	25	25	22.86	22.77	22.76	
10	QPSK	50	0	22.95	22.84	22.80	23
10	16QAM	1	0	22.94	22.98	22.99	
10	16QAM	1	25	22.99	22.86	22.91	
10	16QAM	1	49	23.00	22.94	22.85	22
10	16QAM	25	0	21.92	21.83	21.82	
10	16QAM	25	12	21.90	21.83	21.84	
10	16QAM	25	25	21.88	21.78	21.77	22
10	16QAM	50	0	21.88	21.81	21.83	
10	64QAM	1	0	22.00	21.94	21.82	
10	64QAM	1	25	21.86	21.70	21.96	22
10	64QAM	1	49	21.89	21.99	22.05	
10	64QAM	25	0	20.88	20.93	20.86	21
10	64QAM	25	12	20.84	20.87	20.70	
10	64QAM	25	25	20.93	20.75	20.70	
10	64QAM	50	0	20.79	20.77	20.80	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	23.63	23.23	23.47	24
5	QPSK	1	12	23.99	23.64	23.49	
5	QPSK	1	24	23.98	23.80	22.55	
5	QPSK	12	0	22.92	22.97	22.92	23
5	QPSK	12	7	22.99	22.87	22.98	
5	QPSK	12	13	22.95	22.84	22.93	
5	QPSK	25	0	22.99	22.98	22.91	23
5	16QAM	1	0	22.86	22.88	22.75	
5	16QAM	1	12	21.99	21.89	22.29	
5	16QAM	1	24	22.93	22.63	22.51	22
5	16QAM	12	0	21.96	21.95	21.90	
5	16QAM	12	7	21.97	21.94	21.92	
5	16QAM	12	13	21.98	21.84	21.91	22
5	16QAM	25	0	21.90	21.81	21.80	
5	64QAM	1	0	22.06	21.93	21.90	
5	64QAM	1	12	21.93	21.75	21.94	22
5	64QAM	1	24	22.05	21.96	21.95	
5	64QAM	12	0	20.93	20.94	20.88	21
5	64QAM	12	7	20.80	20.77	20.80	
5	64QAM	12	13	20.86	20.72	20.69	
5	64QAM	25	0	20.81	20.83	20.78	

Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	23.61	23.15	23.22	24
3	QPSK	1	8	23.29	23.49	22.92	
3	QPSK	1	14	23.72	23.47	23.07	
3	QPSK	8	0	22.74	22.49	22.65	23
3	QPSK	8	4	22.72	22.59	22.74	
3	QPSK	8	7	22.73	22.60	22.53	
3	QPSK	15	0	22.76	22.65	22.62	23
3	16QAM	1	0	22.66	22.90	22.62	
3	16QAM	1	8	22.26	22.93	22.52	
3	16QAM	1	14	22.99	22.78	22.55	22
3	16QAM	8	0	21.90	21.52	21.80	
3	16QAM	8	4	21.74	21.63	21.40	
3	16QAM	8	7	21.81	21.62	21.55	22
3	16QAM	15	0	21.75	21.56	21.71	
3	64QAM	1	0	22.03	21.87	21.83	
3	64QAM	1	8	22.03	21.68	21.95	22
3	64QAM	1	14	21.97	21.90	21.85	
3	64QAM	8	0	20.92	20.96	20.87	21
3	64QAM	8	4	20.84	20.89	20.76	
3	64QAM	8	7	20.82	20.82	20.83	
3	64QAM	15	0	20.77	20.87	20.74	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	23.47	23.73	23.65	24
1.4	QPSK	1	3	23.36	23.65	22.82	
1.4	QPSK	1	5	23.39	23.37	23.69	
1.4	QPSK	3	0	23.31	23.38	22.83	23
1.4	QPSK	3	1	22.96	23.50	22.76	
1.4	QPSK	3	3	23.50	23.55	23.59	
1.4	QPSK	6	0	22.62	22.40	22.60	23
1.4	16QAM	1	0	22.99	22.18	22.58	
1.4	16QAM	1	3	22.99	22.62	22.46	
1.4	16QAM	1	5	22.44	22.95	22.63	23
1.4	16QAM	3	0	22.30	22.43	22.09	
1.4	16QAM	3	1	22.84	21.81	22.68	
1.4	16QAM	3	3	22.57	22.67	22.26	22
1.4	16QAM	6	0	21.66	21.63	21.63	
1.4	64QAM	1	0	22.02	21.93	21.90	
1.4	64QAM	1	3	21.96	21.68	21.92	22
1.4	64QAM	1	5	21.89	21.89	22.00	
1.4	64QAM	3	0	20.84	20.86	20.92	
1.4	64QAM	3	1	20.77	20.77	20.85	22
1.4	64QAM	3	3	20.82	20.62	20.69	
1.4	64QAM	6	0	20.83	20.69	20.88	



<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	23.65	23.96	23.86	24
20	QPSK	1	49	23.68	23.65	23.69	
20	QPSK	1	99	23.66	23.82	23.63	
20	QPSK	50	0	22.78	22.85	22.87	23
20	QPSK	50	24	22.79	22.83	22.79	
20	QPSK	50	50	22.73	22.77	22.75	
20	QPSK	100	0	22.74	22.83	22.82	
20	16QAM	1	0	22.97	22.96	22.99	23
20	16QAM	1	49	22.88	22.82	22.83	
20	16QAM	1	99	22.99	22.80	22.84	
20	16QAM	50	0	21.84	21.88	21.91	22
20	16QAM	50	24	21.79	21.83	21.84	
20	16QAM	50	50	21.74	21.80	21.73	
20	16QAM	100	0	21.81	21.79	21.78	
20	64QAM	1	0	22.00	21.88	22.00	22
20	64QAM	1	49	21.93	21.72	21.81	
20	64QAM	1	99	21.98	21.72	21.79	
20	64QAM	50	0	20.92	20.92	20.95	21
20	64QAM	50	24	20.74	20.92	20.91	
20	64QAM	50	50	20.71	20.84	20.70	
20	64QAM	100	0	20.81	20.88	20.88	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	23.74	23.90	23.77	24
15	QPSK	1	37	23.66	23.70	23.63	
15	QPSK	1	74	23.68	23.81	23.60	
15	QPSK	36	0	22.86	22.89	22.89	23
15	QPSK	36	20	22.87	22.90	22.84	
15	QPSK	36	39	22.78	22.83	22.80	
15	QPSK	75	0	22.78	22.87	22.82	
15	16QAM	1	0	22.99	22.99	22.99	23
15	16QAM	1	37	22.99	22.97	22.99	
15	16QAM	1	74	22.96	22.99	22.99	
15	16QAM	36	0	21.84	21.89	21.86	22
15	16QAM	36	20	21.83	21.88	21.86	
15	16QAM	36	39	21.80	21.79	21.79	
15	16QAM	75	0	21.83	21.86	21.82	
15	64QAM	1	0	21.92	21.98	21.90	22
15	64QAM	1	37	21.88	21.89	21.85	
15	64QAM	1	74	22.00	21.80	21.94	
15	64QAM	36	0	20.92	20.89	20.95	21
15	64QAM	36	20	20.74	20.75	20.90	
15	64QAM	36	39	20.80	20.75	20.65	
15	64QAM	75	0	20.85	20.86	20.71	



Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	23.74	23.85	23.81	24
10	QPSK	1	25	23.64	23.95	23.74	
10	QPSK	1	49	23.64	23.69	23.63	
10	QPSK	25	0	22.78	22.87	22.82	23
10	QPSK	25	12	22.74	22.88	22.83	
10	QPSK	25	25	22.76	22.81	22.77	
10	QPSK	50	0	22.79	22.81	22.80	
10	16QAM	1	0	23.00	22.99	22.99	23
10	16QAM	1	25	22.86	22.99	22.99	
10	16QAM	1	49	22.88	22.99	22.85	
10	16QAM	25	0	21.77	21.87	21.83	22
10	16QAM	25	12	21.78	21.87	21.85	
10	16QAM	25	25	21.77	21.80	21.81	
10	16QAM	50	0	21.80	21.87	21.85	
10	64QAM	1	0	21.98	21.99	21.91	22
10	64QAM	1	25	21.91	21.87	21.90	
10	64QAM	1	49	21.93	21.77	21.79	
10	64QAM	25	0	20.90	20.93	20.90	21
10	64QAM	25	12	20.69	20.74	20.94	
10	64QAM	25	25	20.65	20.72	20.63	
10	64QAM	50	0	20.85	20.88	20.80	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	23.39	23.50	23.10	24
5	QPSK	1	12	22.83	23.73	22.60	
5	QPSK	1	24	23.66	23.87	23.55	
5	QPSK	12	0	22.74	22.91	22.90	23
5	QPSK	12	7	22.85	22.89	22.99	
5	QPSK	12	13	22.84	22.87	22.80	
5	QPSK	25	0	22.78	22.92	22.81	
5	16QAM	1	0	22.95	22.97	22.99	23
5	16QAM	1	12	22.77	22.99	22.94	
5	16QAM	1	24	22.66	22.59	22.67	
5	16QAM	12	0	21.77	21.92	21.87	22
5	16QAM	12	7	21.83	21.88	21.77	
5	16QAM	12	13	21.79	21.91	21.84	
5	16QAM	25	0	21.87	21.80	21.87	
5	64QAM	1	0	21.90	21.95	21.89	22
5	64QAM	1	12	21.79	21.77	21.78	
5	64QAM	1	24	21.99	21.73	21.89	
5	64QAM	12	0	20.90	20.82	21.01	21
5	64QAM	12	7	20.87	20.89	20.92	
5	64QAM	12	13	20.71	20.74	20.68	
5	64QAM	25	0	20.88	20.70	20.80	

Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	23.17	23.38	23.89	24
3	QPSK	1	8	23.72	23.33	23.67	
3	QPSK	1	14	23.49	23.59	23.41	
3	QPSK	8	0	22.48	22.67	22.49	23
3	QPSK	8	4	22.49	22.67	22.49	
3	QPSK	8	7	22.41	22.63	22.58	
3	QPSK	15	0	22.65	22.76	22.68	
3	16QAM	1	0	22.75	22.99	22.85	23
3	16QAM	1	8	22.68	22.83	22.68	
3	16QAM	1	14	22.41	22.41	22.64	
3	16QAM	8	0	21.60	21.53	21.53	22
3	16QAM	8	4	21.69	21.84	21.60	
3	16QAM	8	7	21.62	21.79	21.50	
3	16QAM	15	0	21.56	21.55	21.70	
3	64QAM	1	0	21.99	22.00	21.99	22
3	64QAM	1	8	21.88	21.73	21.84	
3	64QAM	1	14	21.97	21.88	21.90	
3	64QAM	8	0	20.90	20.94	20.86	21
3	64QAM	8	4	20.70	20.90	20.87	
3	64QAM	8	7	20.64	20.87	20.80	
3	64QAM	15	0	20.77	20.71	20.69	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	23.85	23.76	23.54	24
1.4	QPSK	1	3	23.34	23.07	22.61	
1.4	QPSK	1	5	23.20	23.69	23.41	
1.4	QPSK	3	0	23.41	23.10	23.16	
1.4	QPSK	3	1	23.30	23.12	23.37	
1.4	QPSK	3	3	23.29	23.39	23.25	
1.4	QPSK	6	0	22.53	22.50	22.51	23
1.4	16QAM	1	0	22.44	22.80	22.70	23
1.4	16QAM	1	3	22.58	22.42	22.98	
1.4	16QAM	1	5	22.90	22.86	22.27	
1.4	16QAM	3	0	22.13	22.42	22.18	
1.4	16QAM	3	1	22.22	22.47	22.32	
1.4	16QAM	3	3	22.52	22.51	22.22	
1.4	16QAM	6	0	21.52	21.64	21.54	22
1.4	64QAM	1	0	21.89	21.95	22.00	22
1.4	64QAM	1	3	21.93	21.92	21.88	
1.4	64QAM	1	5	21.94	21.81	21.77	
1.4	64QAM	3	0	20.75	20.81	20.96	
1.4	64QAM	3	1	20.89	20.84	20.83	
1.4	64QAM	3	3	20.79	20.72	20.71	
1.4	64QAM	6	0	20.88	20.82	20.86	21

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	23.81	23.56	23.40	24
10	QPSK	1	25	23.39	23.54	23.54	
10	QPSK	1	49	23.50	23.41	23.42	
10	QPSK	25	0	22.62	22.62	22.61	23
10	QPSK	25	12	22.60	22.58	22.58	
10	QPSK	25	25	22.52	22.50	22.52	
10	QPSK	50	0	22.58	22.55	22.57	23
10	16QAM	1	0	22.75	22.83	22.64	
10	16QAM	1	25	22.68	22.64	22.74	
10	16QAM	1	49	22.61	22.58	22.72	22
10	16QAM	25	0	21.62	21.66	21.60	
10	16QAM	25	12	21.60	21.60	21.59	
10	16QAM	25	25	21.55	21.47	21.53	22
10	16QAM	50	0	21.60	21.56	21.58	
10	64QAM	1	0	21.56	21.63	21.57	
10	64QAM	1	25	21.43	21.60	21.47	22
10	64QAM	1	49	21.33	21.53	21.46	
10	64QAM	25	0	20.33	20.39	20.36	21
10	64QAM	25	12	20.16	20.28	20.12	
10	64QAM	25	25	20.36	20.36	20.33	
10	64QAM	50	0	20.25	20.36	20.34	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	23.32	22.51	22.88	24
5	QPSK	1	12	23.30	23.54	22.28	
5	QPSK	1	24	23.54	23.43	23.21	
5	QPSK	12	0	22.53	22.54	22.54	23
5	QPSK	12	7	22.69	22.52	22.55	
5	QPSK	12	13	22.59	22.53	22.48	
5	QPSK	25	0	22.59	22.57	22.60	23
5	16QAM	1	0	22.34	22.59	22.99	
5	16QAM	1	12	22.99	22.34	21.47	
5	16QAM	1	24	22.40	22.57	21.44	22
5	16QAM	12	0	21.57	21.46	21.65	
5	16QAM	12	7	21.63	21.63	21.70	
5	16QAM	12	13	21.52	21.52	21.50	22
5	16QAM	25	0	21.59	21.50	21.59	
5	64QAM	1	0	21.28	21.36	21.25	
5	64QAM	1	12	21.31	21.41	21.35	22
5	64QAM	1	24	21.26	21.33	21.31	
5	64QAM	12	0	20.24	20.39	20.21	21
5	64QAM	12	7	20.24	20.41	20.29	
5	64QAM	12	13	20.37	20.39	20.19	
5	64QAM	25	0	20.34	20.47	20.30	

Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	23.37	23.23	23.80	24
3	QPSK	1	8	22.72	23.27	23.64	
3	QPSK	1	14	23.09	22.69	23.29	
3	QPSK	8	0	22.99	22.60	22.63	23
3	QPSK	8	4	22.45	22.69	22.35	
3	QPSK	8	7	22.51	22.68	22.61	
3	QPSK	15	0	22.57	22.55	22.60	23
3	16QAM	1	0	21.95	22.35	22.51	
3	16QAM	1	8	21.62	22.41	22.83	
3	16QAM	1	14	21.81	22.26	22.73	22
3	16QAM	8	0	21.62	21.68	21.80	
3	16QAM	8	4	21.61	21.57	21.70	
3	16QAM	8	7	21.54	21.39	21.76	22
3	16QAM	15	0	21.63	21.66	21.82	
3	64QAM	1	0	21.22	21.41	21.30	22
3	64QAM	1	8	21.20	21.40	21.27	
3	64QAM	1	14	21.30	21.41	21.28	
3	64QAM	8	0	20.12	20.25	20.13	21
3	64QAM	8	4	20.09	20.23	20.16	
3	64QAM	8	7	20.13	20.31	20.30	
3	64QAM	15	0	20.20	20.34	20.19	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	22.45	23.31	23.39	24
1.4	QPSK	1	3	22.61	23.64	23.73	
1.4	QPSK	1	5	22.82	23.32	22.22	
1.4	QPSK	3	0	23.30	23.29	23.34	23
1.4	QPSK	3	1	23.77	23.53	23.48	
1.4	QPSK	3	3	23.35	23.30	23.44	
1.4	QPSK	6	0	22.19	22.31	22.40	23
1.4	16QAM	1	0	21.80	22.53	21.89	
1.4	16QAM	1	3	21.52	22.68	22.62	
1.4	16QAM	1	5	22.41	22.67	22.49	22
1.4	16QAM	3	0	22.01	21.76	22.32	
1.4	16QAM	3	1	22.58	22.43	21.96	
1.4	16QAM	3	3	22.08	22.02	22.55	22
1.4	16QAM	6	0	21.37	21.44	21.48	
1.4	64QAM	1	0	21.09	21.25	21.20	
1.4	64QAM	1	3	21.06	21.19	21.09	22
1.4	64QAM	1	5	21.06	21.26	21.16	
1.4	64QAM	3	0	20.95	21.10	20.96	
1.4	64QAM	3	1	21.13	21.15	21.15	21
1.4	64QAM	3	3	21.01	21.03	20.92	
1.4	64QAM	6	0	20.05	20.12	20.01	

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23230			
Frequency (MHz)				782			
10	QPSK	1	0		23.49		24
10	QPSK	1	25		23.32		
10	QPSK	1	49		23.31		
10	QPSK	25	0		22.61		23
10	QPSK	25	12		22.57		
10	QPSK	25	25		22.48		
10	QPSK	50	0		22.52		
10	16QAM	1	0		22.72		23
10	16QAM	1	25		22.69		
10	16QAM	1	49		22.50		
10	16QAM	25	0		21.62		22
10	16QAM	25	12		21.58		
10	16QAM	25	25		21.51		
10	16QAM	50	0		21.52		
10	64QAM	1	0		21.63		22
10	64QAM	1	25		21.61		
10	64QAM	1	49		21.59		
10	64QAM	25	0		20.51		21
10	64QAM	25	12		20.38		
10	64QAM	25	25		20.39		
10	64QAM	50	0		20.46		
Channel				23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)				779.5	782	784.5	
5	QPSK	1	0	23.47	23.09	23.38	24
5	QPSK	1	12	22.79	22.98	23.38	
5	QPSK	1	24	23.48	23.11	23.03	
5	QPSK	12	0	22.54	22.56	22.56	23
5	QPSK	12	7	22.58	22.49	22.53	
5	QPSK	12	13	22.51	22.47	22.47	
5	QPSK	25	0	22.53	22.55	22.55	23
5	16QAM	1	0	22.74	21.96	22.99	
5	16QAM	1	12	22.99	22.37	22.96	
5	16QAM	1	24	22.50	22.13	22.09	
5	16QAM	12	0	21.54	21.57	21.56	22
5	16QAM	12	7	21.50	21.68	21.54	
5	16QAM	12	13	21.48	21.54	21.40	
5	16QAM	25	0	21.49	21.57	21.54	
5	64QAM	1	0	21.48	21.54	21.49	22
5	64QAM	1	12	21.61	21.42	21.59	
5	64QAM	1	24	21.45	21.40	21.44	
5	64QAM	12	0	20.50	20.49	20.39	21
5	64QAM	12	7	20.27	20.37	20.29	
5	64QAM	12	13	20.27	20.25	20.24	
5	64QAM	25	0	20.41	20.31	20.36	



<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				132072	132322	132572	
Frequency (MHz)				1720	1745	1770	
20	QPSK	1	0	23.73	23.99	23.69	24
20	QPSK	1	49	23.57	23.66	23.61	
20	QPSK	1	99	23.62	23.49	23.52	
20	QPSK	50	0	22.82	22.91	22.85	23
20	QPSK	50	24	22.81	22.82	22.79	
20	QPSK	50	50	22.76	22.76	22.48	
20	QPSK	100	0	22.79	22.83	22.81	
20	16QAM	1	0	22.90	22.99	22.98	23
20	16QAM	1	49	22.84	22.94	22.84	
20	16QAM	1	99	22.96	22.80	22.67	
20	16QAM	50	0	21.82	21.94	21.82	22
20	16QAM	50	24	21.81	21.86	21.74	
20	16QAM	50	50	21.74	21.77	21.69	
20	16QAM	100	0	21.77	21.79	21.75	
20	64QAM	1	0	21.58	21.68	21.61	22
20	64QAM	1	49	21.67	21.71	21.52	
20	64QAM	1	99	21.55	21.65	21.39	
20	64QAM	50	0	20.48	20.68	20.36	21
20	64QAM	50	24	20.47	20.70	20.53	
20	64QAM	50	50	20.32	20.59	20.43	
20	64QAM	100	0	20.46	20.57	20.51	
Channel				132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1745	1772.5	
15	QPSK	1	0	23.69	23.80	23.71	24
15	QPSK	1	37	23.68	23.59	23.35	
15	QPSK	1	74	23.58	23.68	23.44	
15	QPSK	36	0	22.77	22.86	22.81	23
15	QPSK	36	20	22.80	22.84	22.71	
15	QPSK	36	39	22.79	22.73	22.34	
15	QPSK	75	0	22.74	22.86	22.62	
15	16QAM	1	0	22.97	22.98	22.95	23
15	16QAM	1	37	22.77	22.85	22.20	
15	16QAM	1	74	22.85	22.94	22.68	
15	16QAM	36	0	21.74	21.87	21.77	22
15	16QAM	36	20	21.75	21.85	21.79	
15	16QAM	36	39	21.69	21.78	21.45	
15	16QAM	75	0	21.75	21.81	21.74	
15	64QAM	1	0	21.54	21.76	21.55	22
15	64QAM	1	37	21.55	21.66	21.60	
15	64QAM	1	74	21.50	21.69	21.40	
15	64QAM	36	0	20.33	20.60	20.45	21
15	64QAM	36	20	20.49	20.55	20.50	
15	64QAM	36	39	20.35	20.53	20.29	
15	64QAM	75	0	20.48	20.61	20.47	



Channel				132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)				1715	1745	1775	
10	QPSK	1	0	23.59	23.76	23.71	24
10	QPSK	1	25	23.59	23.71	23.19	
10	QPSK	1	49	23.55	23.55	23.34	
10	QPSK	25	0	22.67	22.82	22.61	23
10	QPSK	25	12	22.69	22.78	22.42	
10	QPSK	25	25	22.65	22.71	22.32	
10	QPSK	50	0	22.69	22.77	22.48	23
10	16QAM	1	0	22.82	22.96	22.94	
10	16QAM	1	25	22.86	22.98	22.64	
10	16QAM	1	49	22.77	22.87	22.73	22
10	16QAM	25	0	21.70	21.81	21.70	
10	16QAM	25	12	21.66	21.77	21.58	
10	16QAM	25	25	21.64	21.75	21.40	22
10	16QAM	50	0	21.73	21.80	21.56	
10	64QAM	1	0	21.45	21.65	21.50	22
10	64QAM	1	25	21.57	21.67	21.62	
10	64QAM	1	49	21.52	21.57	21.47	
10	64QAM	25	0	20.31	20.49	20.46	21
10	64QAM	25	12	20.47	20.53	20.47	
10	64QAM	25	25	20.40	20.48	20.36	
10	64QAM	50	0	20.49	20.51	20.46	
Channel				131997	132322	132647	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1745	1777.5	
5	QPSK	1	0	23.56	22.99	23.28	24
5	QPSK	1	12	23.49	22.71	22.04	
5	QPSK	1	24	23.43	23.39	23.17	
5	QPSK	12	0	22.56	22.52	22.35	23
5	QPSK	12	7	22.49	22.59	22.34	
5	QPSK	12	13	22.45	22.56	22.30	
5	QPSK	25	0	22.58	22.58	22.32	23
5	16QAM	1	0	21.92	22.18	22.61	
5	16QAM	1	12	21.65	21.63	21.78	
5	16QAM	1	24	22.14	22.23	21.86	22
5	16QAM	12	0	21.53	21.59	21.38	
5	16QAM	12	7	21.41	21.67	21.41	
5	16QAM	12	13	21.43	21.51	21.40	22
5	16QAM	25	0	21.52	21.53	21.39	
5	64QAM	1	0	21.52	21.55	21.49	
5	64QAM	1	12	21.48	21.59	21.40	22
5	64QAM	1	24	21.47	21.54	21.38	
5	64QAM	12	0	20.42	20.56	20.37	21
5	64QAM	12	7	20.37	20.55	20.45	
5	64QAM	12	13	20.36	20.54	20.34	
5	64QAM	25	0	20.38	20.54	20.45	

Channel				131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1745	1778.5	
3	QPSK	1	0	23.68	23.98	22.80	24
3	QPSK	1	8	23.46	23.06	23.25	
3	QPSK	1	14	23.18	23.37	23.17	
3	QPSK	8	0	22.56	22.57	22.26	23
3	QPSK	8	4	22.37	22.56	22.29	
3	QPSK	8	7	22.71	22.59	22.22	
3	QPSK	15	0	22.40	22.69	22.29	23
3	16QAM	1	0	22.87	21.83	22.37	
3	16QAM	1	8	22.82	22.37	21.23	
3	16QAM	1	14	21.88	22.50	22.58	22
3	16QAM	8	0	21.47	21.64	21.38	
3	16QAM	8	4	21.66	21.83	21.42	
3	16QAM	8	7	21.53	21.38	21.41	22
3	16QAM	15	0	21.39	21.56	21.40	
3	64QAM	1	0	21.42	21.53	21.43	22
3	64QAM	1	8	21.40	21.56	21.53	
3	64QAM	1	14	21.45	21.55	21.37	
3	64QAM	8	0	20.36	20.40	20.30	21
3	64QAM	8	4	20.48	20.51	20.48	
3	64QAM	8	7	20.40	20.48	20.40	
3	64QAM	15	0	20.38	20.58	20.38	
Channel				131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1745	1779.3	
1.4	QPSK	1	0	22.34	22.81	23.17	24
1.4	QPSK	1	3	23.38	23.41	23.11	
1.4	QPSK	1	5	23.51	23.19	23.09	
1.4	QPSK	3	0	23.19	23.21	23.06	23
1.4	QPSK	3	1	23.45	23.37	23.17	
1.4	QPSK	3	3	23.17	23.49	23.23	
1.4	QPSK	6	0	22.46	22.34	22.06	23
1.4	16QAM	1	0	22.14	22.75	22.10	
1.4	16QAM	1	3	22.30	22.39	22.36	
1.4	16QAM	1	5	22.44	22.72	22.23	22
1.4	16QAM	3	0	21.95	22.30	22.06	
1.4	16QAM	3	1	22.24	22.16	21.85	
1.4	16QAM	3	3	22.16	22.12	22.28	22
1.4	16QAM	6	0	21.29	21.42	21.31	
1.4	64QAM	1	0	21.14	21.31	21.23	
1.4	64QAM	1	3	21.26	21.33	21.19	22
1.4	64QAM	1	5	21.32	21.40	21.24	
1.4	64QAM	3	0	21.08	21.21	21.09	
1.4	64QAM	3	1	21.15	21.28	21.10	21
1.4	64QAM	3	3	21.03	21.19	21.12	
1.4	64QAM	6	0	20.24	20.25	20.06	

**Standalone mode - Phone WWAN Tx OFF:
(Hotspot / Body-worn / Product Specific Power mode)**

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	14.97	14.87	14.88	15
20	QPSK	1	49	14.89	14.71	14.82	
20	QPSK	1	99	14.86	14.65	14.79	
20	QPSK	50	0	14.49	14.42	14.45	15
20	QPSK	50	24	14.45	14.43	14.41	
20	QPSK	50	50	14.40	14.35	14.37	
20	QPSK	100	0	14.48	14.42	14.46	15
20	16QAM	1	0	13.98	13.99	13.97	
20	16QAM	1	49	13.88	13.97	13.88	
20	16QAM	1	99	13.83	13.95	13.88	15
20	16QAM	50	0	12.93	12.87	12.91	
20	16QAM	50	24	12.87	12.84	12.88	
20	16QAM	50	50	12.91	12.81	12.90	15
20	16QAM	100	0	12.84	12.88	12.86	
20	64QAM	1	0	12.83	12.77	12.81	
20	64QAM	1	49	12.74	12.64	12.69	15
20	64QAM	1	99	12.68	12.52	12.62	
20	64QAM	50	0	11.69	11.63	11.65	
20	64QAM	50	24	11.62	11.58	11.59	15
20	64QAM	50	50	11.60	11.55	11.57	
20	64QAM	100	0	11.64	11.58	11.65	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	14.86	14.83	14.85	15
15	QPSK	1	37	14.82	14.59	14.64	
15	QPSK	1	74	14.74	14.54	14.73	
15	QPSK	36	0	13.99	13.86	13.91	15
15	QPSK	36	20	13.93	13.74	13.76	
15	QPSK	36	39	13.84	13.74	13.70	
15	QPSK	75	0	13.80	13.83	13.88	15
15	16QAM	1	0	13.89	13.97	13.98	
15	16QAM	1	37	13.85	13.76	13.83	
15	16QAM	1	74	13.79	13.54	13.90	15
15	16QAM	36	0	12.91	13.00	12.99	
15	16QAM	36	20	12.96	12.76	12.87	
15	16QAM	36	39	12.97	12.79	12.95	15
15	16QAM	75	0	12.99	12.80	12.88	
15	64QAM	1	0	12.78	12.83	12.72	
15	64QAM	1	37	12.72	12.70	12.74	15
15	64QAM	1	74	12.61	12.46	12.61	
15	64QAM	36	0	11.69	11.59	11.58	
15	64QAM	36	20	11.72	11.65	11.58	15
15	64QAM	36	39	11.64	11.51	11.67	
15	64QAM	75	0	11.62	11.56	11.71	

Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	14.48	14.44	14.32	15
10	QPSK	1	25	14.35	14.19	14.42	
10	QPSK	1	49	14.29	14.09	14.27	
10	QPSK	25	0	13.70	13.56	13.45	15
10	QPSK	25	12	13.43	13.36	13.57	
10	QPSK	25	25	13.54	13.37	13.48	
10	QPSK	50	0	13.41	13.42	13.50	
10	16QAM	1	0	13.72	13.76	13.61	15
10	16QAM	1	25	13.71	13.54	13.46	
10	16QAM	1	49	13.56	13.51	13.55	
10	16QAM	25	0	12.56	12.48	12.72	15
10	16QAM	25	12	12.65	12.42	12.65	
10	16QAM	25	25	12.45	12.50	12.39	
10	16QAM	50	0	12.46	12.57	12.59	
10	64QAM	1	0	12.90	12.73	12.86	15
10	64QAM	1	25	12.80	12.69	12.61	
10	64QAM	1	49	12.75	12.60	12.68	
10	64QAM	25	0	11.69	11.60	11.75	15
10	64QAM	25	12	11.65	11.52	11.61	
10	64QAM	25	25	11.63	11.63	11.62	
10	64QAM	50	0	11.61	11.61	11.67	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	14.88	14.84	14.72	15
5	QPSK	1	12	14.75	14.59	14.82	
5	QPSK	1	24	14.69	14.49	14.67	
5	QPSK	12	0	13.94	13.96	13.85	15
5	QPSK	12	7	13.83	13.76	13.97	
5	QPSK	12	13	13.94	13.77	13.88	
5	QPSK	25	0	13.81	13.82	13.90	
5	16QAM	1	0	13.97	13.96	13.95	15
5	16QAM	1	12	13.91	13.94	13.86	
5	16QAM	1	24	13.96	13.91	13.95	
5	16QAM	12	0	12.96	12.88	12.92	15
5	16QAM	12	7	12.95	12.82	12.91	
5	16QAM	12	13	12.85	12.90	12.79	
5	16QAM	25	0	12.86	12.97	12.99	
5	64QAM	1	0	12.77	12.71	12.73	15
5	64QAM	1	12	12.78	12.66	12.64	
5	64QAM	1	24	12.72	12.50	12.63	
5	64QAM	12	0	11.74	11.56	11.64	15
5	64QAM	12	7	11.69	11.58	11.59	
5	64QAM	12	13	11.67	11.57	11.54	
5	64QAM	25	0	11.60	11.51	11.60	

Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	14.77	14.86	14.88	15
3	QPSK	1	8	14.72	14.67	14.79	
3	QPSK	1	14	14.79	14.59	14.65	
3	QPSK	8	0	13.93	13.85	13.99	15
3	QPSK	8	4	13.86	13.84	13.93	
3	QPSK	8	7	13.88	13.71	13.92	
3	QPSK	15	0	13.86	13.92	13.89	
3	16QAM	1	0	13.94	13.99	13.96	15
3	16QAM	1	8	13.89	13.95	13.87	
3	16QAM	1	14	13.90	13.87	13.96	
3	16QAM	8	0	12.99	12.98	13.00	15
3	16QAM	8	4	13.07	12.82	12.91	
3	16QAM	8	7	12.98	12.73	12.83	
3	16QAM	15	0	13.00	12.82	12.83	
3	64QAM	1	0	12.77	12.70	12.87	15
3	64QAM	1	8	12.83	12.61	12.61	
3	64QAM	1	14	12.69	12.60	12.55	
3	64QAM	8	0	11.64	11.71	11.63	15
3	64QAM	8	4	11.66	11.52	11.55	
3	64QAM	8	7	11.60	11.53	11.57	
3	64QAM	15	0	11.54	11.56	11.64	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	14.84	14.83	14.86	15
1.4	QPSK	1	3	14.84	14.60	14.80	
1.4	QPSK	1	5	14.74	14.59	14.62	
1.4	QPSK	3	0	14.03	13.82	13.88	15
1.4	QPSK	3	1	13.98	13.84	13.90	
1.4	QPSK	3	3	13.88	13.71	13.94	
1.4	QPSK	6	0	13.99	13.95	13.96	
1.4	16QAM	1	0	13.92	13.99	13.92	15
1.4	16QAM	1	3	13.84	13.93	13.92	
1.4	16QAM	1	5	13.88	13.89	13.90	
1.4	16QAM	3	0	12.96	12.87	13.09	15
1.4	16QAM	3	1	12.92	12.90	12.90	
1.4	16QAM	3	3	12.90	12.71	12.98	
1.4	16QAM	6	0	12.84	12.96	12.80	
1.4	64QAM	1	0	12.87	12.84	12.73	15
1.4	64QAM	1	3	12.70	12.68	12.74	
1.4	64QAM	1	5	12.62	12.56	12.52	
1.4	64QAM	3	0	12.78	12.76	12.64	15
1.4	64QAM	3	1	12.78	12.69	12.64	
1.4	64QAM	3	3	12.61	12.66	12.49	
1.4	64QAM	6	0	11.59	11.54	11.63	

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	14.98	14.99	15.00	15.5
20	QPSK	1	49	14.84	14.82	14.81	
20	QPSK	1	99	14.85	14.85	14.75	
20	QPSK	50	0	13.92	13.99	14.01	15.5
20	QPSK	50	24	13.90	13.92	13.90	
20	QPSK	50	50	13.90	13.94	13.89	
20	QPSK	100	0	13.91	13.95	13.94	
20	16QAM	1	0	14.60	14.51	14.52	15.5
20	16QAM	1	49	14.45	14.44	14.48	
20	16QAM	1	99	14.38	14.29	14.40	
20	16QAM	50	0	13.00	12.98	13.00	15.5
20	16QAM	50	24	12.99	12.97	12.99	
20	16QAM	50	50	12.94	12.96	12.94	
20	16QAM	100	0	12.98	12.99	13.00	
20	64QAM	1	0	13.47	13.33	13.41	15.5
20	64QAM	1	49	13.33	13.37	13.42	
20	64QAM	1	99	13.38	13.20	13.40	
20	64QAM	50	0	12.47	12.42	12.48	15.5
20	64QAM	50	24	12.43	12.42	12.47	
20	64QAM	50	50	12.48	12.45	12.49	
20	64QAM	100	0	12.48	12.50	12.46	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	14.90	14.86	14.97	15.5
15	QPSK	1	37	14.66	14.79	14.81	
15	QPSK	1	74	14.69	14.70	14.68	
15	QPSK	36	0	13.81	13.88	13.84	15.5
15	QPSK	36	20	13.83	13.77	13.78	
15	QPSK	36	39	13.83	13.83	13.71	
15	QPSK	75	0	13.74	13.90	13.93	
15	16QAM	1	0	13.83	13.82	13.79	15.5
15	16QAM	1	37	13.65	13.77	13.77	
15	16QAM	1	74	13.63	13.54	13.63	
15	16QAM	36	0	12.82	12.87	12.95	15.5
15	16QAM	36	20	12.79	12.81	12.97	
15	16QAM	36	39	12.87	12.95	12.78	
15	16QAM	75	0	12.96	12.96	12.89	
15	64QAM	1	0	13.49	13.42	13.32	15.5
15	64QAM	1	37	13.42	13.40	13.45	
15	64QAM	1	74	13.20	13.25	13.39	
15	64QAM	36	0	12.42	12.42	12.45	15.5
15	64QAM	36	20	12.41	12.43	12.43	
15	64QAM	36	39	12.48	12.48	12.47	
15	64QAM	75	0	12.46	12.47	12.47	



Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	14.85	14.80	14.99	15.5
10	QPSK	1	25	14.66	14.73	14.75	
10	QPSK	1	49	14.71	14.79	14.66	
10	QPSK	25	0	13.87	13.99	13.89	15.5
10	QPSK	25	12	13.86	13.88	13.83	
10	QPSK	25	25	13.90	13.84	13.79	
10	QPSK	50	0	13.72	13.79	13.78	
10	16QAM	1	0	13.81	13.75	13.87	15.5
10	16QAM	1	25	13.83	13.76	13.76	
10	16QAM	1	49	13.63	13.51	13.60	
10	16QAM	25	0	12.90	12.92	12.99	15.5
10	16QAM	25	12	12.79	12.78	12.83	
10	16QAM	25	25	12.88	12.81	12.86	
10	16QAM	50	0	12.86	12.84	12.94	
10	64QAM	1	0	13.50	13.31	13.49	15.5
10	64QAM	1	25	13.27	13.35	13.46	
10	64QAM	1	49	13.23	13.19	13.21	
10	64QAM	25	0	12.50	12.48	12.44	15.5
10	64QAM	25	12	12.46	12.39	12.46	
10	64QAM	25	25	12.38	12.48	12.49	
10	64QAM	50	0	12.41	12.42	12.41	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	14.97	14.95	14.91	15.5
5	QPSK	1	12	14.72	14.66	14.80	
5	QPSK	1	24	14.75	14.72	14.67	
5	QPSK	12	0	13.75	13.80	13.97	15.5
5	QPSK	12	7	13.81	13.77	13.70	
5	QPSK	12	13	13.90	13.81	13.85	
5	QPSK	25	0	13.84	13.91	13.85	
5	16QAM	1	0	13.92	13.87	13.76	15.5
5	16QAM	1	12	13.80	13.76	13.75	
5	16QAM	1	24	13.64	13.50	13.80	
5	16QAM	12	0	12.91	12.78	13.00	15.5
5	16QAM	12	7	12.98	12.89	12.93	
5	16QAM	12	13	12.92	12.76	12.94	
5	16QAM	25	0	12.82	12.91	12.93	
5	64QAM	1	0	13.49	13.34	13.33	15.5
5	64QAM	1	12	13.44	13.31	13.40	
5	64QAM	1	24	13.18	13.15	13.20	
5	64QAM	12	0	12.48	12.50	12.41	15.5
5	64QAM	12	7	12.45	12.46	12.47	
5	64QAM	12	13	12.41	12.36	12.44	
5	64QAM	25	0	12.49	12.44	12.42	



Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	14.86	14.80	14.98	15.5
3	QPSK	1	8	14.65	14.65	14.71	
3	QPSK	1	14	14.83	14.78	14.55	
3	QPSK	8	0	13.88	13.79	13.96	15.5
3	QPSK	8	4	13.71	13.92	13.84	
3	QPSK	8	7	13.77	13.76	13.77	
3	QPSK	15	0	13.80	13.85	13.77	
3	16QAM	1	0	13.81	13.76	13.75	15.5
3	16QAM	1	8	13.82	13.82	13.84	
3	16QAM	1	14	13.78	13.64	13.68	
3	16QAM	8	0	13.00	12.89	12.85	15.5
3	16QAM	8	4	12.89	12.95	12.86	
3	16QAM	8	7	12.75	12.82	12.91	
3	16QAM	15	0	12.94	12.86	12.90	
3	64QAM	1	0	13.42	13.33	13.44	15.5
3	64QAM	1	8	13.35	13.27	13.38	
3	64QAM	1	14	13.38	13.21	13.34	
3	64QAM	8	0	12.48	12.41	12.41	15.5
3	64QAM	8	4	12.49	12.43	12.45	
3	64QAM	8	7	12.38	12.50	12.50	
3	64QAM	15	0	12.42	12.43	12.43	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	14.98	14.86	14.97	15.5
1.4	QPSK	1	3	14.68	14.62	14.70	
1.4	QPSK	1	5	14.72	14.69	14.65	
1.4	QPSK	3	0	13.78	13.82	13.81	15.5
1.4	QPSK	3	1	13.80	13.83	13.78	
1.4	QPSK	3	3	13.73	13.85	13.72	
1.4	QPSK	6	0	13.84	13.82	13.81	
1.4	16QAM	1	0	13.96	13.87	13.80	15.5
1.4	16QAM	1	3	13.74	13.73	13.80	
1.4	16QAM	1	5	13.68	13.63	13.72	
1.4	16QAM	3	0	12.84	12.87	12.90	15.5
1.4	16QAM	3	1	12.97	12.86	12.81	
1.4	16QAM	3	3	12.82	12.83	12.82	
1.4	16QAM	6	0	12.94	12.96	13.00	
1.4	64QAM	1	0	13.48	13.49	13.48	15.5
1.4	64QAM	1	3	13.42	13.31	13.36	
1.4	64QAM	1	5	13.35	13.21	13.31	
1.4	64QAM	3	0	13.40	13.44	13.45	15.5
1.4	64QAM	3	1	13.46	13.29	13.45	
1.4	64QAM	3	3	13.44	13.30	13.40	
1.4	64QAM	6	0	12.46	12.42	12.42	

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	23.81	23.56	23.40	24
10	QPSK	1	25	23.39	23.54	23.54	
10	QPSK	1	49	23.50	23.41	23.42	
10	QPSK	25	0	22.62	22.62	22.61	23
10	QPSK	25	12	22.60	22.58	22.58	
10	QPSK	25	25	22.52	22.50	22.52	
10	QPSK	50	0	22.58	22.55	22.57	
10	16QAM	1	0	22.75	22.83	22.64	23
10	16QAM	1	25	22.68	22.64	22.74	
10	16QAM	1	49	22.61	22.58	22.72	
10	16QAM	25	0	21.62	21.66	21.60	22
10	16QAM	25	12	21.60	21.60	21.59	
10	16QAM	25	25	21.55	21.47	21.53	
10	16QAM	50	0	21.60	21.56	21.58	
10	64QAM	1	0	21.56	21.63	21.57	22
10	64QAM	1	25	21.43	21.60	21.47	
10	64QAM	1	49	21.33	21.53	21.46	
10	64QAM	25	0	20.33	20.39	20.36	21
10	64QAM	25	12	20.16	20.28	20.12	
10	64QAM	25	25	20.36	20.36	20.33	
10	64QAM	50	0	20.25	20.36	20.34	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	23.32	22.51	22.88	24
5	QPSK	1	12	23.30	23.54	22.28	
5	QPSK	1	24	23.54	23.43	23.21	
5	QPSK	12	0	22.53	22.54	22.54	23
5	QPSK	12	7	22.69	22.52	22.55	
5	QPSK	12	13	22.59	22.53	22.48	
5	QPSK	25	0	22.59	22.57	22.60	
5	16QAM	1	0	22.34	22.59	22.99	23
5	16QAM	1	12	22.99	22.34	21.47	
5	16QAM	1	24	22.40	22.57	21.44	
5	16QAM	12	0	21.57	21.46	21.65	22
5	16QAM	12	7	21.63	21.63	21.70	
5	16QAM	12	13	21.52	21.52	21.50	
5	16QAM	25	0	21.59	21.50	21.59	
5	64QAM	1	0	21.28	21.36	21.25	22
5	64QAM	1	12	21.31	21.41	21.35	
5	64QAM	1	24	21.26	21.33	21.31	
5	64QAM	12	0	20.24	20.39	20.21	21
5	64QAM	12	7	20.24	20.41	20.29	
5	64QAM	12	13	20.37	20.39	20.19	
5	64QAM	25	0	20.34	20.47	20.30	

Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	23.37	23.23	23.80	24
3	QPSK	1	8	22.72	23.27	23.64	
3	QPSK	1	14	23.09	22.69	23.29	
3	QPSK	8	0	22.99	22.60	22.63	23
3	QPSK	8	4	22.45	22.69	22.35	
3	QPSK	8	7	22.51	22.68	22.61	
3	QPSK	15	0	22.57	22.55	22.60	
3	16QAM	1	0	21.95	22.35	22.51	23
3	16QAM	1	8	21.62	22.41	22.83	
3	16QAM	1	14	21.81	22.26	22.73	
3	16QAM	8	0	21.62	21.68	21.80	22
3	16QAM	8	4	21.61	21.57	21.70	
3	16QAM	8	7	21.54	21.39	21.76	
3	16QAM	15	0	21.63	21.66	21.82	
3	64QAM	1	0	21.22	21.41	21.30	22
3	64QAM	1	8	21.20	21.40	21.27	
3	64QAM	1	14	21.30	21.41	21.28	
3	64QAM	8	0	20.12	20.25	20.13	21
3	64QAM	8	4	20.09	20.23	20.16	
3	64QAM	8	7	20.13	20.31	20.30	
3	64QAM	15	0	20.20	20.34	20.19	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	22.45	23.31	23.39	24
1.4	QPSK	1	3	22.61	23.64	23.73	
1.4	QPSK	1	5	22.82	23.32	22.22	
1.4	QPSK	3	0	23.30	23.29	23.34	
1.4	QPSK	3	1	23.77	23.53	23.48	
1.4	QPSK	3	3	23.35	23.30	23.44	
1.4	QPSK	6	0	22.19	22.31	22.40	23
1.4	16QAM	1	0	21.80	22.53	21.89	23
1.4	16QAM	1	3	21.52	22.68	22.62	
1.4	16QAM	1	5	22.41	22.67	22.49	
1.4	16QAM	3	0	22.01	21.76	22.32	
1.4	16QAM	3	1	22.58	22.43	21.96	
1.4	16QAM	3	3	22.08	22.02	22.55	
1.4	16QAM	6	0	21.37	21.44	21.48	22
1.4	64QAM	1	0	21.09	21.25	21.20	22
1.4	64QAM	1	3	21.06	21.19	21.09	
1.4	64QAM	1	5	21.06	21.26	21.16	
1.4	64QAM	3	0	20.95	21.10	20.96	
1.4	64QAM	3	1	21.13	21.15	21.15	
1.4	64QAM	3	3	21.01	21.03	20.92	
1.4	64QAM	6	0	20.05	20.12	20.01	21

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23230			
Frequency (MHz)				782			
10	QPSK	1	0		23.49		24
10	QPSK	1	25		23.32		
10	QPSK	1	49		23.31		
10	QPSK	25	0		22.61		23
10	QPSK	25	12		22.57		
10	QPSK	25	25		22.48		
10	QPSK	50	0		22.52		
10	16QAM	1	0		22.72		23
10	16QAM	1	25		22.69		
10	16QAM	1	49		22.50		
10	16QAM	25	0		21.62		22
10	16QAM	25	12		21.58		
10	16QAM	25	25		21.51		
10	16QAM	50	0		21.52		
10	64QAM	1	0		21.63		22
10	64QAM	1	25		21.61		
10	64QAM	1	49		21.59		
10	64QAM	25	0		20.51		21
10	64QAM	25	12		20.38		
10	64QAM	25	25		20.39		
10	64QAM	50	0		20.46		
Channel				23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)				779.5	782	784.5	
5	QPSK	1	0	23.47	23.09	23.38	24
5	QPSK	1	12	22.79	22.98	23.38	
5	QPSK	1	24	23.48	23.11	23.03	
5	QPSK	12	0	22.54	22.56	22.56	23
5	QPSK	12	7	22.58	22.49	22.53	
5	QPSK	12	13	22.51	22.47	22.47	
5	QPSK	25	0	22.53	22.55	22.55	23
5	16QAM	1	0	22.74	21.96	22.99	
5	16QAM	1	12	22.99	22.37	22.96	
5	16QAM	1	24	22.50	22.13	22.09	22
5	16QAM	12	0	21.54	21.57	21.56	
5	16QAM	12	7	21.50	21.68	21.54	
5	16QAM	12	13	21.48	21.54	21.40	
5	16QAM	25	0	21.49	21.57	21.54	22
5	64QAM	1	0	21.48	21.54	21.49	
5	64QAM	1	12	21.61	21.42	21.59	
5	64QAM	1	24	21.45	21.40	21.44	21
5	64QAM	12	0	20.50	20.49	20.39	
5	64QAM	12	7	20.27	20.37	20.29	
5	64QAM	12	13	20.27	20.25	20.24	
5	64QAM	25	0	20.41	20.31	20.36	

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				132072	132322	132572	
Frequency (MHz)				1720	1745	1770	
20	QPSK	1	0	15.69	15.73	15.55	16
20	QPSK	1	49	15.47	15.53	15.44	
20	QPSK	1	99	15.58	15.51	15.44	
20	QPSK	50	0	15.19	15.23	15.08	16
20	QPSK	50	24	15.13	15.17	15.07	
20	QPSK	50	50	15.07	15.12	15.00	
20	QPSK	100	0	15.09	15.18	15.08	16
20	16QAM	1	0	15.00	15.00	14.93	
20	16QAM	1	49	14.86	14.99	14.84	
20	16QAM	1	99	15.00	14.99	14.83	16
20	16QAM	50	0	13.75	13.81	13.68	
20	16QAM	50	24	13.72	13.72	13.64	
20	16QAM	50	50	13.63	13.67	13.53	16
20	16QAM	100	0	13.69	13.69	13.64	
20	64QAM	1	0	13.91	13.98	14.00	16
20	64QAM	1	49	13.96	13.95	13.90	
20	64QAM	1	99	14.00	13.93	13.86	
20	64QAM	50	0	12.66	12.83	12.63	16
20	64QAM	50	24	12.65	12.72	12.66	
20	64QAM	50	50	12.60	12.65	12.53	
20	64QAM	100	0	12.70	12.72	12.71	
Channel				132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1745	1772.5	
15	QPSK	1	0	15.64	15.69	15.37	16
15	QPSK	1	37	15.44	15.39	15.32	
15	QPSK	1	74	15.45	15.42	15.33	
15	QPSK	36	0	14.54	14.62	14.54	16
15	QPSK	36	20	14.45	14.51	14.51	
15	QPSK	36	39	14.41	14.59	14.32	
15	QPSK	75	0	14.43	14.48	14.40	16
15	16QAM	1	0	14.99	14.93	14.86	
15	16QAM	1	37	14.80	14.79	14.64	
15	16QAM	1	74	14.93	14.91	14.70	16
15	16QAM	36	0	13.57	13.77	13.61	
15	16QAM	36	20	13.63	13.62	13.55	
15	16QAM	36	39	13.62	13.51	13.50	16
15	16QAM	75	0	13.64	13.59	13.60	
15	64QAM	1	0	14.00	13.91	13.96	16
15	64QAM	1	37	13.79	13.96	13.87	
15	64QAM	1	74	13.97	13.91	13.73	
15	64QAM	36	0	12.79	12.83	12.60	16
15	64QAM	36	20	12.77	12.80	12.69	
15	64QAM	36	39	12.66	12.71	12.58	
15	64QAM	75	0	12.70	12.71	12.67	

Channel				132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)				1715	1745	1775	
10	QPSK	1	0	15.67	15.62	15.51	16
10	QPSK	1	25	15.37	15.36	15.26	
10	QPSK	1	49	15.53	15.43	15.32	
10	QPSK	25	0	14.49	14.71	14.51	16
10	QPSK	25	12	14.58	14.56	14.56	
10	QPSK	25	25	14.57	14.57	14.40	
10	QPSK	50	0	14.51	14.48	14.45	16
10	16QAM	1	0	14.87	14.86	14.73	
10	16QAM	1	25	14.66	14.97	14.77	
10	16QAM	1	49	14.85	14.99	14.74	16
10	16QAM	25	0	13.70	13.64	13.61	
10	16QAM	25	12	13.65	13.63	13.48	
10	16QAM	25	25	13.63	13.63	13.36	16
10	16QAM	50	0	13.49	13.55	13.52	
10	64QAM	1	0	13.91	13.92	13.90	16
10	64QAM	1	25	13.91	13.94	13.92	
10	64QAM	1	49	13.95	13.93	13.77	
10	64QAM	25	0	12.69	12.90	12.68	16
10	64QAM	25	12	12.66	12.77	12.62	
10	64QAM	25	25	12.53	12.66	12.59	
10	64QAM	50	0	12.59	12.66	12.63	16
Channel				131997	132322	132647	
Frequency (MHz)				1712.5	1745	1777.5	Tune-up limit (dBm)
5	QPSK	1	0	15.59	15.69	15.50	16
5	QPSK	1	12	15.30	15.52	15.38	
5	QPSK	1	24	15.39	15.32	15.27	
5	QPSK	12	0	14.51	14.53	14.43	16
5	QPSK	12	7	14.57	14.64	14.39	
5	QPSK	12	13	14.51	14.46	14.36	
5	QPSK	25	0	14.48	14.51	14.46	16
5	16QAM	1	0	14.86	14.84	14.90	
5	16QAM	1	12	14.73	14.84	14.84	
5	16QAM	1	24	14.98	14.94	14.63	16
5	16QAM	12	0	13.63	13.81	13.50	
5	16QAM	12	7	13.66	13.64	13.44	
5	16QAM	12	13	13.56	13.63	13.42	16
5	16QAM	25	0	13.66	13.62	13.49	
5	64QAM	1	0	13.99	13.99	13.97	
5	64QAM	1	12	13.88	13.92	13.85	16
5	64QAM	1	24	13.98	13.95	13.76	
5	64QAM	12	0	12.67	12.77	12.59	
5	64QAM	12	7	12.82	12.76	12.55	16
5	64QAM	12	13	12.69	12.75	12.63	
5	64QAM	25	0	12.72	12.62	12.54	



Channel				131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1745	1778.5	
3	QPSK	1	0	15.57	15.69	15.45	16
3	QPSK	1	8	15.28	15.50	15.39	
3	QPSK	1	14	15.49	15.37	15.39	
3	QPSK	8	0	14.65	14.65	14.51	16
3	QPSK	8	4	14.53	14.53	14.53	
3	QPSK	8	7	14.37	14.55	14.41	
3	QPSK	15	0	14.48	14.63	14.52	16
3	16QAM	1	0	14.86	14.86	14.76	
3	16QAM	1	8	14.75	14.89	14.66	
3	16QAM	1	14	14.93	14.87	14.71	16
3	16QAM	8	0	13.71	13.61	13.49	
3	16QAM	8	4	13.56	13.55	13.46	
3	16QAM	8	7	13.43	13.62	13.48	16
3	16QAM	15	0	13.58	13.68	13.53	
3	64QAM	1	0	13.91	14.00	13.86	16
3	64QAM	1	8	13.91	13.91	13.92	
3	64QAM	1	14	13.95	13.98	13.91	
3	64QAM	8	0	12.74	12.82	12.63	16
3	64QAM	8	4	12.82	12.62	12.73	
3	64QAM	8	7	12.58	12.67	12.57	
3	64QAM	15	0	12.66	12.63	12.69	
Channel				131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1745	1779.3	
1.4	QPSK	1	0	15.49	15.63	15.38	16
1.4	QPSK	1	3	15.46	15.41	15.27	
1.4	QPSK	1	5	15.38	15.42	15.34	
1.4	QPSK	3	0	14.67	14.69	14.47	16
1.4	QPSK	3	1	14.48	14.48	14.38	
1.4	QPSK	3	3	14.44	14.49	14.30	
1.4	QPSK	6	0	14.47	14.49	14.51	16
1.4	16QAM	1	0	14.98	14.80	14.84	
1.4	16QAM	1	3	14.83	14.99	14.65	
1.4	16QAM	1	5	14.86	14.96	14.64	16
1.4	16QAM	3	0	13.56	13.71	13.49	
1.4	16QAM	3	1	13.58	13.55	13.62	
1.4	16QAM	3	3	13.59	13.51	13.50	16
1.4	16QAM	6	0	13.65	13.52	13.64	
1.4	64QAM	1	0	13.98	13.95	13.89	
1.4	64QAM	1	3	13.82	14.00	13.87	16
1.4	64QAM	1	5	13.92	14.00	13.82	
1.4	64QAM	3	0	13.93	13.90	13.80	
1.4	64QAM	3	1	13.76	14.00	13.82	16
1.4	64QAM	3	3	13.85	13.96	13.83	
1.4	64QAM	6	0	12.70	12.71	12.58	

**Simultaneous transmission mode- Phone WWAN Tx ON:
(Head / Hotspot / Body-worn / Product Specific Power mode)**

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18700	18900	19100	
Frequency (MHz)				1860	1880	1900	
20	QPSK	1	0	14.97	14.87	14.88	15
20	QPSK	1	49	14.89	14.71	14.82	
20	QPSK	1	99	14.86	14.65	14.79	
20	QPSK	50	0	14.49	14.42	14.45	15
20	QPSK	50	24	14.45	14.43	14.41	
20	QPSK	50	50	14.40	14.35	14.37	
20	QPSK	100	0	14.48	14.42	14.46	
20	16QAM	1	0	13.98	13.99	13.97	15
20	16QAM	1	49	13.88	13.97	13.88	
20	16QAM	1	99	13.83	13.95	13.88	
20	16QAM	50	0	12.93	12.87	12.91	15
20	16QAM	50	24	12.87	12.84	12.88	
20	16QAM	50	50	12.91	12.81	12.90	
20	16QAM	100	0	12.84	12.88	12.86	
20	64QAM	1	0	12.83	12.77	12.81	
20	64QAM	1	49	12.74	12.64	12.69	15
20	64QAM	1	99	12.68	12.52	12.62	
20	64QAM	50	0	11.69	11.63	11.65	15
20	64QAM	50	24	11.62	11.58	11.59	
20	64QAM	50	50	11.60	11.55	11.57	
20	64QAM	100	0	11.64	11.58	11.65	
Channel				18675	18900	19125	Tune-up limit (dBm)
Frequency (MHz)				1857.5	1880	1902.5	
15	QPSK	1	0	14.86	14.83	14.85	15
15	QPSK	1	37	14.82	14.59	14.64	
15	QPSK	1	74	14.74	14.54	14.73	
15	QPSK	36	0	13.99	13.86	13.91	15
15	QPSK	36	20	13.93	13.74	13.76	
15	QPSK	36	39	13.84	13.74	13.70	
15	QPSK	75	0	13.80	13.83	13.88	
15	16QAM	1	0	13.89	13.97	13.98	15
15	16QAM	1	37	13.85	13.76	13.83	
15	16QAM	1	74	13.79	13.54	13.90	
15	16QAM	36	0	12.91	13.00	12.99	15
15	16QAM	36	20	12.96	12.76	12.87	
15	16QAM	36	39	12.97	12.79	12.95	
15	16QAM	75	0	12.99	12.80	12.88	
15	64QAM	1	0	12.78	12.83	12.72	15
15	64QAM	1	37	12.72	12.70	12.74	
15	64QAM	1	74	12.61	12.46	12.61	
15	64QAM	36	0	11.69	11.59	11.58	15
15	64QAM	36	20	11.72	11.65	11.58	
15	64QAM	36	39	11.64	11.51	11.67	
15	64QAM	75	0	11.62	11.56	11.71	



Channel				18650	18900	19150	Tune-up limit (dBm)
Frequency (MHz)				1855	1880	1905	
10	QPSK	1	0	14.48	14.44	14.32	15
10	QPSK	1	25	14.35	14.19	14.42	
10	QPSK	1	49	14.29	14.09	14.27	
10	QPSK	25	0	13.70	13.56	13.45	15
10	QPSK	25	12	13.43	13.36	13.57	
10	QPSK	25	25	13.54	13.37	13.48	
10	QPSK	50	0	13.41	13.42	13.50	
10	16QAM	1	0	13.72	13.76	13.61	15
10	16QAM	1	25	13.71	13.54	13.46	
10	16QAM	1	49	13.56	13.51	13.55	
10	16QAM	25	0	12.56	12.48	12.72	15
10	16QAM	25	12	12.65	12.42	12.65	
10	16QAM	25	25	12.45	12.50	12.39	
10	16QAM	50	0	12.46	12.57	12.59	
10	64QAM	1	0	12.90	12.73	12.86	15
10	64QAM	1	25	12.80	12.69	12.61	
10	64QAM	1	49	12.75	12.60	12.68	
10	64QAM	25	0	11.69	11.60	11.75	15
10	64QAM	25	12	11.65	11.52	11.61	
10	64QAM	25	25	11.63	11.63	11.62	
10	64QAM	50	0	11.61	11.61	11.67	
Channel				18625	18900	19175	Tune-up limit (dBm)
Frequency (MHz)				1852.5	1880	1907.5	
5	QPSK	1	0	14.88	14.84	14.72	15
5	QPSK	1	12	14.75	14.59	14.82	
5	QPSK	1	24	14.69	14.49	14.67	
5	QPSK	12	0	13.94	13.96	13.85	15
5	QPSK	12	7	13.83	13.76	13.97	
5	QPSK	12	13	13.94	13.77	13.88	
5	QPSK	25	0	13.81	13.82	13.90	
5	16QAM	1	0	13.97	13.96	13.95	15
5	16QAM	1	12	13.91	13.94	13.86	
5	16QAM	1	24	13.96	13.91	13.95	
5	16QAM	12	0	12.96	12.88	12.92	15
5	16QAM	12	7	12.95	12.82	12.91	
5	16QAM	12	13	12.85	12.90	12.79	
5	16QAM	25	0	12.86	12.97	12.99	
5	64QAM	1	0	12.77	12.71	12.73	15
5	64QAM	1	12	12.78	12.66	12.64	
5	64QAM	1	24	12.72	12.50	12.63	
5	64QAM	12	0	11.74	11.56	11.64	15
5	64QAM	12	7	11.69	11.58	11.59	
5	64QAM	12	13	11.67	11.57	11.54	
5	64QAM	25	0	11.60	11.51	11.60	

Channel				18615	18900	19185	Tune-up limit (dBm)
Frequency (MHz)				1851.5	1880	1908.5	
3	QPSK	1	0	14.77	14.86	14.88	15
3	QPSK	1	8	14.72	14.67	14.79	
3	QPSK	1	14	14.79	14.59	14.65	
3	QPSK	8	0	13.93	13.85	13.99	15
3	QPSK	8	4	13.86	13.84	13.93	
3	QPSK	8	7	13.88	13.71	13.92	
3	QPSK	15	0	13.86	13.92	13.89	
3	16QAM	1	0	13.94	13.99	13.96	15
3	16QAM	1	8	13.89	13.95	13.87	
3	16QAM	1	14	13.90	13.87	13.96	
3	16QAM	8	0	12.99	12.98	13.00	15
3	16QAM	8	4	13.07	12.82	12.91	
3	16QAM	8	7	12.98	12.73	12.83	
3	16QAM	15	0	13.00	12.82	12.83	
3	64QAM	1	0	12.77	12.70	12.87	15
3	64QAM	1	8	12.83	12.61	12.61	
3	64QAM	1	14	12.69	12.60	12.55	
3	64QAM	8	0	11.64	11.71	11.63	15
3	64QAM	8	4	11.66	11.52	11.55	
3	64QAM	8	7	11.60	11.53	11.57	
3	64QAM	15	0	11.54	11.56	11.64	
Channel				18607	18900	19193	Tune-up limit (dBm)
Frequency (MHz)				1850.7	1880	1909.3	
1.4	QPSK	1	0	14.84	14.83	14.86	15
1.4	QPSK	1	3	14.84	14.60	14.80	
1.4	QPSK	1	5	14.74	14.59	14.62	
1.4	QPSK	3	0	14.03	13.82	13.88	15
1.4	QPSK	3	1	13.98	13.84	13.90	
1.4	QPSK	3	3	13.88	13.71	13.94	
1.4	QPSK	6	0	13.99	13.95	13.96	
1.4	16QAM	1	0	13.92	13.99	13.92	15
1.4	16QAM	1	3	13.84	13.93	13.92	
1.4	16QAM	1	5	13.88	13.89	13.90	
1.4	16QAM	3	0	12.96	12.87	13.09	15
1.4	16QAM	3	1	12.92	12.90	12.90	
1.4	16QAM	3	3	12.90	12.71	12.98	
1.4	16QAM	6	0	12.84	12.96	12.80	
1.4	64QAM	1	0	12.87	12.84	12.73	15
1.4	64QAM	1	3	12.70	12.68	12.74	
1.4	64QAM	1	5	12.62	12.56	12.52	
1.4	64QAM	3	0	12.78	12.76	12.64	15
1.4	64QAM	3	1	12.78	12.69	12.64	
1.4	64QAM	3	3	12.61	12.66	12.49	
1.4	64QAM	6	0	11.59	11.54	11.63	

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20050	20175	20300	
Frequency (MHz)				1720	1732.5	1745	
20	QPSK	1	0	14.98	14.99	15.00	15.5
20	QPSK	1	49	14.84	14.82	14.81	
20	QPSK	1	99	14.85	14.85	14.75	
20	QPSK	50	0	13.92	13.99	14.01	15.5
20	QPSK	50	24	13.90	13.92	13.90	
20	QPSK	50	50	13.90	13.94	13.89	
20	QPSK	100	0	13.91	13.95	13.94	
20	16QAM	1	0	14.60	14.51	14.52	15.5
20	16QAM	1	49	14.45	14.44	14.48	
20	16QAM	1	99	14.38	14.29	14.40	
20	16QAM	50	0	13.00	12.98	13.00	15.5
20	16QAM	50	24	12.99	12.97	12.99	
20	16QAM	50	50	12.94	12.96	12.94	
20	16QAM	100	0	12.98	12.99	13.00	
20	64QAM	1	0	13.47	13.33	13.41	15.5
20	64QAM	1	49	13.33	13.37	13.42	
20	64QAM	1	99	13.38	13.20	13.40	
20	64QAM	50	0	12.47	12.42	12.48	15.5
20	64QAM	50	24	12.43	12.42	12.47	
20	64QAM	50	50	12.48	12.45	12.49	
20	64QAM	100	0	12.48	12.50	12.46	
Channel				20025	20175	20325	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1732.5	1747.5	
15	QPSK	1	0	14.90	14.86	14.97	15.5
15	QPSK	1	37	14.66	14.79	14.81	
15	QPSK	1	74	14.69	14.70	14.68	
15	QPSK	36	0	13.81	13.88	13.84	15.5
15	QPSK	36	20	13.83	13.77	13.78	
15	QPSK	36	39	13.83	13.83	13.71	
15	QPSK	75	0	13.74	13.90	13.93	
15	16QAM	1	0	13.83	13.82	13.79	15.5
15	16QAM	1	37	13.65	13.77	13.77	
15	16QAM	1	74	13.63	13.54	13.63	
15	16QAM	36	0	12.82	12.87	12.95	15.5
15	16QAM	36	20	12.79	12.81	12.97	
15	16QAM	36	39	12.87	12.95	12.78	
15	16QAM	75	0	12.96	12.96	12.89	
15	64QAM	1	0	13.49	13.42	13.32	15.5
15	64QAM	1	37	13.42	13.40	13.45	
15	64QAM	1	74	13.20	13.25	13.39	
15	64QAM	36	0	12.42	12.42	12.45	15.5
15	64QAM	36	20	12.41	12.43	12.43	
15	64QAM	36	39	12.48	12.48	12.47	
15	64QAM	75	0	12.46	12.47	12.47	



Channel				20000	20175	20350	Tune-up limit (dBm)
Frequency (MHz)				1715	1732.5	1750	
10	QPSK	1	0	14.85	14.80	14.99	15.5
10	QPSK	1	25	14.66	14.73	14.75	
10	QPSK	1	49	14.71	14.79	14.66	
10	QPSK	25	0	13.87	13.99	13.89	15.5
10	QPSK	25	12	13.86	13.88	13.83	
10	QPSK	25	25	13.90	13.84	13.79	
10	QPSK	50	0	13.72	13.79	13.78	
10	16QAM	1	0	13.81	13.75	13.87	15.5
10	16QAM	1	25	13.83	13.76	13.76	
10	16QAM	1	49	13.63	13.51	13.60	
10	16QAM	25	0	12.90	12.92	12.99	15.5
10	16QAM	25	12	12.79	12.78	12.83	
10	16QAM	25	25	12.88	12.81	12.86	
10	16QAM	50	0	12.86	12.84	12.94	
10	64QAM	1	0	13.50	13.31	13.49	15.5
10	64QAM	1	25	13.27	13.35	13.46	
10	64QAM	1	49	13.23	13.19	13.21	
10	64QAM	25	0	12.50	12.48	12.44	15.5
10	64QAM	25	12	12.46	12.39	12.46	
10	64QAM	25	25	12.38	12.48	12.49	
10	64QAM	50	0	12.41	12.42	12.41	
Channel				19975	20175	20375	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1732.5	1752.5	
5	QPSK	1	0	14.97	14.95	14.91	15.5
5	QPSK	1	12	14.72	14.66	14.80	
5	QPSK	1	24	14.75	14.72	14.67	
5	QPSK	12	0	13.75	13.80	13.97	15.5
5	QPSK	12	7	13.81	13.77	13.70	
5	QPSK	12	13	13.90	13.81	13.85	
5	QPSK	25	0	13.84	13.91	13.85	
5	16QAM	1	0	13.92	13.87	13.76	15.5
5	16QAM	1	12	13.80	13.76	13.75	
5	16QAM	1	24	13.64	13.50	13.80	
5	16QAM	12	0	12.91	12.78	13.00	15.5
5	16QAM	12	7	12.98	12.89	12.93	
5	16QAM	12	13	12.92	12.76	12.94	
5	16QAM	25	0	12.82	12.91	12.93	
5	64QAM	1	0	13.49	13.34	13.33	15.5
5	64QAM	1	12	13.44	13.31	13.40	
5	64QAM	1	24	13.18	13.15	13.20	
5	64QAM	12	0	12.48	12.50	12.41	15.5
5	64QAM	12	7	12.45	12.46	12.47	
5	64QAM	12	13	12.41	12.36	12.44	
5	64QAM	25	0	12.49	12.44	12.42	

Channel				19965	20175	20385	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1732.5	1753.5	
3	QPSK	1	0	14.86	14.80	14.98	15.5
3	QPSK	1	8	14.65	14.65	14.71	
3	QPSK	1	14	14.83	14.78	14.55	
3	QPSK	8	0	13.88	13.79	13.96	15.5
3	QPSK	8	4	13.71	13.92	13.84	
3	QPSK	8	7	13.77	13.76	13.77	
3	QPSK	15	0	13.80	13.85	13.77	
3	16QAM	1	0	13.81	13.76	13.75	15.5
3	16QAM	1	8	13.82	13.82	13.84	
3	16QAM	1	14	13.78	13.64	13.68	
3	16QAM	8	0	13.00	12.89	12.85	15.5
3	16QAM	8	4	12.89	12.95	12.86	
3	16QAM	8	7	12.75	12.82	12.91	
3	16QAM	15	0	12.94	12.86	12.90	
3	64QAM	1	0	13.42	13.33	13.44	15.5
3	64QAM	1	8	13.35	13.27	13.38	
3	64QAM	1	14	13.38	13.21	13.34	
3	64QAM	8	0	12.48	12.41	12.41	15.5
3	64QAM	8	4	12.49	12.43	12.45	
3	64QAM	8	7	12.38	12.50	12.50	
3	64QAM	15	0	12.42	12.43	12.43	
Channel				19957	20175	20393	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1732.5	1754.3	
1.4	QPSK	1	0	14.98	14.86	14.97	15.5
1.4	QPSK	1	3	14.68	14.62	14.70	
1.4	QPSK	1	5	14.72	14.69	14.65	
1.4	QPSK	3	0	13.78	13.82	13.81	15.5
1.4	QPSK	3	1	13.80	13.83	13.78	
1.4	QPSK	3	3	13.73	13.85	13.72	
1.4	QPSK	6	0	13.84	13.82	13.81	
1.4	16QAM	1	0	13.96	13.87	13.80	15.5
1.4	16QAM	1	3	13.74	13.73	13.80	
1.4	16QAM	1	5	13.68	13.63	13.72	
1.4	16QAM	3	0	12.84	12.87	12.90	15.5
1.4	16QAM	3	1	12.97	12.86	12.81	
1.4	16QAM	3	3	12.82	12.83	12.82	
1.4	16QAM	6	0	12.94	12.96	13.00	
1.4	64QAM	1	0	13.48	13.49	13.48	15.5
1.4	64QAM	1	3	13.42	13.31	13.36	
1.4	64QAM	1	5	13.35	13.21	13.31	
1.4	64QAM	3	0	13.40	13.44	13.45	15.5
1.4	64QAM	3	1	13.46	13.29	13.45	
1.4	64QAM	3	3	13.44	13.30	13.40	
1.4	64QAM	6	0	12.46	12.42	12.42	

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				20450	20525	20600	
Frequency (MHz)				829	836.5	844	
10	QPSK	1	0	22.01	22.00	21.94	22.5
10	QPSK	1	25	21.91	21.91	21.95	
10	QPSK	1	49	21.89	21.92	21.94	
10	QPSK	25	0	21.04	21.02	21.03	22.5
10	QPSK	25	12	21.03	20.99	21.02	
10	QPSK	25	25	20.97	20.92	20.96	
10	QPSK	50	0	21.03	20.99	21.03	
10	16QAM	1	0	21.21	21.22	21.11	22.5
10	16QAM	1	25	21.14	21.09	21.18	
10	16QAM	1	49	21.09	21.14	21.13	
10	16QAM	25	0	20.53	20.51	20.50	22
10	16QAM	25	12	20.51	20.49	20.50	
10	16QAM	25	25	20.45	20.43	20.43	
10	16QAM	50	0	20.50	20.47	20.50	
10	64QAM	1	0	20.23	20.20	20.08	22
10	64QAM	1	25	20.12	20.05	20.15	
10	64QAM	1	49	20.09	20.13	20.11	
10	64QAM	25	0	19.35	19.32	19.32	21
10	64QAM	25	12	19.32	19.30	19.31	
10	64QAM	25	25	19.28	19.21	19.26	
10	64QAM	50	0	19.32	19.29	19.32	
Channel				20425	20525	20625	Tune-up limit (dBm)
Frequency (MHz)				826.5	836.5	846.5	
5	QPSK	1	0	21.90	21.85	21.71	22.5
5	QPSK	1	12	21.94	21.95	21.90	
5	QPSK	1	24	21.89	21.85	21.81	
5	QPSK	12	0	21.04	21.03	21.06	22.5
5	QPSK	12	7	21.07	21.04	21.07	
5	QPSK	12	13	21.03	20.97	21.02	
5	QPSK	25	0	21.06	21.03	21.04	
5	16QAM	1	0	21.12	20.83	20.91	22.5
5	16QAM	1	12	21.18	21.11	20.80	
5	16QAM	1	24	21.06	21.05	20.82	
5	16QAM	12	0	20.21	20.15	20.19	22
5	16QAM	12	7	20.22	20.20	20.17	
5	16QAM	12	13	20.17	20.11	20.14	
5	16QAM	25	0	20.19	20.12	20.18	
5	64QAM	1	0	20.30	20.26	20.24	22
5	64QAM	1	12	20.46	20.36	20.38	
5	64QAM	1	24	20.19	20.13	20.20	
5	64QAM	12	0	19.12	19.08	19.10	21
5	64QAM	12	7	19.13	19.10	19.13	
5	64QAM	12	13	19.10	19.05	19.07	
5	64QAM	25	0	19.08	19.03	19.09	

Channel				20415	20525	20635	Tune-up limit (dBm)
Frequency (MHz)				825.5	836.5	847.5	
3	QPSK	1	0	21.75	21.94	21.77	22.5
3	QPSK	1	8	21.55	21.91	21.59	
3	QPSK	1	14	21.71	21.81	21.59	
3	QPSK	8	0	21.01	20.91	21.00	22.5
3	QPSK	8	4	21.03	20.90	21.02	
3	QPSK	8	7	20.94	20.83	20.96	
3	QPSK	15	0	21.05	20.98	21.02	22.5
3	16QAM	1	0	21.03	21.19	21.06	
3	16QAM	1	8	20.82	20.79	20.81	
3	16QAM	1	14	20.97	20.77	20.88	22
3	16QAM	8	0	20.28	20.23	20.25	
3	16QAM	8	4	20.30	20.26	20.31	
3	16QAM	8	7	20.21	20.23	20.22	22
3	16QAM	15	0	20.22	20.20	20.20	
3	64QAM	1	0	20.26	20.15	20.43	
3	64QAM	1	8	20.03	20.46	20.05	22
3	64QAM	1	14	20.17	20.38	20.22	
3	64QAM	8	0	19.35	19.13	19.25	21
3	64QAM	8	4	19.29	19.17	19.31	
3	64QAM	8	7	19.21	19.07	19.17	
3	64QAM	15	0	19.21	19.20	19.22	
Channel				20407	20525	20643	Tune-up limit (dBm)
Frequency (MHz)				824.7	836.5	848.3	
1.4	QPSK	1	0	21.89	21.41	21.38	22.5
1.4	QPSK	1	3	21.84	21.43	21.49	
1.4	QPSK	1	5	21.85	21.38	21.45	
1.4	QPSK	3	0	21.55	21.64	21.75	22.5
1.4	QPSK	3	1	21.80	21.72	21.85	
1.4	QPSK	3	3	21.76	21.83	21.84	
1.4	QPSK	6	0	20.80	20.83	20.83	22.5
1.4	16QAM	1	0	21.13	20.61	20.67	
1.4	16QAM	1	3	20.98	20.66	20.62	
1.4	16QAM	1	5	21.22	20.66	20.86	22
1.4	16QAM	3	0	20.61	20.72	20.81	
1.4	16QAM	3	1	20.73	20.71	20.88	
1.4	16QAM	3	3	20.75	20.68	20.84	22
1.4	16QAM	6	0	20.04	20.02	20.13	
1.4	64QAM	1	0	20.16	20.02	20.14	
1.4	64QAM	1	3	20.04	20.13	20.08	22
1.4	64QAM	1	5	20.05	20.02	20.08	
1.4	64QAM	3	0	19.76	19.71	19.68	
1.4	64QAM	3	1	20.01	19.87	19.92	21
1.4	64QAM	3	3	19.88	19.89	19.98	
1.4	64QAM	6	0	19.32	19.27	19.32	

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				23230			
Frequency (MHz)				782			
10	QPSK	1	0		23.49		24
10	QPSK	1	25		23.32		
10	QPSK	1	49		23.31		
10	QPSK	25	0		22.61		23
10	QPSK	25	12		22.57		
10	QPSK	25	25		22.48		
10	QPSK	50	0		22.52		
10	16QAM	1	0		22.72		23
10	16QAM	1	25		22.69		
10	16QAM	1	49		22.50		
10	16QAM	25	0		21.62		22
10	16QAM	25	12		21.58		
10	16QAM	25	25		21.51		
10	16QAM	50	0		21.52		
10	64QAM	1	0		21.63		22
10	64QAM	1	25		21.61		
10	64QAM	1	49		21.59		
10	64QAM	25	0		20.51		21
10	64QAM	25	12		20.38		
10	64QAM	25	25		20.39		
10	64QAM	50	0		20.46		
Channel				23205	23230	23255	Tune-up limit (dBm)
Frequency (MHz)				779.5	782	784.5	
5	QPSK	1	0	23.47	23.09	23.38	24
5	QPSK	1	12	22.79	22.98	23.38	
5	QPSK	1	24	23.48	23.11	23.03	
5	QPSK	12	0	22.54	22.56	22.56	23
5	QPSK	12	7	22.58	22.49	22.53	
5	QPSK	12	13	22.51	22.47	22.47	
5	QPSK	25	0	22.53	22.55	22.55	23
5	16QAM	1	0	22.74	21.96	22.99	
5	16QAM	1	12	22.99	22.37	22.96	
5	16QAM	1	24	22.50	22.13	22.09	
5	16QAM	12	0	21.54	21.57	21.56	22
5	16QAM	12	7	21.50	21.68	21.54	
5	16QAM	12	13	21.48	21.54	21.40	
5	16QAM	25	0	21.49	21.57	21.54	
5	64QAM	1	0	21.48	21.54	21.49	22
5	64QAM	1	12	21.61	21.42	21.59	
5	64QAM	1	24	21.45	21.40	21.44	
5	64QAM	12	0	20.50	20.49	20.39	21
5	64QAM	12	7	20.27	20.37	20.29	
5	64QAM	12	13	20.27	20.25	20.24	
5	64QAM	25	0	20.41	20.31	20.36	

<LTE Band 66>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				132072	132322	132572	
Frequency (MHz)				1720	1745	1770	
20	QPSK	1	0	15.69	15.73	15.55	16
20	QPSK	1	49	15.47	15.53	15.44	
20	QPSK	1	99	15.58	15.51	15.44	
20	QPSK	50	0	15.19	15.23	15.08	16
20	QPSK	50	24	15.13	15.17	15.07	
20	QPSK	50	50	15.07	15.12	15.00	
20	QPSK	100	0	15.09	15.18	15.08	
20	16QAM	1	0	15.00	15.00	14.93	16
20	16QAM	1	49	14.86	14.99	14.84	
20	16QAM	1	99	15.00	14.99	14.83	
20	16QAM	50	0	13.75	13.81	13.68	16
20	16QAM	50	24	13.72	13.72	13.64	
20	16QAM	50	50	13.63	13.67	13.53	
20	16QAM	100	0	13.69	13.69	13.64	
20	64QAM	1	0	13.91	13.98	14.00	16
20	64QAM	1	49	13.96	13.95	13.90	
20	64QAM	1	99	14.00	13.93	13.86	
20	64QAM	50	0	12.66	12.83	12.63	16
20	64QAM	50	24	12.65	12.72	12.66	
20	64QAM	50	50	12.60	12.65	12.53	
20	64QAM	100	0	12.70	12.72	12.71	
Channel				132047	132322	132597	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1745	1772.5	
15	QPSK	1	0	15.64	15.69	15.37	16
15	QPSK	1	37	15.44	15.39	15.32	
15	QPSK	1	74	15.45	15.42	15.33	
15	QPSK	36	0	14.54	14.62	14.54	16
15	QPSK	36	20	14.45	14.51	14.51	
15	QPSK	36	39	14.41	14.59	14.32	
15	QPSK	75	0	14.43	14.48	14.40	
15	16QAM	1	0	14.99	14.93	14.86	16
15	16QAM	1	37	14.80	14.79	14.64	
15	16QAM	1	74	14.93	14.91	14.70	
15	16QAM	36	0	13.57	13.77	13.61	16
15	16QAM	36	20	13.63	13.62	13.55	
15	16QAM	36	39	13.62	13.51	13.50	
15	16QAM	75	0	13.64	13.59	13.60	
15	64QAM	1	0	14.00	13.91	13.96	16
15	64QAM	1	37	13.79	13.96	13.87	
15	64QAM	1	74	13.97	13.91	13.73	
15	64QAM	36	0	12.79	12.83	12.60	16
15	64QAM	36	20	12.77	12.80	12.69	
15	64QAM	36	39	12.66	12.71	12.58	
15	64QAM	75	0	12.70	12.71	12.67	

Channel				132022	132322	132622	Tune-up limit (dBm)
Frequency (MHz)				1715	1745	1775	
10	QPSK	1	0	15.67	15.62	15.51	16
10	QPSK	1	25	15.37	15.36	15.26	
10	QPSK	1	49	15.53	15.43	15.32	
10	QPSK	25	0	14.49	14.71	14.51	16
10	QPSK	25	12	14.58	14.56	14.56	
10	QPSK	25	25	14.57	14.57	14.40	
10	QPSK	50	0	14.51	14.48	14.45	16
10	16QAM	1	0	14.87	14.86	14.73	
10	16QAM	1	25	14.66	14.97	14.77	
10	16QAM	1	49	14.85	14.99	14.74	16
10	16QAM	25	0	13.70	13.64	13.61	
10	16QAM	25	12	13.65	13.63	13.48	
10	16QAM	25	25	13.63	13.63	13.36	16
10	16QAM	50	0	13.49	13.55	13.52	
10	64QAM	1	0	13.91	13.92	13.90	16
10	64QAM	1	25	13.91	13.94	13.92	
10	64QAM	1	49	13.95	13.93	13.77	
10	64QAM	25	0	12.69	12.90	12.68	16
10	64QAM	25	12	12.66	12.77	12.62	
10	64QAM	25	25	12.53	12.66	12.59	
10	64QAM	50	0	12.59	12.66	12.63	
Channel				131997	132322	132647	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1745	1777.5	
5	QPSK	1	0	15.59	15.69	15.50	16
5	QPSK	1	12	15.30	15.52	15.38	
5	QPSK	1	24	15.39	15.32	15.27	
5	QPSK	12	0	14.51	14.53	14.43	16
5	QPSK	12	7	14.57	14.64	14.39	
5	QPSK	12	13	14.51	14.46	14.36	
5	QPSK	25	0	14.48	14.51	14.46	16
5	16QAM	1	0	14.86	14.84	14.90	
5	16QAM	1	12	14.73	14.84	14.84	
5	16QAM	1	24	14.98	14.94	14.63	16
5	16QAM	12	0	13.63	13.81	13.50	
5	16QAM	12	7	13.66	13.64	13.44	
5	16QAM	12	13	13.56	13.63	13.42	16
5	16QAM	25	0	13.66	13.62	13.49	
5	64QAM	1	0	13.99	13.99	13.97	
5	64QAM	1	12	13.88	13.92	13.85	16
5	64QAM	1	24	13.98	13.95	13.76	
5	64QAM	12	0	12.67	12.77	12.59	
5	64QAM	12	7	12.82	12.76	12.55	16
5	64QAM	12	13	12.69	12.75	12.63	
5	64QAM	25	0	12.72	12.62	12.54	

Channel				131987	132322	132657	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1745	1778.5	
3	QPSK	1	0	15.57	15.69	15.45	16
3	QPSK	1	8	15.28	15.50	15.39	
3	QPSK	1	14	15.49	15.37	15.39	
3	QPSK	8	0	14.65	14.65	14.51	16
3	QPSK	8	4	14.53	14.53	14.53	
3	QPSK	8	7	14.37	14.55	14.41	
3	QPSK	15	0	14.48	14.63	14.52	
3	16QAM	1	0	14.86	14.86	14.76	16
3	16QAM	1	8	14.75	14.89	14.66	
3	16QAM	1	14	14.93	14.87	14.71	
3	16QAM	8	0	13.71	13.61	13.49	16
3	16QAM	8	4	13.56	13.55	13.46	
3	16QAM	8	7	13.43	13.62	13.48	
3	16QAM	15	0	13.58	13.68	13.53	
3	64QAM	1	0	13.91	14.00	13.86	16
3	64QAM	1	8	13.91	13.91	13.92	
3	64QAM	1	14	13.95	13.98	13.91	
3	64QAM	8	0	12.74	12.82	12.63	16
3	64QAM	8	4	12.82	12.62	12.73	
3	64QAM	8	7	12.58	12.67	12.57	
3	64QAM	15	0	12.66	12.63	12.69	
Channel				131979	132322	132665	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1745	1779.3	
1.4	QPSK	1	0	15.49	15.63	15.38	16
1.4	QPSK	1	3	15.46	15.41	15.27	
1.4	QPSK	1	5	15.38	15.42	15.34	
1.4	QPSK	3	0	14.67	14.69	14.47	16
1.4	QPSK	3	1	14.48	14.48	14.38	
1.4	QPSK	3	3	14.44	14.49	14.30	
1.4	QPSK	6	0	14.47	14.49	14.51	
1.4	16QAM	1	0	14.98	14.80	14.84	16
1.4	16QAM	1	3	14.83	14.99	14.65	
1.4	16QAM	1	5	14.86	14.96	14.64	
1.4	16QAM	3	0	13.56	13.71	13.49	16
1.4	16QAM	3	1	13.58	13.55	13.62	
1.4	16QAM	3	3	13.59	13.51	13.50	
1.4	16QAM	6	0	13.65	13.52	13.64	
1.4	64QAM	1	0	13.98	13.95	13.89	16
1.4	64QAM	1	3	13.82	14.00	13.87	
1.4	64QAM	1	5	13.92	14.00	13.82	
1.4	64QAM	3	0	13.93	13.90	13.80	16
1.4	64QAM	3	1	13.76	14.00	13.82	
1.4	64QAM	3	3	13.85	13.96	13.83	
1.4	64QAM	6	0	12.70	12.71	12.58	

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

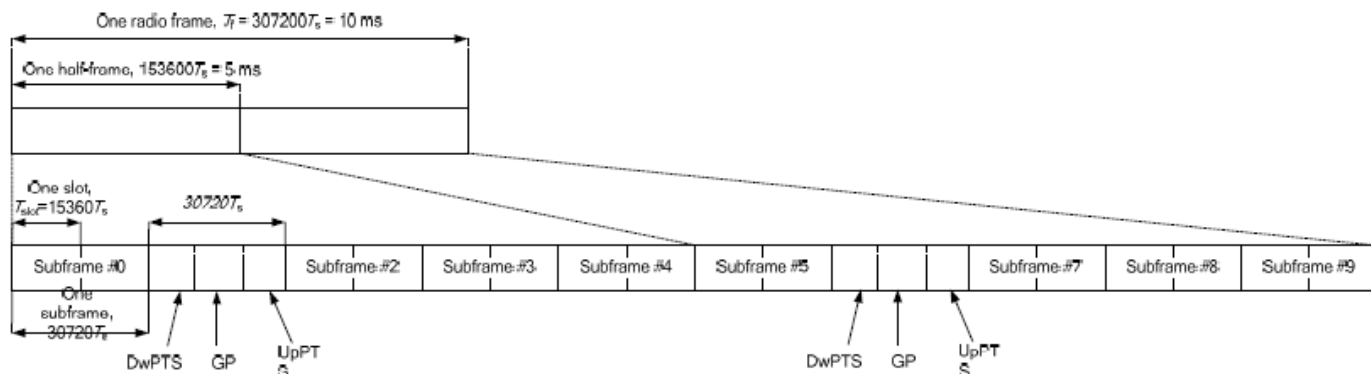


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T _s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T _s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

**Standalone mode - Phone WWAN Tx OFF:
(Head Power mode)**
<LTE Band 48>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				55340	55830	56150	56640	
Frequency (MHz)				3560	3609	3641	3690	
20	QPSK	1	0	21.60	21.98	22.12	22.16	23.0
20	QPSK	1	49	21.57	21.55	21.55	21.60	
20	QPSK	1	99	21.62	21.92	22.15	21.96	
20	QPSK	50	0	21.09	21.45	21.44	21.55	22.0
20	QPSK	50	24	20.93	21.22	21.29	21.29	
20	QPSK	50	50	21.15	21.33	21.54	21.46	
20	QPSK	100	0	18.60	18.94	19.00	19.00	20.0
20	16QAM	1	0	20.97	21.33	21.47	21.50	22.0
20	16QAM	1	49	20.55	20.87	21.03	20.99	
20	16QAM	1	99	21.05	21.32	21.49	21.38	
20	16QAM	50	0	20.15	20.57	20.53	20.58	21.0
20	16QAM	50	24	19.99	20.31	20.43	20.33	
20	16QAM	50	50	20.19	20.45	20.61	20.49	
20	16QAM	100	0	17.66	18.02	18.08	18.06	19.0
20	64QAM	1	0	19.78	20.15	20.25	20.30	21.0
20	64QAM	1	49	19.54	19.66	19.97	19.77	
20	64QAM	1	99	19.77	20.14	20.28	20.14	
20	64QAM	50	0	19.18	19.54	19.53	19.57	20.0
20	64QAM	50	24	18.97	19.28	19.40	19.38	
20	64QAM	50	50	19.17	19.45	19.62	19.49	
20	64QAM	100	0	16.67	17.02	17.11	17.08	18.0
Channel				55315	55820	56160	56665	Tune-up limit (dBm)
Frequency (MHz)				3557.5	3608	3642	3692.5	
15	QPSK	1	0	21.57	21.93	22.03	22.05	23.0
15	QPSK	1	37	21.58	21.50	21.55	21.52	
15	QPSK	1	74	21.58	21.91	22.01	22.00	
15	QPSK	36	0	20.91	21.33	21.36	21.35	22.0
15	QPSK	36	20	20.82	21.19	21.26	21.21	
15	QPSK	36	39	20.95	21.23	21.38	21.28	
15	QPSK	75	0	19.41	19.40	19.49	19.45	20.0
15	16QAM	1	0	20.90	21.31	21.43	21.42	22.0
15	16QAM	1	37	20.58	20.77	20.80	20.97	
15	16QAM	1	74	20.90	21.30	21.39	21.31	
15	16QAM	36	0	19.90	20.34	20.36	20.37	21.0
15	16QAM	36	20	19.87	20.21	20.30	20.25	
15	16QAM	36	39	19.95	20.25	20.39	20.31	
15	16QAM	75	0	18.50	18.40	18.45	18.48	19.0
15	64QAM	1	0	19.71	20.11	20.22	20.23	21.0
15	64QAM	1	37	19.57	19.59	19.70	19.75	
15	64QAM	1	74	19.77	20.12	20.21	20.12	
15	64QAM	36	0	19.58	19.98	20.00	20.00	20.0
15	64QAM	36	20	19.55	19.83	19.92	19.89	
15	64QAM	36	39	19.50	19.89	20.04	19.96	
15	64QAM	75	0	17.30	17.39	17.47	17.43	18.0



Channel				55290	55815	56165	56690	Tune-up limit (dBm)
Frequency (MHz)				3555	3607.5	3642.5	3695	
10	QPSK	1	0	21.95	22.38	22.45	22.48	23.0
10	QPSK	1	25	21.35	21.71	21.84	21.86	
10	QPSK	1	49	22.13	22.48	22.49	22.48	
10	QPSK	25	0	20.74	21.09	21.23	21.18	22.0 20.0
10	QPSK	25	12	20.72	21.02	21.09	21.02	
10	QPSK	25	25	20.87	21.22	21.33	21.24	
10	QPSK	50	0	20.84	21.22	21.27	21.19	
10	16QAM	1	0	21.27	21.70	21.78	21.83	22.0
10	16QAM	1	25	20.70	21.15	21.22	21.09	
10	16QAM	1	49	21.50	21.90	21.97	21.94	
10	16QAM	25	0	19.76	20.18	20.27	20.26	21.0 19.0
10	16QAM	25	12	19.73	20.07	20.13	20.03	
10	16QAM	25	25	19.89	20.31	20.35	20.29	
10	16QAM	50	0	19.87	20.31	20.35	20.30	
10	64QAM	1	0	20.15	20.56	20.62	20.65	21.0
10	64QAM	1	25	19.57	19.96	19.93	20.01	
10	64QAM	1	49	20.40	20.78	20.77	20.73	
10	64QAM	25	0	18.88	19.33	19.31	19.33	20.0
10	64QAM	25	12	18.79	19.25	19.19	19.20	
10	64QAM	25	25	19.00	19.40	19.40	19.41	
10	64QAM	50	0	18.90	19.34	19.31	19.27	
Channel				55265	55810	56170	56715	Tune-up limit (dBm)
Frequency (MHz)				3552.5	3607	3643	3697.5	
5	QPSK	1	0	21.44	21.84	21.91	21.88	23.0
5	QPSK	1	12	21.37	21.80	21.90	21.76	
5	QPSK	1	24	21.55	21.98	22.02	21.92	
5	QPSK	12	0	20.51	20.93	20.98	20.97	22.0
5	QPSK	12	7	20.54	21.02	20.94	21.01	
5	QPSK	12	13	20.63	21.02	21.09	21.01	
5	QPSK	25	0	20.53	21.03	21.03	20.98	
5	16QAM	1	0	20.72	21.11	21.26	21.80	22.0
5	16QAM	1	12	20.59	21.14	21.21	21.13	
5	16QAM	1	24	20.82	21.28	21.36	21.35	
5	16QAM	12	0	19.54	20.03	20.03	20.05	21.0
5	16QAM	12	7	19.67	19.91	20.10	20.01	
5	16QAM	12	13	19.63	20.04	20.17	20.05	
5	16QAM	25	0	19.64	20.05	20.13	20.05	
5	64QAM	1	0	19.63	20.03	20.15	20.14	21.0
5	64QAM	1	12	19.48	19.98	20.09	19.99	
5	64QAM	1	24	19.75	20.21	20.35	20.18	
5	64QAM	12	0	18.80	19.00	19.15	19.11	20.0
5	64QAM	12	7	18.77	19.03	19.15	19.12	
5	64QAM	12	13	18.75	19.07	19.22	19.08	
5	64QAM	25	0	18.71	18.98	19.16	19.11	

**Standalone mode - Phone WWAN Tx OFF:
(Hotspot / Body-worn / Product Specific Power mode)**

<LTE Band 48>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				55340	55830	56150	56640	
Frequency (MHz)				3560	3609	3641	3690	
20	QPSK	1	0	20.52	20.57	20.48	20.90	22
20	QPSK	1	49	20.48	20.37	20.48	20.57	
20	QPSK	1	99	20.80	20.61	20.56	20.54	
20	QPSK	50	0	20.11	20.36	20.40	20.58	22
20	QPSK	50	24	20.38	20.31	20.36	20.50	
20	QPSK	50	50	20.28	20.25	20.32	20.43	
20	QPSK	100	0	18.60	18.94	19.00	19.00	20
20	16QAM	1	0	20.50	20.53	20.44	20.67	22
20	16QAM	1	49	20.22	20.46	20.41	20.63	
20	16QAM	1	99	20.09	20.40	20.42	20.46	
20	16QAM	50	0	19.62	19.67	19.68	19.91	21.5
20	16QAM	50	24	19.59	19.62	19.68	19.80	
20	16QAM	50	50	19.65	19.59	19.67	19.79	
20	16QAM	100	0	17.66	18.02	18.08	18.06	19
20	64QAM	1	0	19.71	19.60	19.70	19.70	21.5
20	64QAM	1	49	19.65	19.57	19.46	19.62	
20	64QAM	1	99	19.61	19.55	19.53	19.46	
20	64QAM	50	0	18.79	18.60	18.75	18.79	20.5
20	64QAM	50	24	18.76	18.73	18.56	18.75	
20	64QAM	50	50	18.78	18.73	18.73	18.76	
20	64QAM	100	0	16.67	17.02	17.11	17.08	18
Channel				55315	55820	56160	56665	Tune-up limit (dBm)
Frequency (MHz)				3557.5	3608	3642	3692.5	
15	QPSK	1	0	20.48	20.43	20.38	20.52	22
15	QPSK	1	37	20.40	20.31	20.44	20.51	
15	QPSK	1	74	20.82	20.46	20.56	20.47	
15	QPSK	36	0	20.09	20.25	20.29	20.46	22
15	QPSK	36	20	20.21	20.05	20.08	20.30	
15	QPSK	36	39	20.01	20.08	20.21	20.18	
15	QPSK	75	0	18.41	18.80	18.90	18.85	21
15	16QAM	1	0	20.17	20.25	20.13	20.27	22
15	16QAM	1	37	20.13	20.17	20.06	20.27	
15	16QAM	1	74	20.05	20.06	20.09	20.09	
15	16QAM	36	0	19.60	19.66	19.77	19.95	21.5
15	16QAM	36	20	19.69	19.60	19.77	19.80	
15	16QAM	36	39	19.74	19.67	19.74	19.86	
15	16QAM	75	0	18.00	18.40	18.45	18.41	20
15	64QAM	1	0	19.61	19.71	19.66	19.75	21.5
15	64QAM	1	37	19.69	19.67	19.65	19.72	
15	64QAM	1	74	19.64	19.69	19.64	19.71	
15	64QAM	36	0	18.61	18.64	18.60	18.60	20.5
15	64QAM	36	20	18.76	18.64	18.57	18.67	
15	64QAM	36	39	18.65	18.63	18.59	18.62	
15	64QAM	75	0	17.00	17.39	17.47	17.43	19



Channel				55290	55815	56165	56690	Tune-up limit (dBm)
Frequency (MHz)				3555	3607.5	3642.5	3695	
10	QPSK	1	0	20.39	20.51	20.47	20.58	22
10	QPSK	1	25	20.39	20.23	20.34	20.43	
10	QPSK	1	49	20.84	20.43	20.36	20.37	
10	QPSK	25	0	20.05	20.34	20.40	20.50	22
10	QPSK	25	12	20.30	20.16	20.18	20.48	
10	QPSK	25	25	20.16	20.17	20.26	20.39	
10	QPSK	50	0	20.18	20.10	20.16	20.32	22
10	16QAM	1	0	20.53	20.52	20.39	20.73	
10	16QAM	1	25	20.17	20.56	20.38	20.72	
10	16QAM	1	49	20.04	20.32	20.39	20.53	21.5
10	16QAM	25	0	19.68	19.63	19.76	19.89	
10	16QAM	25	12	19.65	19.55	19.62	19.70	
10	16QAM	25	25	19.67	19.63	19.65	19.83	21.5
10	16QAM	50	0	19.58	19.74	19.85	19.99	
10	64QAM	1	0	19.63	19.61	19.76	19.80	
10	64QAM	1	25	19.69	19.65	19.65	19.58	21.5
10	64QAM	1	49	19.66	19.53	19.52	19.66	
10	64QAM	25	0	18.63	18.77	18.78	18.67	
10	64QAM	25	12	18.57	18.67	18.67	18.56	20.5
10	64QAM	25	25	18.74	18.60	18.63	18.58	
10	64QAM	50	0	18.99	18.87	18.98	18.88	
Channel				55265	55810	56170	56715	Tune-up limit (dBm)
Frequency (MHz)				3552.5	3607	3643	3697.5	
5	QPSK	1	0	20.41	20.56	20.39	20.62	22
5	QPSK	1	12	20.41	20.28	20.30	20.55	
5	QPSK	1	24	20.74	20.43	20.36	20.34	
5	QPSK	12	0	20.10	20.19	20.39	20.56	22
5	QPSK	12	7	20.24	20.12	20.34	20.45	
5	QPSK	12	13	20.10	20.20	20.30	20.37	
5	QPSK	25	0	20.34	20.30	20.40	20.42	22
5	16QAM	1	0	20.37	20.38	20.41	20.64	
5	16QAM	1	12	20.10	20.29	20.34	20.62	
5	16QAM	1	24	20.05	20.27	20.36	20.36	21.5
5	16QAM	12	0	19.64	19.58	19.74	19.87	
5	16QAM	12	7	19.60	19.60	19.61	19.79	
5	16QAM	12	13	19.70	19.55	19.64	19.77	21.5
5	16QAM	25	0	19.51	19.63	19.70	19.92	
5	64QAM	1	0	19.76	19.77	19.81	19.70	
5	64QAM	1	12	19.64	19.73	19.58	19.67	21.5
5	64QAM	1	24	19.68	19.58	19.55	19.67	
5	64QAM	12	0	18.54	18.63	18.71	18.65	
5	64QAM	12	7	18.62	18.55	18.66	18.65	20.5
5	64QAM	12	13	18.72	18.58	18.70	18.68	
5	64QAM	25	0	18.92	18.94	18.86	18.92	



**Simultaneous transmission mode- Phone WWAN Tx ON:
(Head / Hotspot / Body-worn / Product Specific Power mode)**

<LTE Band 48>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				55340	55830	56150	56640	
Frequency (MHz)				3560	3609	3641	3690	
20	QPSK	1	0	20.52	20.57	20.48	20.90	22
20	QPSK	1	49	20.48	20.37	20.48	20.57	
20	QPSK	1	99	20.80	20.61	20.56	20.54	
20	QPSK	50	0	20.11	20.36	20.40	20.58	22
20	QPSK	50	24	20.38	20.31	20.36	20.50	
20	QPSK	50	50	20.28	20.25	20.32	20.43	
20	QPSK	100	0	18.60	18.94	19.00	19.00	20
20	16QAM	1	0	20.50	20.53	20.44	20.67	22
20	16QAM	1	49	20.22	20.46	20.41	20.63	
20	16QAM	1	99	20.09	20.40	20.42	20.46	
20	16QAM	50	0	19.62	19.67	19.68	19.91	21.5
20	16QAM	50	24	19.59	19.62	19.68	19.80	
20	16QAM	50	50	19.65	19.59	19.67	19.79	
20	16QAM	100	0	17.66	18.02	18.08	18.06	19
20	64QAM	1	0	19.71	19.60	19.70	19.70	21.5
20	64QAM	1	49	19.65	19.57	19.46	19.62	
20	64QAM	1	99	19.61	19.55	19.53	19.46	
20	64QAM	50	0	18.79	18.60	18.75	18.79	20.5
20	64QAM	50	24	18.76	18.73	18.56	18.75	
20	64QAM	50	50	18.78	18.73	18.73	18.76	
20	64QAM	100	0	16.67	17.02	17.11	17.08	18
Channel				55315	55820	56160	56665	Tune-up limit (dBm)
Frequency (MHz)				3557.5	3608	3642	3692.5	
15	QPSK	1	0	20.48	20.43	20.38	20.52	22
15	QPSK	1	37	20.40	20.31	20.44	20.51	
15	QPSK	1	74	20.82	20.46	20.56	20.47	
15	QPSK	36	0	20.09	20.25	20.29	20.46	22
15	QPSK	36	20	20.21	20.05	20.08	20.30	
15	QPSK	36	39	20.01	20.08	20.21	20.18	
15	QPSK	75	0	18.41	18.80	18.90	18.85	21
15	16QAM	1	0	20.17	20.25	20.13	20.27	22
15	16QAM	1	37	20.13	20.17	20.06	20.27	
15	16QAM	1	74	20.05	20.06	20.09	20.09	
15	16QAM	36	0	19.60	19.66	19.77	19.95	21.5
15	16QAM	36	20	19.69	19.60	19.77	19.80	
15	16QAM	36	39	19.74	19.67	19.74	19.86	
15	16QAM	75	0	18.00	18.40	18.45	18.41	20
15	64QAM	1	0	19.61	19.71	19.66	19.75	21.5
15	64QAM	1	37	19.69	19.67	19.65	19.72	
15	64QAM	1	74	19.64	19.69	19.64	19.71	
15	64QAM	36	0	18.61	18.64	18.60	18.60	20.5
15	64QAM	36	20	18.76	18.64	18.57	18.67	
15	64QAM	36	39	18.65	18.63	18.59	18.62	
15	64QAM	75	0	17.00	17.39	17.47	17.43	19



Channel				55290	55815	56165	56690	Tune-up limit (dBm)
Frequency (MHz)				3555	3607.5	3642.5	3695	
10	QPSK	1	0	20.39	20.51	20.47	20.58	22
10	QPSK	1	25	20.39	20.23	20.34	20.43	
10	QPSK	1	49	20.84	20.43	20.36	20.37	
10	QPSK	25	0	20.05	20.34	20.40	20.50	22
10	QPSK	25	12	20.30	20.16	20.18	20.48	
10	QPSK	25	25	20.16	20.17	20.26	20.39	
10	QPSK	50	0	20.18	20.10	20.16	20.32	22
10	16QAM	1	0	20.53	20.52	20.39	20.73	
10	16QAM	1	25	20.17	20.56	20.38	20.72	
10	16QAM	1	49	20.04	20.32	20.39	20.53	21.5
10	16QAM	25	0	19.68	19.63	19.76	19.89	
10	16QAM	25	12	19.65	19.55	19.62	19.70	
10	16QAM	25	25	19.67	19.63	19.65	19.83	21.5
10	16QAM	50	0	19.58	19.74	19.85	19.99	
10	64QAM	1	0	19.63	19.61	19.76	19.80	
10	64QAM	1	25	19.69	19.65	19.65	19.58	21.5
10	64QAM	1	49	19.66	19.53	19.52	19.66	
10	64QAM	25	0	18.63	18.77	18.78	18.67	
10	64QAM	25	12	18.57	18.67	18.67	18.56	20.5
10	64QAM	25	25	18.74	18.60	18.63	18.58	
10	64QAM	50	0	18.99	18.87	18.98	18.88	
Channel				55265	55810	56170	56715	Tune-up limit (dBm)
Frequency (MHz)				3552.5	3607	3643	3697.5	
5	QPSK	1	0	20.41	20.56	20.39	20.62	22
5	QPSK	1	12	20.41	20.28	20.30	20.55	
5	QPSK	1	24	20.74	20.43	20.36	20.34	
5	QPSK	12	0	20.10	20.19	20.39	20.56	22
5	QPSK	12	7	20.24	20.12	20.34	20.45	
5	QPSK	12	13	20.10	20.20	20.30	20.37	
5	QPSK	25	0	20.34	20.30	20.40	20.42	22
5	16QAM	1	0	20.37	20.38	20.41	20.64	
5	16QAM	1	12	20.10	20.29	20.34	20.62	
5	16QAM	1	24	20.05	20.27	20.36	20.36	21.5
5	16QAM	12	0	19.64	19.58	19.74	19.87	
5	16QAM	12	7	19.60	19.60	19.61	19.79	
5	16QAM	12	13	19.70	19.55	19.64	19.77	21.5
5	16QAM	25	0	19.51	19.63	19.70	19.92	
5	64QAM	1	0	19.76	19.77	19.81	19.70	
5	64QAM	1	12	19.64	19.73	19.58	19.67	21.5
5	64QAM	1	24	19.68	19.58	19.55	19.67	
5	64QAM	12	0	18.54	18.63	18.71	18.65	
5	64QAM	12	7	18.62	18.55	18.66	18.65	20.5
5	64QAM	12	13	18.72	18.58	18.70	18.68	
5	64QAM	25	0	18.92	18.94	18.86	18.92	

<LTE Carrier Aggregation combinations>
General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.
3. The LTE B46 is Rx only

2CC Downlink Carrier Aggregation					3CC Downlink Carrier Aggregation				
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset
1	2A-2A	2A-2A		3CC-27	27	2A-2A-4A	2A-2A-4A		4CC-83
2	2A-4A	2A-4A		3CC-31	28	2A-2A-5A	2A-2A		4CC-85
3	2A-5A	2A		3CC-28	29	2A-2A-13A	2A-2A		4CC-86
4	2A-13A	2A		3CC-29	30	2A-2A-66A	2A-2A-66A		4CC-89
5	2A-46A	2A	46 only RX	5CC-153	31	2A-4A-4A	2A-4A-4A		4CC-83
6	2A-66A	2A-66A		3CC-44	32	2A-4A-5A	2A-4A		4CC-84
7	4A-4A	4A-4A		3CC-45	33	2A-4A-13A	2A-4A		
8	4A-5A	4A		3CC-45	34	2A-5B	2A		4CC-114
9	4A-13A	4A		3CC-46	35	2A-5A-46A	2A	46 only RX	
10	4A-46A	4A	46 only RX	5CC-154	36	2A-5A-66A			4CC-85
11	4A-48A			5CC-200	37	2A-13A-46A	2A	46 only RX	
12	5B			4CC-103	38	2A-13A-66A			4CC-86
13	5A-5A			3CC-51	39	2A-46C	2A	46 only RX	4CC-87
14	5A-48A	48A			40	2A-46A-46A	2A	46 only RX	
15	5A-66A	66A		3CC-55	41	2A-46A-66A	2A-66A	46 only RX	
16	13A-46A		46 only RX	3CC-57	42	2A-66C	2A-66C		4CC-88
17	13A-66A	66A		3CC-60	43	2A-66B	2A-66B		4CC-111
18	66A-46A	66A	46 only RX	3CC-62	44	2A-66A-66A	2A-66A-66A		4CC-89
19	66B	66B		3CC-65	45	4A-4A-5A	4A-4A		4CC-112
20	66C	66C		3CC-64	46	4A-4A-13A	4A-4A		
21	66A-66A	66A-66A		4CC-110	47	4A-46C	4A	46 only RX	
22	13A-48A			5CC-159	48	4A-46A-46A	4A	46 only RX	
23	48A-66A			3CC-76	49	5B-46A		46 only RX	
24	2A-48A			5CC-176	50	5B-66A	66A		4CC-114
25	48C			3CC-69	51	5A-5A-66A	66A		4CC-121
26	48A-48A			3CC-68	52	5A-66B	66B		4CC-91
					53	5A-66C	66C		4CC-92
					54	5A-46A-66A	66A	46 only RX	
					55	5A-66A-66A	66A-66A		4CC-93
					56	13A-46C		46 only RX	4CC-94
					57	13A-46A-66A	66A	46 only RX	
					58	13A-66B	66B		4CC-95
					59	13A-66C	66C		4CC-96
					60	13A-66A-66A	66A-66A		4CC-97
					61	66A-46C	66A	46 only RX	4CC-99
					62	66A-46A-46A	66A	46 only RX	
					63	66D			5CC-168
					64	66C-66A	66C-66A		5CC-174
					65	66B-66A			5CC-166
					66	66A-66A-66A	66A-66A-66A		4CC-110
					67	4A-5B	4A		4CC-115
					68	48A-48A-66A			4CC-132
					69	48C-66A			5CC-198
					70	2A-48C			4CC-137
					71	2A-48A-66A			
					72	48A-66C			4CC-134
					73	13A-48A-66A			4CC-143
					74	13A-48A-48A			4CC-131
					75	13A-48C			5CC-160
					76	48A-66A-66A			4CC-135
					77	48A-66B			4CC-144
					78	2A-48A-48A			4CC-125
					79	4A-48C			
					80	48D			4CC-123
					81	48A-48C			5CC-183
					82	2A-13A-48A			5CC-201
					207	66A-66A-46A	66A-66A		4CC-110
					209	5A-48A-48A	48A-48A		4CC-212
					210	5A-48C	48C		4CC-214
					211	5A-48A-66A	5A-66A		4CC-213

4CC Downlink Carrier Aggregation					5CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction
83	2A-2A-4A-4A	2A-2A-4A,2A-4A-4A			149	2A-2A-5A-66A-66A	2A-2A,2A-66A,66A-66A	
84	2A-2A-4A-5A	2A-2A-4A			150	2A-2A-13A-66A-66A	2A-2A,2A-66A,66A-66A	
85	2A-2A-5A-66A	2A-2A-66A		5CC-149	151	2A-5B-66B	2A-66B	
86	2A-2A-13A-66A	2A-2A-66A		5CC-150	152	2A-46D-66A	2A-66A	46 only RX
87	2A-2A-46C	2A-2A	46 only RX		153	2A-46A-46D	2A	46 only RX
88	2A-2A-66C	2A-2A-66C			154	4A-46A-46D	4A	46 only RX
89	2A-2A-66A-66A	2A-2A-66A,2A-66A-66A			155	13A-46E		46 only RX
90	2A-5A-46C	2A	46 only RX		156	66A-46E	66A	46 only RX
91	2A-5A-66B	2A-66B		5CC-171	157	66A-46A-46D	66A	46 only RX
92	2A-5A-66C	2A-66C		5CC-172	158	13A-46D-66A	66A	46 only RX
93	2A-5A-66A-66A	2A-66A-66A		5CC-149	159	13A-48A-48C-66A		
94	2A-13A-46C	2A	46 only RX		160	13A-48C-48C		
95	2A-13A-66B	2A-66B			161	13A-48C-66B		
96	2A-13A-66C	2A-66C			162	13A-48C-66C		
97	2A-13A-66A-66A	2A-66A-66A		5CC-150	163	13A-48D-66A		
98	2A-46D	2A		5CC-152	164	13A-48E		
99	2A-46C-66A	2A-66A	46 only RX		165	2A-13A-46D	2A	46 only RX
100	2A-46A-46C	2A	46 only RX	5CC-175	166	2A-13A-66A-66B		
101	4A-46D	4A	46 only RX		167	2A-13A-66A-66C		
102	4A-46A-46C	4A	46 only RX		168	66D-2A-13A	2A	
103	5B-46C		46 only RX		169	2A-5A-48A-48C	2A-48A-48C	
104	5A-46D		46 only RX	5CC-179	170	2A-2A-46D	2A-2A	46 only RX
105	5A-46C-66A	66A	46 only RX		171	2A-2A-5A-66B	2A-2A-66B	
106	13A-46C-66A	66A	46 only RX		172	2A-2A-5A-66C	2A-2A-66C	
107	13A-46D		46 only RX	5CC-158	173	2A-2A-66A-66B		
108	46D-66A	66A		5CC-152	174	2A-2A-66A-66C		
109	46A-46C-66A	66A	46 only RX	5CC-175	175	2A-46A-46C-66A		46 only RX
110	66A-66A-66A-46A	66A-66A-66A			176	2A-48A-48C-66A		
111	2A-2A-66B	2A-2A-66B			177	2A-48D-66A		
112	2A-4A-4A-5A	2A-4A-4A			178	2A-48E		
113	2A-4A-5B	2A-4A			179	2A-5A-46D	2A	46 only RX
114	2A-5B-66A	2A-66A		5CC-180	180	2A-5B-66A-66A	2A-66A-66A	
115	4A-4A-5B	4A-4A			181	2A-5B-66C	2A-66C	
116	5B-66C	66C		5CC-181	182	66A-66A-46D		46 only RX
117	5B-66B	66B		5CC-151	183	48A-48C-66B		
118	5B-66A-66A	66A-66A		5CC-180	184	48A-48C-66C		
119	5A-5A-66C	66C			185	48C-48C-66A		
120	5A-5A-66B	66B			186	48E-66A	66A	
121	5A-5A-66A-66A	66A-66A			187	5A-46D-66A	66A	46 only RX
122	13A-66A-66A-66A	66A-66A-66A			188	5B-66A-66B		
123	48D-66A			5CC-163	189	2A-46E	2A	46 only RX
124	48A-48C-66A			5CC-159	190	5A-46E		46 only RX
125	2A-48A-48A-66A				191	66A-46C-46C		46 only RX
126	13A-48D			5CC-163	192	2A-46C-46C		46 only RX
127	2A-48D			5CC-177	193	5B-46D		46 only RX
128	13A-48A-48C			5CC-159	194	66A-66A-66A-46C		46 only RX
129	2A-48A-48C			5CC-176	195	13A-48A-48D		
130	13A-48C-66A			5CC-206	196	48A-48D-66A		
131	13A-48A-48A-66A			5CC-205	197	4A-48E		
132	48A-48A-66A-66A				198	48C-66A-66A-66A		
133	48A-48A-66B				199	48C-48D		
134	48A-48A-66C				200	4A-48A-48D		
135	48A-66A-66A-66A				201	2A-13A-48A-48C		
136	4A-48D				202	2A-13A-48D		
137	2A-48C-66A				203	2A-48C-48C		
138	48E			5CC-164	204	2A-48A-48D		
139	48A-48D			5CC-195	205	2A-13A-48A-48A-66A		
140	48C-48C			5CC-160	206	2A-13A-48C-66A		
141	2A-13A-48A-48A			5CC-205	219	2A-5A-48C-66A	2A-48C-66A	
142	2A-13A-48C			5CC-206	220	2A-5A-48D	2A-48D	
143	13A-48A-66A-2A				221	5A-48A-48C-66A	48A-48C-66A	
144	48A-66B-13A				222	5A-48C-48C	48C-48C	
145	13A-48A-66C				223	5A-48E	48E	
146	48C-66B			5CC-161				
147	48C-66C			5CC-162				
148	48C-66A-66A			5CC-198				
208	66A-66A-46C			5CC-194				
212	2A-5A-48A-48A	2A-48A-48A						
213	2A-5A-48A-66A	2A-48A-66A						
214	2A-5A-48C	2A-48C		5CC-219				
215	5A-48A-48A-66A	48A-48A-66A						
216	5A-48A-48C	48A-48C		5CC-169				
217	5A-48C-66A	48C-66A		5CC-219				
218	5A-48D	48D		5CC-220				

<Power verification when LTE Carrier Aggregation Active>
General Note:

- According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1 |BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

<Two Carrier power verification>

Configure	PCC							SCC				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	5	10	829	20450	QPSK	1	0	46	20	5537.5	50665	23.80	23.81

<Three Carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20M	1860	18700	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	23.91	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	23.93	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.96	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	66	20	2155	66886	23.91	23.99
	4	20M	1732.5	20175	QPSK	1	0	4	5	2112.5	1975	13	10	751	5230	23.91	23.96
	4	20M	1732.5	20175	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	23.91	23.96
	4	20M	1732.5	20175	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	23.86	23.96
	4	20M	1732.5	20175	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	23.90	23.96
	5	10M	829	20450	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	23.71	23.81
	5	10M	829	20450	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.77	23.81
	13	10M	782	23230	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.46	23.49
	66	20M	1745	132322	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	23.90	23.99

<Four Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	4	5	2112.5	1975	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	5	10	881.5	2525	23.95	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	46	20	5537.5	50665	46	20	5557.3	50863	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	20	2174.8	67084	23.90	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	15	2155	66886	66	5	2164.3	66979	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2197.5	67311	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	4	20	2132.5	2175	4	5	2112.5	1975	5	10	881.5	2525	23.96	23.99
	2	20M	1860	18700	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	5	10	891.4	2624	23.91	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	46	20	5557.3	50863	23.94	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3625	55990	48	5	3697.5	56715	23.95	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3625	55990	66	20	2155	66886	23.98	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	751	5230	46	20	5537.5	50665	46	20	5557.3	50863	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	751	5230	66	15	2155	66886	66	5	2164.3	66979	23.93	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2174.8	67084	23.93	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	66	20	2155	66886	23.95	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	66	20	2155	66886	23.94	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	66	20	2155	66886	23.99	23.99
	4	20M	1732.5	20175	QPSK	1	0	4	5	2112.5	1975	5	10	881.5	2525	5	10	891.4	2624	23.87	23.96
	4	20M	1732.5	20175	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	46	20	5895.1	54241	23.87	23.96
	4	20M	1732.5	20175	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.89	23.96
	4	20M	1732.5	20175	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	23.90	23.96
	5	10M	829	20450	QPSK	1	0	5	5	891.5	2625	66	20	2155	66886	66	20	2174.8	67084	23.73	23.81
	5	10M	829	20450	QPSK	1	0	5	5	891.5	2625	66	15	2155	66886	66	5	2164.3	66979	23.80	23.81
	5	10M	829	20450	QPSK	1	0	5	5	891.5	2625	66	20	2155	66886	66	5	2197.5	67311	23.77	23.81
	5	10M	829	20450	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	66	20	2155	66886	23.71	23.81
	5	10M	829	20450	QPSK	1	0	5	10	838.9	20549	46	20	5537.5	50665	46	20	5557.3	50863	23.71	23.81
	5	10M	829	20450	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	66	20	2155	66886	23.73	23.81
	13	10M	782	23230	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	66	20	2155	66886	23.46	23.49
	13	10M	782	23230	QPSK	1	0	66	20	2155	66886	66	5	2197.5	67311	66	20	2120	66536	23.49	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	66	20	2155	66886	2	20	1960	900	23.48	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	66	20	2155	66886	66	20	2174.8	67084	23.48	23.49
	48	10M	3642.5	56165	QPSK	1	49	48	5	3552.5	55265	66	20	2155	66886	66	5	2197.5	67311	22.39	22.49
	48	10M	3642.5	56165	QPSK	1	49	48	5	3552.5	55265	66	15	2155	66886	66	5	2164.3	66979	22.41	22.49
	48	10M	3642.5	56165	QPSK	1	49	48	5	3552.5	55265	66	20	2155	66886	66	20	2174.8	67084	22.42	22.49
	48	10M	3642.5	56165	QPSK	1	49	66	20	2155	66886	66	5	2197.5	67311	66	20	2120	66536	22.41	22.49
	48	10M	3642.5	56165	QPSK	1	49	66	15	2155	66886	66	5	2164.3	66979	13	10	782	23230	22.40	22.49
	66	20M	1745	132322	QPSK	1	0	66	5	2197.5	67311	66	20	2120	66536	46	20	5537.5	50665	23.98	23.99



FCC SAR TEST REPORT

Report No. : FA890514A

<Five Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	5	2197.5	67311	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	15	2155	66886	66	5	2164.3	66979	23.99	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	5	10	881.5	2525	66	20	2155	66886	66	20	2174.8	67084	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	13	10	782	23230	66	20	2155	66886	66	5	2197.5	67311	23.94	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2197.5	67311	66	15	2188.2	67218	23.91	23.99
	2	20M	1860	18700	QPSK	1	0	2	5	1987.5	1175	66	20	2155	66886	66	5	2197.5	67311	66	20	2185.8	67194	23.94	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	15	2155	66886	66	5	2164.3	66979	23.90	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	5	2197.5	67311	23.95	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2174.8	67084	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	23.96	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3625	55990	48	20	3644.8	56188	66	20	2155	66886	23.97	23.99
	2	20M	1860	18700	QPSK	1	0	5	10	881.5	2525	48	20	3625	55990	48	20	3664.6	56386	48	20	3685.8	56598	23.98	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.98	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	66	20	2155	66886	66	5	2197.5	67311	66	15	2188.2	67218	23.99	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	66	20	2155	66886	66	5	2197.5	67311	66	20	2185.8	67194	23.96	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	23.99	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	23.92	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	48	20	3625	55990	48	5	3697.5	56715	66	20	2155	66886	23.96	23.99
	2	20M	1860	18700	QPSK	1	0	13	10	782	23230	48	20	3625	55990	48	20	3644.8	56188	66	20	2155	66886	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	23.90	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	46	20	5895.1	54241	46	20	5875.3	54043	23.89	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	46	20	5895.1	54241	66	20	2155	66886	23.99	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	66	20	2155	66886	23.92	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	66	20	2155	66886	23.90	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	23.90	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	23.92	23.99
	2	20M	1860	18700	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5914.9	54439	46	20	5895.1	54241	23.92	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	5	3697.5	56715	48	20	3685.8	56598	23.99	23.99
	2	20M	1860	18700	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	48	20	3666	56400	23.94	23.99
	4	20M	1732.5	20175	QPSK	1	0	46	20	5537.5	50665	46	20	5914.9	54439	46	20	5895.1	54241	46	20	5875.3	54043	23.96	23.96
	4	20M	1732.5	20175	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	23.93	23.96
	4	20M	1732.5	20175	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	48	20	3666	56400	23.90	23.96
	5	10M	829	20450	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	23.77	23.81
	5	10M	829	20450	QPSK	1	0	5	10	838.9	20549	66	20	2155	66886	66	5	2197.5	67311	66	15	2188.2	67218	23.78	23.81
	5	10M	829	20450	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	23.77	23.81
	5	10M	829	20450	QPSK	1	0	5	10	838.9	20549	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.72	23.81
	5	10M	829	20450	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	66	20	2155	66886	23.80	23.81
	5	10M	829	20450	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	5	3697.5	56715	48	20	3685.8	56598	23.79	23.81
	5	10M	829	20450	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	23.75	23.81
	13	10M	782	23230	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	23.44	23.49
	13	10M	782	23230	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	23.49	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	5	3697.5	56715	48	20	3685.8	56598	66	20	2155	66886	23.43	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	5	3697.5	56715	48	20	3685.8	56598	23.40	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	66	15	2155	66886	66	5	2164.3	66979	23.41	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	66	20	2155	66886	66	20	2174.8	67084	23.48	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	66	20	2155	66886	23.40	23.49
	13	10M	782	23230	QPSK	1	0	48	20	3625	55990	48	20												

12. Antenna Location

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LB/MB	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	≤ 25mm
WWAN HB	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LB/MB	Yes	Yes	Yes	No	No	Yes
WWAN HB	Yes	Yes	No	Yes	No	Yes

General Note:

- Referring to KDB 941225 D06 v02r01, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
- The detail antenna locations please refer to appendix D.

13. IHDT56XJ1 SAR Test results– with Mod attached

General Note:

1. Refer to the SAR report of IHDT56XJ1 (Sporton Report No: FA851503), the highest SAR reported for each wireless technology (1xRTT, EVDO, WCDMA, GSM, Wi-Fi etc.), frequency band, operating mode (different modes/configurations within each wireless technology) and exposure condition (head, body-worn accessory, hotspot mode, etc.) was repeated with the Mod attached. For the device back position in body exposure condition, the SAR result is lower than phone-only due to the additional thickness introduced by the Mod. For the other positions in head and body exposure conditions, the SAR test results don't deviate from the phone-only results to exceed the measurement uncertainty, therefore the phone-only SAR results were also used in simultaneous transmission analysis in section 15
2. Additional CDMA BC1 and LTE B2/B66 SAR for back position is used for simultaneous transmission analysis in hotspot mode.
3. Additional Left cheek, Left Tilted, Left Side and Top Side of 2.4GHz WLAN is used for simultaneous transmission analysis.
4. Additional Left cheek, Left Tilted and Top Side of 5GHz WLAN is used for simultaneous transmission analysis.

13.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850	GPRS (3 Tx slots)	Left Cheek	0mm	251	848.8	30.31	31.0	1.172	0	0.126	0.148
02	GSM1900	GPRS (3 Tx slots)	Right Cheek	0mm	810	1909.8	26.87	28.0	1.297	0	0.086	0.112

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	9538	1907.6	23.52	24.0	1.117	-0.18	0.205	0.229
04	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	4182	836.4	23.30	24.0	1.175	0.04	0.220	0.258

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
05	CDMA2000 BC0	RC3 SO55	Left Cheek	0mm	777	848.31	24.15	25.0	1.216	0.02	0.297	0.361
06	CDMA2000 BC1	RC3 SO55	Right Cheek	0mm	1175	1908.75	23.91	25.0	1.285	0	0.162	0.208

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
07	LTE Band 2	20M	QPSK	1	0	Right Cheek	0mm	19100	1900	23.33	24.0	1.167	0.1	0.180	0.210
08	LTE Band 5	10M	QPSK	1	25	Left Cheek	0mm	20525	836.5	23.00	24.0	1.259	0.08	0.238	0.300
09	LTE Band 7	20M	QPSK	1	0	Right Cheek	0mm	20850	2510	22.95	24.0	1.274	-0.19	0.562	0.716
10	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	23230	782	23.00	24.0	1.259	-0.02	0.199	0.251
11	LTE Band 66	20M	QPSK	1	0	Right Cheek	0mm	132572	1770	23.10	24.0	1.230	-0.03	0.350	0.431

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
12	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	11	2462	16.79	17.0	1.050	100	1.000	0	0.420	0.441
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	11	2462	16.79	17.0	1.050	100	1.000	-0.11	0.106	0.111
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	11	2462	16.79	17.0	1.050	100	1.000	0.1	0.114	0.120
13	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	64	5320	17.23	17.5	1.064	98.28	1.018	-0.07	1.000	1.083
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	60	5300	17.27	17.5	1.054	98.28	1.018	-0.01	0.996	1.069
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	60	5300	17.27	17.5	1.054	98.28	1.018	-0.06	0.176	0.189
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	60	5300	17.27	17.5	1.054	98.28	1.018	-0.05	0.171	0.184
14	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	100	5500	17.07	17.5	1.104	98.28	1.018	-0.15	0.981	1.103
	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	116	5580	17.18	17.5	1.076	98.28	1.018	-0.16	0.971	1.064
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	116	5580	17.18	17.5	1.076	98.28	1.018	0.12	0.206	0.226
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	116	5580	17.18	17.5	1.076	98.28	1.018	0.09	0.181	0.198
15	WLAN5GHz	802.11a 6Mbps	Right Cheek	0mm	157	5785	16.89	17.5	1.151	98.28	1.018	0.19	0.545	0.638
	WLAN5GHz	802.11a 6Mbps	Left Cheek	0mm	157	5785	16.89	17.5	1.151	98.28	1.018	0.12	0.221	0.259
	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	157	5785	16.89	17.5	1.151	98.28	1.018	0.04	0.227	0.266

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
16	Bluetooth	1Mbps	Right Cheek	0mm	0	2402	16.52	16.6	1.019	77.02	1.082	0.12	0.376	0.414

13.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
17	GSM850	GPRS (3 Tx slots)	Back	5mm	251	848.8	28.30	29.5	1.318	-0.07	0.181	0.239
18	GSM1900	GPRS (4 Tx slots)	Back	5mm	810	1909.8	18.93	19.0	1.016	-0.08	0.103	0.105

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
19	WCDMA II	RMC12.2Kbps	Bottom Side	5mm	9538	1907.6	12.68	13.8	1.294	-0.05	0.678	0.877
	WCDMA II	RMC12.2Kbps	Bottom Side	5mm	9262	1852.4	12.40	13.8	1.380	0.03	0.628	0.867
	WCDMA II	RMC12.2Kbps	Bottom Side	5mm	9400	1880	12.39	13.8	1.384	0.02	0.622	0.861
20	WCDMA V	RMC12.2Kbps	Back	5mm	4233	846.6	20.74	21.8	1.276	0	0.244	0.311

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
21	CDMA2000 BC0	RTAP153.6bps	Back	5mm	777	848.31	19.89	21.0	1.291	-0.01	0.172	0.222
22	CDMA2000 BC1	RTAP153.6bps	Bottom Side	5mm	25	1851.25	12.66	14.0	1.361	-0.1	0.681	0.927
	CDMA2000 BC1	RTAP153.6bps	Bottom Side	5mm	1175	1908.75	12.88	14.0	1.294	0.08	0.688	0.890
	CDMA2000 BC1	RTAP153.6bps	Bottom Side	5mm	600	1880	12.75	14.0	1.334	0.03	0.667	0.889
	CDMA2000 BC1	RTAP153.6bps	Back	5mm	1175	1908.75	12.88	14.0	1.294	0.01	0.128	0.166

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	18700	1860	12.82	14.0	1.312	0	0.657	0.862
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	19100	1900	13.08	14.0	1.236	0.03	0.678	0.838
	LTE Band 2	20M	QPSK	1	0	Bottom Side	5mm	18900	1880	13	14.0	1.259	0.1	0.651	0.820
	LTE Band 2	20M	QPSK	1	0	Back	5mm	19100	1900	13.08	14.0	1.236	0.08	0.131	0.162
24	LTE Band 5	10M	QPSK	1	25	Back	5mm	20525	836.5	20.76	21.8	1.271	-0.05	0.235	0.299
25	LTE Band 7	20M	QPSK	50	0	Back	5mm	20850	2510	15.25	16.2	1.245	-0.03	0.115	0.143
26	LTE Band 13	10M	QPSK	1	0	Back	5mm	23230	782	21.14	22.0	1.219	-0.01	0.188	0.229
27	LTE Band 66	20M	QPSK	50	0	Bottom Side	5mm	132322	1745	14.46	15.3	1.213	-0.03	0.945	1.147
	LTE Band 66	20M	QPSK	1	0	Back	5mm	132072	1720	14.47	15.3	1.211	0.020	0.204	0.247

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
28	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	11	2462	16.79	17.0	1.050	100	1.000	0.03	0.045	0.047
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	11	2462	16.79	17.0	1.050	100	1.000	0.02	0.366	0.384
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	11	2462	16.79	17.0	1.050	100	1.000	0	0.084	0.088
29	WLAN5GHz	802.11a 6Mbps	Left Side	5mm	40	5200	17.26	17.5	1.057	98.28	1.018	-0.13	0.693	0.746
	WLAN5GHz	802.11a 6Mbps	Back	5mm	40	5200	17.26	17.5	1.057	98.28	1.018	-0.16	0.107	0.115
	WLAN5GHz	802.11a 6Mbps	Top Side	5mm	40	5200	17.26	17.5	1.057	98.28	1.018	0.05	0.713	0.767
30	WLAN5GHz	802.11a 6Mbps	Left Side	5mm	157	5785	16.89	17.5	1.151	98.28	1.018	-0.16	0.547	0.641
	WLAN5GHz	802.11a 6Mbps	Back	5mm	157	5785	16.89	17.5	1.151	98.28	1.018	-0.01	0.106	0.124
	WLAN5GHz	802.11a 6Mbps	Top Side	5mm	157	5785	16.89	17.5	1.151	98.28	1.018	0.06	0.338	0.396

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
31	Bluetooth	1Mbps	Back	5mm	0	2402	16.52	16.6	1.019	77.02	1.082	-0.13	0.045	0.050

13.3 Body Worn Accessory SAR
<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
32	GSM850	GPRS (3 Tx slots)	Back	5mm	251	848.8	28.30	29.5	1.318	-0.07	0.181	0.239
33	GSM1900	GPRS (3 Tx slots)	Back	5mm	810	1909.8	20.46	21.5	1.271	-0.03	0.054	0.069

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
34	WCDMA II	RMC12.2Kbps	Back	5mm	9262	1852.4	15.30	16.5	1.318	0.03	0.190	0.250
35	WCDMA V	RMC12.2Kbps	Back	5mm	4233	846.6	20.74	21.8	1.276	0	0.244	0.311

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
36	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	5mm	777	848.31	19.92	21.0	1.282	-0.16	0.220	0.282
37	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	5mm	25	1851.25	15.33	16.5	1.309	0.03	0.190	0.249

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
38	LTE Band 2	20M	QPSK	1	0	Back	5mm	18700	1860	15.55	16.5	1.245	0.03	0.192	0.239
39	LTE Band 5	10M	QPSK	1	25	Back	5mm	20525	836.5	20.76	21.8	1.271	-0.05	0.235	0.299
40	LTE Band 7	20M	QPSK	50	0	Back	5mm	20850	2510	15.25	16.2	1.245	-0.03	0.115	0.143
41	LTE Band 13	10M	QPSK	1	0	Back	5mm	23230	782	21.14	22.0	1.219	-0.01	0.188	0.229
42	LTE Band 66	20M	QPSK	1	0	Front	5mm	132072	1720	14.73	15.8	1.279	-0.03	0.722	0.924
	LTE Band 66	20M	QPSK	1RB	0Offset	Back	5mm	132072	1720	14.73	15.8	1.279	0.03	0.246	0.315

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
43	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	11	2462	16.79	17.0	1.050	100	1.000	0.03	0.045	0.047
44	WLAN5GHz	802.11a 6Mbps	Back	5mm	64	5320	17.23	17.5	1.064	98.28	1.018	-0.06	0.114	0.123
45	WLAN5GHz	802.11a 6Mbps	Back	5mm	100	5500	17.07	17.5	1.104	98.28	1.018	-0.07	0.121	0.136
46	WLAN5GHz	802.11a 6Mbps	Back	5mm	157	5785	16.89	17.5	1.151	98.28	1.018	-0.01	0.106	0.124

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
47	Bluetooth	1Mbps	Back	5mm	0	2402	16.52	16.6	1.019	77.02	1.082	-0.13	0.045	0.050

13.4 Product Specific SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
48	GSM850	GPRS (3 Tx slots)	Back	0mm	251	848.8	30.31	31.0	1.172	-0.04	0.347	0.407
49	GSM1900	GPRS (3 Tx slots)	Back	0mm	512	1850.2	24.62	26.5	1.542	-0.13	0.552	0.851

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
50	WCDMA II	RMC12.2Kbps	Back	0mm	9262	1852.4	18.96	20.3	1.361	0	0.864	1.176
51	WCDMA V	RMC12.2Kbps	Back	0mm	4182	836.4	23.30	24.0	1.175	-0.05	0.573	0.673

<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
52	CDMA2000 BC0	RTAP153.6bps	Back	0mm	777	848.31	24.11	25.0	1.227	-0.03	0.780	0.957
53	CDMA2000 BC1	RTAP153.6bps	Back	0mm	1175	1908.75	18.36	19.5	1.300	0	0.917	1.192

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
54	LTE Band 2	20M	QPSK	50	0	Back	0mm	18700	1860	19.30	20.6	1.349	0	0.871	1.175
55	LTE Band 5	10M	QPSK	1	25	Back	0mm	20525	836.5	23.00	24.0	1.259	-0.06	0.657	0.827
56	LTE Band 7	20M	QPSK	50	0	Back	0mm	21350	2560	19.80	20.7	1.230	-0.03	0.429	0.528
57	LTE Band 13	10M	QPSK	1	0	Back	0mm	23230	782	23.00	24.0	1.259	-0.03	0.564	0.710
58	LTE Band 66	20M	QPSK	50	0	Back	0mm	132072	1720	18.16	19.3	1.300	0	0.792	1.030

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
59	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	60	5300	17.27	17.5	1.054	98.28	1.018	-0.12	0.845	0.907
60	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	116	5580	17.18	17.5	1.076	98.28	1.018	-0.07	0.803	0.880

14. Mod SAR Test Results : Mod attached on IHDT56XJ1

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For LTE: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - c. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 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
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
4. When the hotspot mode is enabled, power reduction will be active to limit the maximum power of LTE B2/B4/B5/B66/B48; the detail power reduction description is including in the operation description.
5. The device employs proximity sensors that detect the presence of the user's body and handheld of the device. When these conditions are detected, LTE B2/B4/B5/B66/B48 reduced power will be active.
6. When body-worn condition is higher than 1.2W/kg, a headset attached to the handset is not necessary; due to the device does not support headset accessory.
7. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold, for this device only back SAR for LTE B2/B13/B48/B66 is necessary

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation 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.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B5 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 4 SAR test was covered by Band 66; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. The maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion.
 - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

**14.1 SAR Test Results (Phone WWAN Tx OFF)****<Head SAR>****<FDD LTE >**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
61	LTE Band 2_MOD	20M	QPSK	1	0	Right Cheek	0mm	18700	1860	23.99	24.00	1.002	-0.09	0.305	0.306
	LTE Band 2_MOD	20M	QPSK	50	0	Right Cheek	0mm	18700	1860	22.92	23.00	1.019	-0.04	0.206	0.210
	LTE Band 2_MOD	20M	QPSK	1	0	Right Tilted	0mm	18700	1860	23.99	24.00	1.002	0	0.189	0.189
	LTE Band 2_MOD	20M	QPSK	50	0	Right Tilted	0mm	18700	1860	22.92	23.00	1.019	-0.12	0.148	0.151
	LTE Band 2_MOD	20M	QPSK	1	0	Left Cheek	0mm	18700	1860	23.99	24.00	1.002	0.18	0.104	0.104
	LTE Band 2_MOD	20M	QPSK	50	0	Left Cheek	0mm	18700	1860	22.92	23.00	1.019	-0.11	0.084	0.086
	LTE Band 2_MOD	20M	QPSK	1	0	Left Tilted	0mm	18700	1860	23.99	24.00	1.002	-0.04	0.057	0.057
	LTE Band 2_MOD	20M	QPSK	50	0	Left Tilted	0mm	18700	1860	22.92	23.00	1.019	-0.15	0.057	0.058
62	LTE Band 5_MOD	10M	QPSK	1	0	Right Cheek	0mm	20525	836.5	23.56	24.00	1.107	-0.17	0.172	0.190
	LTE Band 5_MOD	10M	QPSK	25	0	Right Cheek	0mm	20525	836.5	22.62	23.00	1.091	-0.11	0.146	0.159
	LTE Band 5_MOD	10M	QPSK	1	0	Right Tilted	0mm	20525	836.5	23.56	24.00	1.107	-0.01	0.098	0.108
	LTE Band 5_MOD	10M	QPSK	25	0	Right Tilted	0mm	20525	836.5	22.62	23.00	1.091	0.01	0.083	0.091
	LTE Band 5_MOD	10M	QPSK	1	0	Left Cheek	0mm	20525	836.5	23.56	24.00	1.107	-0.17	0.110	0.122
	LTE Band 5_MOD	10M	QPSK	25	0	Left Cheek	0mm	20525	836.5	22.62	23.00	1.091	-0.06	0.095	0.104
	LTE Band 5_MOD	10M	QPSK	1	0	Left Tilted	0mm	20525	836.5	23.56	24.00	1.107	0.15	0.079	0.087
	LTE Band 5_MOD	10M	QPSK	25	0	Left Tilted	0mm	20525	836.5	22.62	23.00	1.091	0.08	0.066	0.072
63	LTE Band 13_MOD	10M	QPSK	1	0	Right Cheek	0mm	23230	782	23.49	24.00	1.125	-0.17	0.142	0.160
	LTE Band 13_MOD	10M	QPSK	25	0	Right Cheek	0mm	23230	782	22.61	23.00	1.094	-0.01	0.118	0.129
	LTE Band 13_MOD	10M	QPSK	1	0	Right Tilted	0mm	23230	782	23.49	24.00	1.125	0.04	0.090	0.101
	LTE Band 13_MOD	10M	QPSK	25	0	Right Tilted	0mm	23230	782	22.61	23.00	1.094	-0.05	0.075	0.082
	LTE Band 13_MOD	10M	QPSK	1	0	Left Cheek	0mm	23230	782	23.49	24.00	1.125	0.09	0.100	0.112
	LTE Band 13_MOD	10M	QPSK	25	0	Left Cheek	0mm	23230	782	22.61	23.00	1.094	0	0.083	0.091
	LTE Band 13_MOD	10M	QPSK	1	0	Left Tilted	0mm	23230	782	23.49	24.00	1.125	0.09	0.062	0.070
	LTE Band 13_MOD	10M	QPSK	25	0	Left Tilted	0mm	23230	782	22.61	23.00	1.094	-0.05	0.053	0.058
64	LTE Band 66_MOD	20M	QPSK	1	0	Right Cheek	0mm	132322	1745	23.99	24.00	1.002	0.11	0.168	0.168
	LTE Band 66_MOD	20M	QPSK	50	0	Right Cheek	0mm	132322	1745	22.91	23.00	1.021	0.01	0.137	0.140
	LTE Band 66_MOD	20M	QPSK	1	0	Right Tilted	0mm	132322	1745	23.99	24.00	1.002	-0.19	0.087	0.087
	LTE Band 66_MOD	20M	QPSK	50	0	Right Tilted	0mm	132322	1745	22.91	23.00	1.021	0.01	0.072	0.074
	LTE Band 66_MOD	20M	QPSK	1	0	Left Cheek	0mm	132322	1745	23.99	24.00	1.002	0.07	0.072	0.072
	LTE Band 66_MOD	20M	QPSK	50	0	Left Cheek	0mm	132322	1745	22.91	23.00	1.021	0	0.073	0.075
	LTE Band 66_MOD	20M	QPSK	1	0	Left Tilted	0mm	132322	1745	23.99	24.00	1.002	0.16	0.057	0.057
	LTE Band 66_MOD	20M	QPSK	50	0	Left Tilted	0mm	132322	1745	22.91	23.00	1.021	0.09	0.045	0.046

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Right Cheek	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.13	0.088	0.107
	LTE Band 48_MOD	20M	QPSK	50	0	Right Cheek	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	-0.08	0.071	0.081
65	LTE Band 48_MOD	20M	QPSK	1	0	Right Tilted	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.03	0.093	0.114
	LTE Band 48_MOD	20M	QPSK	50	0	Right Tilted	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.18	0.065	0.074
	LTE Band 48_MOD	20M	QPSK	1	0	Left Cheek	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.08	0.087	0.106
	LTE Band 48_MOD	20M	QPSK	50	0	Left Cheek	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.07	0.071	0.081
	LTE Band 48_MOD	20M	QPSK	1	0	Left Tilted	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.02	0.024	0.029
	LTE Band 48_MOD	20M	QPSK	50	0	Left Tilted	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.07	0.018	0.021

<Hotspot SAR>
<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2_MOD	20M	QPSK	1	0	Front	5mm	18700	1860	14.97	15.00	1.007	0.1	0.020	0.020
	LTE Band 2_MOD	20M	QPSK	50	0	Front	5mm	18700	1860	14.49	15.00	1.125	0.18	0.017	0.019
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18700	1860	14.97	15.00	1.007	-0.05	1.240	1.249
66	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-0.12	1.340	1.381
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	19100	1900	14.88	15.00	1.028	-0.13	1.240	1.275
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18700	1860	14.49	15.00	1.125	0.03	1.050	1.181
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18900	1880	14.42	15.00	1.143	0.04	1.100	1.257
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	19100	1900	14.45	15.00	1.135	0.12	1.040	1.180
	LTE Band 2_MOD	20M	QPSK	100	0	Back	5mm	18700	1860	14.48	15.00	1.127	-0.07	1.010	1.138
	LTE Band 2_MOD	20M	QPSK	1	0	Left Side	5mm	18700	1860	14.97	15.00	1.007	-0.05	0.498	0.501
	LTE Band 2_MOD	20M	QPSK	50	0	Left Side	5mm	18700	1860	14.49	15.00	1.125	-0.18	0.415	0.467
	LTE Band 2_MOD	20M	QPSK	1	0	Top Side	5mm	18700	1860	14.97	15.00	1.007	0.03	0.026	0.026
	LTE Band 2_MOD	20M	QPSK	50	0	Top Side	5mm	18700	1860	14.49	15.00	1.125	-0.04	0.021	0.024
	LTE Band 5_MOD	10M	QPSK	1	0	Front	5mm	20525	836.5	23.56	24.00	1.107	-0.01	0.122	0.135
	LTE Band 5_MOD	10M	QPSK	25	0	Front	5mm	20525	836.5	22.62	23.00	1.091	-0.02	0.102	0.111
67	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	23.56	24.00	1.107	-0.02	1.200	1.328
	LTE Band 5_MOD	10M	QPSK	25	0	Back	5mm	20525	836.5	22.62	23.00	1.091	-0.03	0.969	1.058
	LTE Band 5_MOD	10M	QPSK	50	0	Back	5mm	20525	836.5	22.55	23.00	1.091	-0.01	0.924	1.025
	LTE Band 5_MOD	10M	QPSK	1	0	Left Side	5mm	20525	836.5	23.56	24.00	1.107	-0.03	0.427	0.473
	LTE Band 5_MOD	10M	QPSK	25	0	Left Side	5mm	20525	836.5	22.62	23.00	1.091	-0.04	0.345	0.377
	LTE Band 5_MOD	10M	QPSK	1	0	Right Side	5mm	20525	836.5	23.56	24.00	1.107	0.02	0.137	0.152
	LTE Band 5_MOD	10M	QPSK	25	0	Right Side	5mm	20525	836.5	22.62	23.00	1.091	0.01	0.081	0.088
	LTE Band 5_MOD	10M	QPSK	1	0	Top Side	5mm	20525	836.5	23.56	24.00	1.107	-0.05	0.054	0.060
	LTE Band 5_MOD	10M	QPSK	25	0	Top Side	5mm	20525	836.5	22.62	23.00	1.091	-0.04	0.046	0.050
	LTE Band 13_MOD	10M	QPSK	1	0	Front	5mm	23230	782	23.49	24.00	1.125	0	0.115	0.129
	LTE Band 13_MOD	10M	QPSK	25	0	Front	5mm	23230	782	22.61	23.00	1.094	0.02	0.096	0.105
68	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-0.05	1.230	1.383
	LTE Band 13_MOD	10M	QPSK	25	0	Back	5mm	23230	782	22.61	23.00	1.094	-0.03	0.996	1.090
	LTE Band 13_MOD	10M	QPSK	50	0	Back	5mm	23230	782	22.52	23.00	1.117	-0.15	0.905	1.011
	LTE Band 13_MOD	10M	QPSK	1	0	Left Side	5mm	23230	782	23.49	24.00	1.125	-0.07	0.529	0.595
	LTE Band 13_MOD	10M	QPSK	25	0	Left Side	5mm	23230	782	22.61	23.00	1.094	0.07	0.431	0.471
	LTE Band 13_MOD	10M	QPSK	1	0	Top Side	5mm	23230	782	23.49	24.00	1.125	0.01	0.040	0.045
	LTE Band 13_MOD	10M	QPSK	25	0	Top Side	5mm	23230	782	22.61	23.00	1.094	0.07	0.037	0.040
	LTE Band 66_MOD	20M	QPSK	1	0	Front	5mm	132322	1745	15.73	16.00	1.064	0.13	0.020	0.021
	LTE Band 66_MOD	20M	QPSK	50	0	Front	5mm	132322	1745	15.23	16.00	1.194	0.15	0.016	0.019
69	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	0.09	1.190	1.266
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132072	1720	15.69	16.00	1.074	0.16	1.120	1.203
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132572	1770	15.55	16.00	1.109	0.11	0.910	1.009
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132322	1745	15.23	16.00	1.194	-0.03	0.990	1.182
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132072	1720	15.19	16.00	1.205	0.03	0.957	1.153
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132572	1770	15.08	16.00	1.236	0.13	0.816	1.009
	LTE Band 66_MOD	20M	QPSK	100	0	Back	5mm	132322	1745	15.18	16.00	1.208	0.19	0.991	1.197
	LTE Band 66_MOD	20M	QPSK	1	0	Left Side	5mm	132322	1745	15.73	16.00	1.064	0.01	0.444	0.472
	LTE Band 66_MOD	20M	QPSK	50	0	Left Side	5mm	132322	1745	15.23	16.00	1.194	0.03	0.375	0.448
	LTE Band 66_MOD	20M	QPSK	1	0	Top Side	5mm	132322	1745	15.73	16.00	1.064	0.04	0.014	0.015
	LTE Band 66_MOD	20M	QPSK	50	0	Top Side	5mm	132322	1745	15.23	16.00	1.194	0.09	0.011	0.013

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Front	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.03	0.238	0.308
	LTE Band 48_MOD	20M	QPSK	50	0	Front	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	-0.1	0.157	0.219
	LTE Band 48_MOD	20M	QPSK	1	0	Back	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.01	0.859	1.113
70	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	-0.14	0.931	1.235
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	-0.05	0.796	1.103
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	-0.12	0.802	1.124
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.02	0.713	0.995
	LTE Band 48_MOD	20M	QPSK	50	24	Back	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.02	0.699	1.021
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.12	0.677	0.994
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.01	0.693	1.008
	LTE Band 48_MOD	20M	QPSK	100	0	Back	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0	0.683	0.865
	LTE Band 48_MOD	20M	QPSK	1	0	Left Side	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	0.1	0.766	0.993
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	0.14	0.705	0.935
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	0.01	0.581	0.805
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	0.02	0.605	0.848
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.07	0.561	0.783
	LTE Band 48_MOD	20M	QPSK	50	24	Left Side	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.05	0.553	0.808
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.03	0.532	0.781
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.1	0.547	0.795
	LTE Band 48_MOD	20M	QPSK	100	0	Left Side	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0.03	0.559	0.708
	LTE Band 48_MOD	20M	QPSK	1	0	Bottom Side	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	0.04	0.316	0.410
	LTE Band 48_MOD	20M	QPSK	50	0	Bottom Side	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	-0.04	0.251	0.350

<Body Worn Accessory SAR>
<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2_MOD	20M	QPSK	1	0	Front	5mm	18700	1860	23.99	24.00	1.002	0.12	0.203	0.203
	LTE Band 2_MOD	20M	QPSK	50	0	Front	5mm	18700	1860	22.92	23.00	1.019	0.1	0.168	0.171
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18700	1860	14.97	15.00	1.007	-0.05	1.240	1.249
71	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-0.12	1.340	1.381
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	19100	1900	14.88	15.00	1.028	-0.13	1.240	1.275
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18700	1860	14.49	15.00	1.125	0.03	1.050	1.181
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18900	1880	14.42	15.00	1.143	0.04	1.100	1.257
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	19100	1900	14.45	15.00	1.135	0.12	1.040	1.180
	LTE Band 2_MOD	20M	QPSK	100	0	Back	5mm	18700	1860	14.48	15.00	1.127	-0.07	1.010	1.138
	LTE Band 5_MOD	10M	QPSK	1	0	Front	5mm	20525	836.5	23.56	24.00	1.107	-0.01	0.122	0.135
	LTE Band 5_MOD	10M	QPSK	25	0	Front	5mm	20525	836.5	22.62	23.00	1.091	-0.02	0.102	0.111
72	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	23.56	24.00	1.107	-0.02	1.200	1.328
	LTE Band 5_MOD	10M	QPSK	25	0	Back	5mm	20525	836.5	22.62	23.00	1.091	-0.03	0.969	1.058
	LTE Band 5_MOD	10M	QPSK	50	0	Back	5mm	20525	836.5	22.55	23.00	1.091	-0.01	0.924	1.025
	LTE Band 13_MOD	10M	QPSK	1	0	Front	5mm	23230	782	23.49	24.00	1.125	0	0.115	0.129
	LTE Band 13_MOD	10M	QPSK	25	0	Front	5mm	23230	782	22.61	23.00	1.094	0.02	0.096	0.105
73	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-0.05	1.230	1.383
	LTE Band 13_MOD	10M	QPSK	25	0	Back	5mm	23230	782	22.61	23.00	1.094	-0.03	0.996	1.090
	LTE Band 13_MOD	10M	QPSK	50	0	Back	5mm	23230	782	22.52	23.00	1.117	-0.15	0.905	1.011
	LTE Band 66_MOD	20M	QPSK	1	0	Front	5mm	132322	1745	23.99	24.00	1.002	0.11	0.137	0.137
	LTE Band 66_MOD	20M	QPSK	50	0	Front	5mm	132322	1745	22.91	23.00	1.021	0.1	0.107	0.109
74	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	0.09	1.190	1.266
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132072	1720	15.69	16.00	1.074	0.16	1.120	1.203
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132572	1770	15.55	16.00	1.109	0.11	0.910	1.009
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132322	1745	15.23	16.00	1.194	-0.03	0.990	1.182
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132072	1720	15.19	16.00	1.205	0.03	0.957	1.153
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132572	1770	15.08	16.00	1.236	0.13	0.816	1.009
	LTE Band 66_MOD	20M	QPSK	100	0	Back	5mm	132322	1745	15.18	16.00	1.208	0.19	0.991	1.197

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Front	5mm	56640	3690	22.16	23.00	1.213	62.9	1.006	-0.19	0.169	0.206
	LTE Band 48_MOD	20M	QPSK	50	0	Front	5mm	56640	3690	21.55	22.00	1.109	62.9	1.006	0.09	0.160	0.179
	LTE Band 48_MOD	20M	QPSK	1	0	Back	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.01	0.859	1.113
75	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	-0.14	0.931	1.235
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	-0.05	0.796	1.103
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	-0.12	0.802	1.124
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.02	0.713	0.995
	LTE Band 48_MOD	20M	QPSK	50	24	Back	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.02	0.699	1.021
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.12	0.677	0.994
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.01	0.693	1.008
	LTE Band 48_MOD	20M	QPSK	100	0	Back	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0	0.683	0.865

<Product Specific SAR>
<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
76	LTE Band 2_MOD	20M	QPSK	1	0	Back	0mm	18700	1860	14.97	15.00	1.007	0.15	0.397	0.400
77	LTE Band 5_MOD	10M	QPSK	1	0	Back	0mm	20525	836.5	23.56	24.00	1.107	0.03	0.703	0.778
78	LTE Band 13_MOD	10M	QPSK	1	0	Back	0mm	23230	782	23.49	24.00	1.125	0.01	0.825	0.928
79	LTE Band 66_MOD	20M	QPSK	1	0	Back	0mm	132322	1745	15.73	16.00	1.064	0.11	0.475	0.505

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
80	LTE Band 48_MOD	20M	QPSK	1	0	Back	0mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.06	1.250	1.620

**14.2 Mod SAR Test Results: Mod attached on IHDT56XJ1 (Phone WWAN Tx ON)****<Head SAR>****<FDD LTE >**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
61	LTE Band 2_MOD	20M	QPSK	1	0	Right Cheek	0mm	18700	1860	23.99	24.00	1.002	-0.09	0.305	0.306
	LTE Band 2_MOD	20M	QPSK	50	0	Right Cheek	0mm	18700	1860	22.92	23.00	1.019	-0.04	0.206	0.210
	LTE Band 2_MOD	20M	QPSK	1	0	Right Tilted	0mm	18700	1860	23.99	24.00	1.002	0	0.189	0.189
	LTE Band 2_MOD	20M	QPSK	50	0	Right Tilted	0mm	18700	1860	22.92	23.00	1.019	-0.12	0.148	0.151
	LTE Band 2_MOD	20M	QPSK	1	0	Left Cheek	0mm	18700	1860	23.99	24.00	1.002	0.18	0.104	0.104
	LTE Band 2_MOD	20M	QPSK	50	0	Left Cheek	0mm	18700	1860	22.92	23.00	1.019	-0.11	0.084	0.086
	LTE Band 2_MOD	20M	QPSK	1	0	Left Tilted	0mm	18700	1860	23.99	24.00	1.002	-0.04	0.057	0.057
	LTE Band 2_MOD	20M	QPSK	50	0	Left Tilted	0mm	18700	1860	22.92	23.00	1.019	-0.15	0.057	0.058
62	LTE Band 5_MOD	10M	QPSK	1	0	Right Cheek	0mm	20525	836.5	23.56	24.00	1.107	-0.17	0.172	0.190
	LTE Band 5_MOD	10M	QPSK	25	0	Right Cheek	0mm	20525	836.5	22.62	23.00	1.091	-0.11	0.146	0.159
	LTE Band 5_MOD	10M	QPSK	1	0	Right Tilted	0mm	20525	836.5	23.56	24.00	1.107	-0.01	0.098	0.108
	LTE Band 5_MOD	10M	QPSK	25	0	Right Tilted	0mm	20525	836.5	22.62	23.00	1.091	0.01	0.083	0.091
	LTE Band 5_MOD	10M	QPSK	1	0	Left Cheek	0mm	20525	836.5	23.56	24.00	1.107	-0.17	0.110	0.122
	LTE Band 5_MOD	10M	QPSK	25	0	Left Cheek	0mm	20525	836.5	22.62	23.00	1.091	-0.06	0.095	0.104
	LTE Band 5_MOD	10M	QPSK	1	0	Left Tilted	0mm	20525	836.5	23.56	24.00	1.107	0.15	0.079	0.087
	LTE Band 5_MOD	10M	QPSK	25	0	Left Tilted	0mm	20525	836.5	22.62	23.00	1.091	0.08	0.066	0.072
63	LTE Band 13_MOD	10M	QPSK	1	0	Right Cheek	0mm	23230	782	23.49	24.00	1.125	-0.17	0.142	0.160
	LTE Band 13_MOD	10M	QPSK	25	0	Right Cheek	0mm	23230	782	22.61	23.00	1.094	-0.01	0.118	0.129
	LTE Band 13_MOD	10M	QPSK	1	0	Right Tilted	0mm	23230	782	23.49	24.00	1.125	0.04	0.090	0.101
	LTE Band 13_MOD	10M	QPSK	25	0	Right Tilted	0mm	23230	782	22.61	23.00	1.094	-0.05	0.075	0.082
	LTE Band 13_MOD	10M	QPSK	1	0	Left Cheek	0mm	23230	782	23.49	24.00	1.125	0.09	0.100	0.112
	LTE Band 13_MOD	10M	QPSK	25	0	Left Cheek	0mm	23230	782	22.61	23.00	1.094	0	0.083	0.091
	LTE Band 13_MOD	10M	QPSK	1	0	Left Tilted	0mm	23230	782	23.49	24.00	1.125	0.09	0.062	0.070
	LTE Band 13_MOD	10M	QPSK	25	0	Left Tilted	0mm	23230	782	22.61	23.00	1.094	-0.05	0.053	0.058
64	LTE Band 66_MOD	20M	QPSK	1	0	Right Cheek	0mm	132322	1745	23.99	24.00	1.002	0.11	0.168	0.168
	LTE Band 66_MOD	20M	QPSK	50	0	Right Cheek	0mm	132322	1745	22.91	23.00	1.021	0.01	0.137	0.140
	LTE Band 66_MOD	20M	QPSK	1	0	Right Tilted	0mm	132322	1745	23.99	24.00	1.002	-0.19	0.087	0.087
	LTE Band 66_MOD	20M	QPSK	50	0	Right Tilted	0mm	132322	1745	22.91	23.00	1.021	0.01	0.072	0.074
	LTE Band 66_MOD	20M	QPSK	1	0	Left Cheek	0mm	132322	1745	23.99	24.00	1.002	0.07	0.072	0.072
	LTE Band 66_MOD	20M	QPSK	50	0	Left Cheek	0mm	132322	1745	22.91	23.00	1.021	0	0.073	0.075
	LTE Band 66_MOD	20M	QPSK	1	0	Left Tilted	0mm	132322	1745	23.99	24.00	1.002	0.16	0.057	0.057
	LTE Band 66_MOD	20M	QPSK	50	0	Left Tilted	0mm	132322	1745	22.91	23.00	1.021	0.09	0.045	0.046

Note: TX power level when phone WWAN TX OFF is higher than when phone WWAN TX OFF, Head SAR test results in section 14.1 is referenced conservatively.

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Right Cheek	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.13	0.088	0.107
	LTE Band 48_MOD	20M	QPSK	50	0	Right Cheek	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	-0.08	0.071	0.081
65	LTE Band 48_MOD	20M	QPSK	1	0	Right Tilted	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.03	0.093	0.114
	LTE Band 48_MOD	20M	QPSK	50	0	Right Tilted	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.18	0.065	0.074
	LTE Band 48_MOD	20M	QPSK	1	0	Left Cheek	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.08	0.087	0.106
	LTE Band 48_MOD	20M	QPSK	50	0	Left Cheek	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.07	0.071	0.081
	LTE Band 48_MOD	20M	QPSK	1	0	Left Tilted	0mm	56640	3690	22.16	23.00	1.213	62.9	1.006	0.02	0.024	0.029
	LTE Band 48_MOD	20M	QPSK	50	0	Left Tilted	0mm	56150	3641	21.44	22.00	1.138	62.9	1.006	0.07	0.018	0.021

**<Hotspot SAR>****<FDD LTE SAR>**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
66	LTE Band 2_MOD	20M	QPSK	1	0	Front	5mm	18700	1860	14.97	15.00	1.007	0.1	0.020	0.020
	LTE Band 2_MOD	20M	QPSK	50	0	Front	5mm	18700	1860	14.49	15.00	1.125	0.18	0.017	0.019
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18700	1860	14.97	15.00	1.007	-0.05	1.240	1.249
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-0.12	1.340	1.381
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	19100	1900	14.88	15.00	1.028	-0.13	1.240	1.275
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18700	1860	14.49	15.00	1.125	0.03	1.050	1.181
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18900	1880	14.42	15.00	1.143	0.04	1.100	1.257
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	19100	1900	14.45	15.00	1.135	0.12	1.040	1.180
	LTE Band 2_MOD	20M	QPSK	100	0	Back	5mm	18700	1860	14.48	15.00	1.127	-0.07	1.010	1.138
	LTE Band 2_MOD	20M	QPSK	1	0	Left Side	5mm	18700	1860	14.97	15.00	1.007	-0.05	0.498	0.501
	LTE Band 2_MOD	20M	QPSK	50	0	Left Side	5mm	18700	1860	14.49	15.00	1.125	-0.18	0.415	0.467
	LTE Band 2_MOD	20M	QPSK	1	0	Top Side	5mm	18700	1860	14.97	15.00	1.007	0.03	0.026	0.026
	LTE Band 2_MOD	20M	QPSK	50	0	Top Side	5mm	18700	1860	14.49	15.00	1.125	-0.04	0.021	0.024
	LTE Band 5_MOD	10M	QPSK	1	0	Front	5mm	20525	836.5	22.00	22.50	1.122	-0.03	0.085	0.095
	LTE Band 5_MOD	10M	QPSK	25	0	Front	5mm	20525	836.5	21.02	22.50	1.406	-0.03	0.065	0.091
81	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	22.00	22.50	1.122	-0.03	0.809	0.908
	LTE Band 5_MOD	10M	QPSK	25	0	Back	5mm	20525	836.5	21.02	22.50	1.406	0	0.640	0.900
	LTE Band 5_MOD	10M	QPSK	50	0	Back	5mm	20525	836.5	20.99	22.50	1.416	-0.12	0.582	0.824
	LTE Band 5_MOD	10M	QPSK	1	0	Left Side	5mm	20525	836.5	22.00	22.50	1.122	-0.07	0.251	0.282
	LTE Band 5_MOD	10M	QPSK	25	0	Left Side	5mm	20525	836.5	21.02	22.50	1.406	-0.02	0.194	0.273
	LTE Band 5_MOD	10M	QPSK	1	0	Top Side	5mm	20525	836.5	22.00	22.50	1.107	-0.05	0.054	0.060
	LTE Band 5_MOD	10M	QPSK	25	0	Top Side	5mm	20525	836.5	21.02	22.50	1.091	-0.04	0.046	0.050
	LTE Band 13_MOD	10M	QPSK	1	0	Front	5mm	23230	782	23.49	24.00	1.125	0	0.115	0.129
	LTE Band 13_MOD	10M	QPSK	25	0	Front	5mm	23230	782	22.61	23.00	1.094	0.02	0.096	0.105
	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-0.05	1.230	1.383
68	LTE Band 13_MOD	10M	QPSK	25	0	Back	5mm	23230	782	22.61	23.00	1.094	-0.03	0.996	1.090
	LTE Band 13_MOD	10M	QPSK	50	0	Back	5mm	23230	782	22.52	23.00	1.117	-0.15	0.905	1.011
	LTE Band 13_MOD	10M	QPSK	1	0	Left Side	5mm	23230	782	23.49	24.00	1.125	-0.07	0.529	0.595
	LTE Band 13_MOD	10M	QPSK	25	0	Left Side	5mm	23230	782	22.61	23.00	1.094	0.07	0.431	0.471
	LTE Band 13_MOD	10M	QPSK	1	0	Top Side	5mm	23230	782	23.49	24.00	1.125	0.01	0.040	0.045
	LTE Band 13_MOD	10M	QPSK	25	0	Top Side	5mm	23230	782	22.61	23.00	1.094	0.07	0.037	0.040
	LTE Band 66_MOD	20M	QPSK	1	0	Front	5mm	132322	1745	15.73	16.00	1.064	0.13	0.020	0.021
	LTE Band 66_MOD	20M	QPSK	50	0	Front	5mm	132322	1745	15.23	16.00	1.194	0.15	0.016	0.019
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	0.09	1.190	1.266
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132072	1720	15.69	16.00	1.074	0.16	1.120	1.203
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132572	1770	15.55	16.00	1.109	0.11	0.910	1.009
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132322	1745	15.23	16.00	1.194	-0.03	0.990	1.182
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132072	1720	15.19	16.00	1.205	0.03	0.957	1.153
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132572	1770	15.08	16.00	1.236	0.13	0.816	1.009
	LTE Band 66_MOD	20M	QPSK	100	0	Back	5mm	132322	1745	15.18	16.00	1.208	0.19	0.991	1.197
69	LTE Band 66_MOD	20M	QPSK	1	0	Left Side	5mm	132322	1745	15.73	16.00	1.064	0.01	0.444	0.472
	LTE Band 66_MOD	20M	QPSK	50	0	Left Side	5mm	132322	1745	15.23	16.00	1.194	0.03	0.375	0.448
	LTE Band 66_MOD	20M	QPSK	1	0	Top Side	5mm	132322	1745	15.73	16.00	1.064	0.04	0.014	0.015
	LTE Band 66_MOD	20M	QPSK	50	0	Top Side	5mm	132322	1745	15.23	16.00	1.194	0.09	0.011	0.013
	LTE Band 66_MOD	20M	QPSK	1	0	Front	5mm	132322	1745	15.73	16.00	1.064	0.09	0.011	0.013
	LTE Band 66_MOD	20M	QPSK	50	0	Front	5mm	132322	1745	15.23	16.00	1.194	0.09	0.011	0.013



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Front	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.03	0.238	0.308
	LTE Band 48_MOD	20M	QPSK	50	0	Front	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	-0.1	0.157	0.219
	LTE Band 48_MOD	20M	QPSK	1	0	Back	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.01	0.859	1.113
70	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	-0.14	0.931	1.235
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	-0.05	0.796	1.103
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	-0.12	0.802	1.124
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.02	0.713	0.995
	LTE Band 48_MOD	20M	QPSK	50	24	Back	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.02	0.699	1.021
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.12	0.677	0.994
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.01	0.693	1.008
	LTE Band 48_MOD	20M	QPSK	100	0	Back	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0	0.683	0.865
	LTE Band 48_MOD	20M	QPSK	1	0	Left Side	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	0.1	0.766	0.993
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	0.14	0.705	0.935
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	0.01	0.581	0.805
	LTE Band 48_MOD	20M	QPSK	1	99	Left Side	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	0.02	0.605	0.848
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.07	0.561	0.783
	LTE Band 48_MOD	20M	QPSK	50	24	Left Side	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.05	0.553	0.808
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.03	0.532	0.781
	LTE Band 48_MOD	20M	QPSK	50	0	Left Side	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.1	0.547	0.795
	LTE Band 48_MOD	20M	QPSK	100	0	Left Side	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0.03	0.559	0.708
	LTE Band 48_MOD	20M	QPSK	1	0	Bottom Side	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	0.04	0.316	0.410
	LTE Band 48_MOD	20M	QPSK	50	0	Bottom Side	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	-0.04	0.251	0.350

<Body Worn Accessory SAR>
<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2_MOD	20M	QPSK	1	0	Front	5mm	18700	1860	23.99	24.00	1.002	0.12	0.203	0.203
	LTE Band 2_MOD	20M	QPSK	50	0	Front	5mm	18700	1860	22.92	23.00	1.019	0.1	0.168	0.171
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18700	1860	14.97	15.00	1.007	-0.05	1.240	1.249
71	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-0.12	1.340	1.381
	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	19100	1900	14.88	15.00	1.028	-0.13	1.240	1.275
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18700	1860	14.49	15.00	1.125	0.03	1.050	1.181
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	18900	1880	14.42	15.00	1.143	0.04	1.100	1.257
	LTE Band 2_MOD	20M	QPSK	50	0	Back	5mm	19100	1900	14.45	15.00	1.135	0.12	1.040	1.180
	LTE Band 2_MOD	20M	QPSK	100	0	Back	5mm	18700	1860	14.48	15.00	1.127	-0.07	1.010	1.138
	LTE Band 5_MOD	10M	QPSK	1	0	Front	5mm	20525	836.5	23.56	24.00	1.107	-0.01	0.122	0.135
	LTE Band 5_MOD	10M	QPSK	25	0	Front	5mm	20525	836.5	22.62	23.00	1.091	-0.02	0.102	0.111
82	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	22.00	22.50	1.122	-0.03	0.809	0.908
	LTE Band 5_MOD	10M	QPSK	25	0	Back	5mm	20525	836.5	21.02	22.50	1.406	0	0.640	0.900
	LTE Band 5_MOD	10M	QPSK	50	0	Back	5mm	20525	836.5	20.99	22.50	1.416	-0.12	0.582	0.824
	LTE Band 13_MOD	10M	QPSK	1	0	Front	5mm	23230	782	23.49	24.00	1.125	0	0.115	0.129
	LTE Band 13_MOD	10M	QPSK	25	0	Front	5mm	23230	782	22.61	23.00	1.094	0.02	0.096	0.105
73	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-0.05	1.230	1.383
	LTE Band 13_MOD	10M	QPSK	25	0	Back	5mm	23230	782	22.61	23.00	1.094	-0.03	0.996	1.090
	LTE Band 13_MOD	10M	QPSK	50	0	Back	5mm	23230	782	22.52	23.00	1.117	-0.15	0.905	1.011
	LTE Band 66_MOD	20M	QPSK	1	0	Front	5mm	132322	1745	23.99	24.00	1.002	0.11	0.137	0.137
	LTE Band 66_MOD	20M	QPSK	50	0	Front	5mm	132322	1745	22.91	23.00	1.021	0.1	0.107	0.109
74	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	0.09	1.190	1.266
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132072	1720	15.69	16.00	1.074	0.16	1.120	1.203
	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132572	1770	15.55	16.00	1.109	0.11	0.910	1.009
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132322	1745	15.23	16.00	1.194	-0.03	0.990	1.182
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132072	1720	15.19	16.00	1.205	0.03	0.957	1.153
	LTE Band 66_MOD	20M	QPSK	50	0	Back	5mm	132572	1770	15.08	16.00	1.236	0.13	0.816	1.009
	LTE Band 66_MOD	20M	QPSK	100	0	Back	5mm	132322	1745	15.18	16.00	1.208	0.19	0.991	1.197

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 48_MOD	20M	QPSK	1	0	Front	5mm	56640	3690	22.16	23.00	1.213	62.9	1.006	-0.19	0.169	0.206
	LTE Band 48_MOD	20M	QPSK	50	0	Front	5mm	56640	3690	21.55	22.00	1.109	62.9	1.006	0.09	0.160	0.179
	LTE Band 48_MOD	20M	QPSK	1	0	Back	5mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.01	0.859	1.113
75	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	-0.14	0.931	1.235
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55830	3609	20.61	22.00	1.377	62.9	1.006	-0.05	0.796	1.103
	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	56150	3641	20.56	22.00	1.393	62.9	1.006	-0.12	0.802	1.124
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56640	3690	20.58	22.00	1.387	62.9	1.006	0.02	0.713	0.995
	LTE Band 48_MOD	20M	QPSK	50	24	Back	5mm	55340	3560	20.38	22.00	1.452	62.9	1.006	0.02	0.699	1.021
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	55830	3609	20.36	22.00	1.459	62.9	1.006	0.12	0.677	0.994
	LTE Band 48_MOD	20M	QPSK	50	0	Back	5mm	56150	3641	20.40	22.00	1.445	62.9	1.006	0.01	0.693	1.008
	LTE Band 48_MOD	20M	QPSK	100	0	Back	5mm	56640	3690	19.00	20.00	1.259	62.9	1.006	0	0.683	0.865

<Product Specific SAR>
<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
76	LTE Band 2_MOD	20M	QPSK	1	0	Back	0mm	18700	1860	14.97	15.00	1.007	0.15	0.397	0.400
77	LTE Band 5_MOD	10M	QPSK	1	0	Back	0mm	20525	836.5	23.56	24.00	1.107	0.03	0.703	0.778
78	LTE Band 13_MOD	10M	QPSK	1	0	Back	0mm	23230	782	23.49	24.00	1.125	0.01	0.825	0.928
79	LTE Band 66_MOD	20M	QPSK	1	0	Back	0mm	132322	1745	15.73	16.00	1.064	0.11	0.475	0.505

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
80	LTE Band 48_MOD	20M	QPSK	1	0	Back	0mm	56640	3690	20.90	22.00	1.288	62.9	1.006	-0.06	1.250	1.620

14.3 Repeated SAR Measurement

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-	1.000	-0.12	1.340	-	1.381
2nd	LTE Band 2_MOD	20M	QPSK	1	0	Back	5mm	18900	1880	14.87	15.00	1.030	-	1.000	-0.05	1.260	1.06	1.298
1st	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	23.56	24.00	1.107	-	1.000	-0.02	1.200	-	1.328
2nd	LTE Band 5_MOD	10M	QPSK	1	0	Back	5mm	20525	836.5	23.56	24.00	1.107	-	1.000	-0.01	1.140	1.05	1.262
1st	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-	1.000	-0.05	1.230	-	1.383
2nd	LTE Band 13_MOD	10M	QPSK	1	0	Back	5mm	23230	782	23.49	24.00	1.125	-	1.000	-0.15	1.130	1.09	1.271
1st	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	-	1.000	0.09	1.190	-	1.266
2nd	LTE Band 66_MOD	20M	QPSK	1	0	Back	5mm	132322	1745	15.73	16.00	1.064	-	1.000	0.1	1.150	1.03	1.224
1st	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	-0.14	0.931	-	1.235
2nd	LTE Band 48_MOD	20M	QPSK	1	99	Back	5mm	55340	3560	20.80	22.00	1.318	62.9	1.006	0.07	0.789	1.18	1.046

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

Simultaneous configuration	
Mod WWAN LTE Bands+5GNR n261	Yes
Phone WLAN 2.4GHz/5GHz+Mod LTE Bands + 5GNR n261	Yes
Phone WWAN LTE bands+ phone WLAN 2.4GHz/5GHz+ Mod LTE Bands + 5GNR n261	Yes
Phone WWAN CDMA bands+ phone WLAN 2.4GHz/5GHz+ Mod LTE Bands + 5GNR n261	Yes

Note:

1. Simultaneous transmission with 5GNR n261 power density was evaluated in the RF exposure report (Sporton report number: FA890514B). This section covers the simultaneous transmission in sub-6 GHz range
2. As explained in section 14.1, IHDT56XJ1 SAR test results when Mod is attached were referenced from Sporton Report No: FA851503, except for the back position the test results in section 14.1 were used for analysis
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) Scalar SAR summation < 1.6W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - v) The SPLSR calculated results please refer to section 15.5.

**15.1 Head Exposure Conditions**

<WWAN Tx On>

Head		IHDT56XJ1				IHDT56XL1					Summation														Case No.	SPLSR		
WWAN Band	Exposure Position	1	2	3	4	5	7	8	9	10	1+2+5 Summed 1g SAR (W/kg)	1+2+7 Summed 1g SAR (W/kg)	1+2+8 Summed 1g SAR (W/kg)	1+2+9 Summed 1g SAR (W/kg)	1+2+10 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+3+7 Summed 1g SAR (W/kg)	1+3+8 Summed 1g SAR (W/kg)	1+3+9 Summed 1g SAR (W/kg)	1+3+10 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+4+7 Summed 1g SAR (W/kg)	1+4+8 Summed 1g SAR (W/kg)	1+4+9 Summed 1g SAR (W/kg)			1+4+10 Summed 1g SAR (W/kg)	
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1	LTE B2 (MOD)	LTE B5 (MOD)	LTE B12(MOD)	LTE B48(MOD)	LTE B66(MOD)																		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)																		
CDMA	CDMA BC0	Right Cheek	0.354	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.129	1.013	0.983	0.930	0.991	1.773	1.657	1.627	1.574	1.635	1.098	0.982	0.952	0.899	0.960	CASE 1	0.04
		Right Tilted	0.189	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.684	0.603	0.596	0.609	0.582	1.053	0.972	0.965	0.978	0.951	0.748	0.667	0.660	0.673	0.646		
		Left Cheek	0.469	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.684	0.702	0.692	0.686	0.652	0.832	0.850	0.840	0.834	0.800	0.738	0.756	0.746	0.740	0.706		
		Left Tilted	0.204	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.381	0.411	0.394	0.353	0.381	0.527	0.557	0.540	0.499	0.527	0.413	0.443	0.426	0.385	0.413		
	CDMA BC1	Right Cheek	0.289	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.064	0.948	0.918	0.865	0.926	1.708	1.592	1.562	1.509	1.570	1.033	0.917	0.887	0.834	0.895	CASE 2	0.02
		Right Tilted	0.109	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.604	0.523	0.516	0.529	0.502	0.973	0.892	0.885	0.898	0.871	0.668	0.587	0.580	0.593	0.566		
		Left Cheek	0.217	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.432	0.450	0.440	0.434	0.400	0.580	0.598	0.588	0.582	0.548	0.486	0.504	0.494	0.488	0.454		
		Left Tilted	0.170	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.347	0.377	0.360	0.319	0.347	0.493	0.523	0.506	0.465	0.493	0.379	0.409	0.392	0.351	0.379		
LTE	LTE Band 2	Right Cheek	0.316	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.091	0.975	0.945	0.892	0.953	1.735	1.619	1.589	1.536	1.597	1.060	0.944	0.914	0.861	0.922	CASE 3	0.02
		Right Tilted	0.114	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.609	0.528	0.521	0.534	0.507	0.978	0.897	0.890	0.903	0.876	0.673	0.592	0.585	0.598	0.571		
		Left Cheek	0.256	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.471	0.489	0.479	0.473	0.439	0.619	0.637	0.627	0.621	0.587	0.525	0.543	0.533	0.527	0.493		
		Left Tilted	0.202	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.379	0.409	0.392	0.351	0.379	0.525	0.555	0.538	0.497	0.525	0.411	0.441	0.424	0.383	0.411		
	LTE Band 5	Right Cheek	0.263	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.038	0.922	0.892	0.839	0.900	1.682	1.566	1.536	1.483	1.544	1.007	0.891	0.861	0.808	0.869	CASE 4	0.03
		Right Tilted	0.135	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.630	0.549	0.542	0.555	0.528	0.999	0.918	0.911	0.924	0.897	0.694	0.613	0.606	0.619	0.592		
		Left Cheek	0.326	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.541	0.559	0.549	0.543	0.509	0.689	0.707	0.697	0.691	0.657	0.595	0.613	0.603	0.597	0.563		
		Left Tilted	0.159	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.336	0.366	0.349	0.308	0.336	0.482	0.512	0.495	0.454	0.482	0.368	0.398	0.381	0.340	0.368		
	LTE Band 7	Right Cheek	0.788	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.563	1.447	1.417	1.364	1.425	2.207	2.091	2.061	2.008	2.069	1.532	1.416	1.386	1.333	1.394	CASE 5	0.04
		Right Tilted	0.299	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.794	0.713	0.706	0.719	0.692	1.163	1.082	1.075	1.088	1.061	0.858	0.777	0.770	0.783	0.756		
		Left Cheek	0.427	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.642	0.660	0.650	0.644	0.610	0.790	0.808	0.798	0.792	0.758	0.696	0.714	0.704	0.698	0.664		
		Left Tilted	0.306	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.483	0.513	0.496	0.455	0.483	0.629	0.659	0.642	0.601	0.629	0.515	0.545	0.528	0.487	0.515		
	LTE Band 13	Right Cheek	0.227	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.002	0.886	0.856	0.803	0.864	1.646	1.530	1.500	1.447	1.508	0.971	0.855	0.825	0.772	0.833	CASE 6	0.03
		Right Tilted	0.132	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.627	0.546	0.539	0.552	0.525	0.996	0.915	0.908	0.921	0.894	0.691	0.610	0.603	0.616	0.589		
		Left Cheek	0.262	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.477	0.495	0.485	0.479	0.445	0.625	0.643	0.633	0.627	0.593	0.531	0.549	0.539	0.533	0.499		
		Left Tilted	0.136	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.313	0.343	0.326	0.285	0.313	0.459	0.489	0.472	0.431	0.459	0.345	0.375	0.358	0.317	0.345		
	LTE Band 66	Right Cheek	0.570	0.469	1.113	0.438	0.306	0.190	0.160	0.121	0.168	1.345	1.229	1.199	1.146	1.207	1.989	1.873	1.843	1.790	1.851	1.314	1.198	1.168	1.115	1.176	CASE 7	0.04
		Right Tilted	0.175	0.306	0.675	0.370	0.189	0.108	0.101	0.127	0.087	0.670	0.589	0.582	0.595	0.568	1.039	0.958	0.951	0.964	0.937	0.734	0.653	0.646	0.659	0.632		
		Left Cheek	0.348	0.111	0.259	0.165	0.104	0.122	0.112	0.119	0.072	0.563	0.581	0.571	0.565	0.531	0.711	0.729	0.719	0.713	0.679	0.617	0.635	0.625	0.619	0.585		
		Left Tilted	0.217	0.120	0.266	0.152	0.057	0.087	0.070	0.033	0.057	0.394	0.424	0.407	0.366	0.394	0.540	0.570	0.553	0.512	0.540	0.426	0.456	0.439	0.398	0.426		

**15.2 Hotspot Exposure Conditions**

<WWAN Tx On>

Hotspot		IHD756XJ1					IHD756XL1					Summation													Case No.	SPLSR		
WWAN Band	Exposure Position	1	2	3	4	5	7	8	9	10	1+2+5 Summed 1g SAR (W/kg)	1+2+7 Summed 1g SAR (W/kg)	1+2+8 Summed 1g SAR (W/kg)	1+2+9 Summed 1g SAR (W/kg)	1+2+10 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+3+7 Summed 1g SAR (W/kg)	1+3+8 Summed 1g SAR (W/kg)	1+3+9 Summed 1g SAR (W/kg)	1+3+10 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+4+7 Summed 1g SAR (W/kg)	1+4+8 Summed 1g SAR (W/kg)	1+4+9 Summed 1g SAR (W/kg)			1+4+10 Summed 1g SAR (W/kg)	
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1	LTE B2 (MOD)	LTE B5 (MOD)	LTE B13(MOD)	LTE B48(MOD)	LTE B66(MOD)																		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)																		
CDMA	CDM BCO	Front	0.564	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	1.049	0.941	0.975	1.154	0.983	1.280	1.172	1.206	1.385	1.214	0.987	0.879	0.913	1.092	0.921		
		Back	0.222	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.650	1.177	1.652	1.504	1.535	1.739	1.266	1.741	1.593	1.624	1.653	1.180	1.655	1.507	1.538	CASE 13	0.02
		Left side	0.314	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.472	1.199	0.980	1.293	1.691	1.170	1.727	1.508	1.821	2.219	1.698	1.168	0.949	1.262	1.660	1.139	CASE 23	0.04
		Right side	0.158									0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.305							0.410		0.305	0.305	0.305	0.715	0.305	0.305	0.305	0.305	0.715	0.305	0.305	0.305	0.305	0.305	0.715	0.305	
	CDMA BC1	Front	0.463	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	0.948	0.840	0.874	1.053	0.882	1.179	1.071	1.105	1.284	1.113	0.886	0.778	0.812	0.991	0.820		
		Back	0.166	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.594	1.121	1.596	1.448	1.479	1.683	1.210	1.685	1.537	1.568	1.597	1.124	1.599	1.451	1.482	CASE 14	0.02
		Left side	0.017	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	0.902	0.683	0.996	1.394	0.661	1.430	1.211	1.524	1.922	1.189	0.871	0.652	0.965	1.363	0.630	CASE 24	0.04
		Right side	0.082									0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.929							0.410		0.929	0.929	0.929	1.339	0.929	0.929	0.929	0.929	1.339	0.929	0.929	0.929	0.929	0.929	1.339	0.929	
LTE	LTE Band 2	Front	0.528	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	1.013	0.905	0.939	1.118	0.947	1.244	1.136	1.170	1.349	1.178	0.951	0.843	0.877	1.056	0.885		
		Back	0.162	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.590	1.117	1.592	1.444	1.475	1.679	1.206	1.681	1.533	1.564	1.593	1.120	1.593	1.447	1.478	CASE 15	0.02
		Left side	0.021	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	0.906	0.687	1.000	1.398	0.665	1.434	1.215	1.528	1.926	1.193	0.875	0.656	0.969	1.367	0.634	CASE 25	0.02
		Right side	0.064									0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.875							0.410		0.875	0.875	0.875	1.285	0.875	0.875	0.875	0.875	1.285	0.875	0.875	0.875	0.875	0.875	1.285	0.875	
	LTE Band 5	Front	0.905	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	1.390	1.282	1.316	1.495	1.324	1.621	1.513	1.547	1.726	1.555	1.328	1.220	1.254	1.433	1.262	CASE 8	0.02
		Back	0.299	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.727	1.254	1.729	1.581	1.612	1.816	1.343	1.818	1.670	1.701	1.730	1.257	1.732	1.584	1.615	CASE 30	0.02
		Left side	0.330	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	1.215	0.996	1.309	1.707	0.974	1.743	1.524	1.837	2.235	1.502	1.184	0.965	1.278	1.676	0.943	CASE 26	0.04
		Right side	0.170									0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.466							0.410		0.466	0.466	0.466	0.876	0.466	0.466	0.466	0.466	0.876	0.466	0.466	0.466	0.466	0.466	0.876	0.466	
	LTE Band 7	Front	0.387	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	0.872	0.764	0.798	0.977	0.806	1.103	0.995	1.029	1.208	1.037	0.810	0.702	0.736	0.915	0.744		
		Back	0.143	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.571	1.098	1.573	1.425	1.456	1.660	1.187	1.662	1.514	1.545	1.574	1.101	1.576	1.428	1.459	CASE16	0.02
		Left side		0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	0.885	0.666	0.979	1.377	0.644	1.413	1.194	1.507	1.905	1.172	0.854	0.635	0.948	1.346	0.613	CASE 23	0.02
		Right side	0.469									0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469	0.469		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.166							0.410		0.166	0.166	0.166	0.576	0.166	0.166	0.166	0.166	0.576	0.166	0.166	0.166	0.166	0.166	0.576	0.166	
	LTE Band 13	Front	0.670	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	1.155	1.047	1.081	1.260	1.089	1.386	1.278	1.312	1.491	1.320	1.093	0.985	1.019	1.198	1.027		
		Back	0.229	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.657	1.184	1.659	1.511	1.542	1.746	1.273	1.748	1.600	1.631	1.660	1.187	1.662	1.514	1.545	CASE 17	0.02
		Left side	0.382	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	1.267	1.048	1.361	1.799	1.026	1.795	1.576	1.889	2.287	1.554	1.236	1.017	1.330	1.728	0.995	CASE 28	0.04
		Right side	0.284									0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284	0.284		
		Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368		
		Bottom side	0.332							0.410		0.332	0.332	0.332	0.742	0.332	0.332	0.332	0.332	0.742	0.332	0.332	0.332	0.332	0.332	0.742	0.332	
LTE Band 66	Front	0.929	0.282	0.513	0.220	0.203	0.095	0.129	0.308	0.137	1.414	1.306	1.340	1.519	1.348	1.645	1.537	1.571	1.750	1.579	1.352	1.244	1.278	1.457	1.286	CASE 9	0.02	
	Back	0.247	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.675	1.202	1.677	1.529	1.560	1.764	1.291	1.766	1.618	1.649	1.678	1.205	1.680	1.532	1.563	CASE 18	0.02	
	Left side	0.079	0.384	0.912	0.353	0.501	0.282	0.595	0.993	0.260	0.964	0.745	1.058	1.456	0.723	1.492	1.273	1.586	1.984	1.251	0.933	0.714	1.027	1.425	0.692	CASE 29	0.02	
	Right side	0.150									0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150			
	Top side		0.088	0.767	0.353	0.026	0.060	0.045		0.015	0.114	0.148	0.133	0.088	0.103	0.793	0.827	0.812	0.767	0.782	0.379	0.413	0.398	0.353	0.368			
	Bottom side	1.183							0.410		1.183	1.183	1.183	1.593	1.183	1.183	1.183	1.183	1.593	1.183	1.183	1.183	1.183	1.183	1.593	1.183		

<WWAN Tx Off>

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	Case No.	SPLSR
			WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 1 1g SAR (W/kg)	5GHz WLAN Ant 1 1g SAR (W/kg)	Bluetooth Ant 1 Estimated 1g SAR (W/kg)					
LTE	LTE Band 2(MOD)	Front	0.203	0.282	0.513	0.220	0.485	0.716	0.423		
		Back	1.381	0.047	0.136	0.050	1.428	1.517	1.431		
		Left side	0.501	0.384	0.912	0.353	0.885	1.413	0.854		
		Right side					0.000	0.000	0.000		
		Top side	0.026	0.088	0.767	0.353	0.114	0.793	0.379		
		Bottom side					0.000	0.000	0.000		
	LTE Band 5(MOD)	Front	0.135	0.282	0.513	0.220	0.417	0.648	0.355		
		Back	1.328	0.047	0.136	0.050	1.375	1.464	1.378		
		Left side	0.473	0.384	0.912	0.353	0.857	1.385	0.826		
		Right side	0.152				0.152	0.152	0.152		
		Top side	0.060	0.088	0.767	0.353	0.148	0.827	0.413		
		Bottom side					0.000	0.000	0.000		
	LTE Band 13(MOD)	Front	0.129	0.282	0.513	0.220	0.411	0.642	0.349		
		Back	1.383	0.047	0.136	0.050	1.430	1.519	1.433		
		Left side	0.595	0.384	0.912	0.353	0.979	1.507	0.948		
		Right side					0.000	0.000	0.000		
		Top side	0.045	0.088	0.767	0.353	0.133	0.812	0.398		
		Bottom side					0.000	0.000	0.000		
	LTE Band 48(MOD)	Front	0.308	0.282	0.513	0.220	0.590	0.821	0.528		
		Back	1.235	0.047	0.136	0.050	1.282	1.371	1.285		
		Left side	0.993	0.384	0.912	0.353	1.377	1.905	1.346	CASE 30	0.020
		Right side					0.000	0.000	0.000		
		Top side		0.088	0.767	0.353	0.088	0.767	0.353		
		Bottom side	0.410				0.410	0.410	0.410		
	LTE Band 66(MOD)	Front	0.137	0.282	0.513	0.220	0.419	0.650	0.357		
		Back	1.266	0.047	0.136	0.050	1.313	1.402	1.316		
		Left side	0.472	0.384	0.912	0.353	0.856	1.384	0.825		
		Right side					0.000	0.000	0.000		
		Top side	0.150	0.088	0.767	0.353	0.238	0.917	0.503		
		Bottom side					0.000	0.000	0.000		

**15.3 Body-Worn Accessory Exposure Conditions****<WWAN Tx On>**

Body-Worn			IHD756XJ1				IHD756XL1				Summation														Case No. SPLSR			
WWAN Band	Exposure Position	1	2	3	4	5	7	8	9	10	1+2+5 Summed 1g SAR (W/kg)	1+2+7 Summed 1g SAR (W/kg)	1+2+8 Summed 1g SAR (W/kg)	1+2+9 Summed 1g SAR (W/kg)	1+2+10 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+3+7 Summed 1g SAR (W/kg)	1+3+8 Summed 1g SAR (W/kg)	1+3+9 Summed 1g SAR (W/kg)	1+3+10 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+4+7 Summed 1g SAR (W/kg)	1+4+8 Summed 1g SAR (W/kg)	1+4+9 Summed 1g SAR (W/kg)			1+4+10 Summed 1g SAR (W/kg)	
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1	LTE B2 (MOD)	LTE B5 (MOD)	LTE B13(MOD)	LTE B48(MOD)	LTE B66(MOD)																		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)																		
CDMA	CDMA BC0	Front	0.690	0.282	0.593	0.220	0.203	0.095	0.129	0.308	0.137	1.175	1.067	1.101	1.280	1.109	1.486	1.378	1.412	1.591	1.420	1.113	1.005	1.039	1.218	1.047		
		Back	0.282	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.710	1.237	1.712	1.564	1.595	1.799	1.326	1.801	1.653	1.684	1.713	1.240	1.715	1.567	1.598	CASE 19	0.02
	CDMA BC1	Front	0.430	0.282	0.593	0.220	0.203	0.095	0.129	0.308	0.137	0.915	0.807	0.841	1.020	0.849	1.226	1.118	1.152	1.331	1.160	0.853	0.745	0.779	0.958	0.787	CASE 10	0.01
		Back	0.249	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.677	1.204	1.679	1.531	1.562	1.766	1.293	1.768	1.620	1.651	1.680	1.207	1.682	1.534	1.565	CASE 20	0.02
LTE	LTE Band 2	Front	0.910	0.282	0.593	0.220	0.203	0.095	0.129	0.308	0.137	1.395	1.287	1.321	1.500	1.329	1.706	1.598	1.632	1.811	1.640	1.333	1.225	1.259	1.438	1.267	CASE 11	0.02
		Back	0.239	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.667	1.194	1.669	1.521	1.552	1.756	1.283	1.758	1.610	1.641	1.670	1.197	1.672	1.524	1.555	CASE 21	0.02
	LTE Band 66	Front	1.144	0.282	0.593	0.220	0.203	0.095	0.129	0.308	0.137	1.629	1.521	1.555	1.734	1.563	1.940	1.832	1.866	2.045	1.874	1.567	1.459	1.493	1.672	1.501	CASE 12	0.02
		Back	0.315	0.047	0.136	0.050	1.381	0.908	1.383	1.235	1.266	1.743	1.270	1.745	1.597	1.628	1.832	1.359	1.834	1.686	1.717	1.746	1.273	1.748	1.600	1.631	CASE 22	0.02

<WWAN Tx Off>

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1	Bluetooth Ant 1			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Estimated 1g SAR (W/kg)			
LTE	LTE Band 2(MOD)	Front	0.203	0.282	0.513	0.220	0.485	0.716	0.423
		Back	1.381	0.047	0.136	0.050	1.428	1.517	1.431
	LTE Band 5(MOD)	Front	0.135	0.282	0.513	0.220	0.417	0.648	0.355
		Back	1.328	0.047	0.136	0.050	1.375	1.464	1.378
	LTE Band 13(MOD)	Front	0.129	0.282	0.513	0.220	0.411	0.642	0.349
		Back	1.383	0.047	0.136	0.050	1.430	1.519	1.433
	LTE Band 48(MOD)	Front	0.308	0.282	0.513	0.220	0.590	0.821	0.528
		Back	1.235	0.047	0.136	0.050	1.282	1.371	1.285
	LTE Band 66(MOD)	Front	0.137	0.282	0.513	0.220	0.419	0.650	0.357
		Back	1.266	0.047	0.136	0.050	1.313	1.402	1.316

15.4 Product Specific Exposure Conditions

<WWAN Tx On>

WWAN Band		Exposure Position	1	2	3	6	7	8	1+2+3 Summed 10g SAR (W/kg)	1+2+6 Summed 10g SAR (W/kg)	1+2+7 Summed 10g SAR (W/kg)	1+2+8 Summed 10g SAR (W/kg)
			WWAN	5GHz WLAN Ant 1	LTE B2 (MOD)	LTE B13(MOD)	LTE B48(MOD)	LTE B66(MOD)				
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)				
CDMA	CDMA2000 BC0	Front	2.819	1.090					3.909	3.909	3.909	3.909
		Back	0.957	0.515	0.400	0.928	1.620	0.505	1.872	2.400	3.092	1.977
	CDMA2000 BC1	Front	2.210	1.090					3.300	3.300	3.300	3.300
		Back	1.192	0.515	0.400	0.928	1.620	0.505	2.107	2.635	3.327	2.212
		Bottom side	1.430						1.430	1.430	1.430	1.430
LTE	LTE Band 2	Front	2.887	1.090					3.977	3.977	3.977	3.977
		Back	1.175	0.515	0.400	0.928	1.620	0.505	2.090	2.618	3.310	2.195
		Bottom side	2.550						2.550	2.550	2.550	2.550
	LTE Band 5	Front	2.153	1.090					3.243	3.243	3.243	3.243
		Back	0.827	0.515	0.400	0.928	1.620	0.505	1.742	2.270	2.962	1.847
	LTE Band 7	Front	2.202	1.090					3.292	3.292	3.292	3.292
		Back	0.528	0.515	0.400	0.928	1.620	0.505	1.443	1.971	2.663	1.548
		Right side	2.424						2.424	2.424	2.424	2.424
	LTE Band 13	Back	0.710		0.400	0.928	1.620	0.505	1.110	1.638	2.330	1.215
	LTE Band 66	Front	2.873	1.090					3.963	3.963	3.963	3.963
		Back	1.030	0.515	0.400	0.928	1.620	0.505	1.945	2.473	3.165	2.050
		Bottom side	2.145						2.145	2.145	2.145	2.145
	LTE Band 48	Back		0.515	0.400	0.928	1.620	0.505	0.915	1.443	2.135	1.020

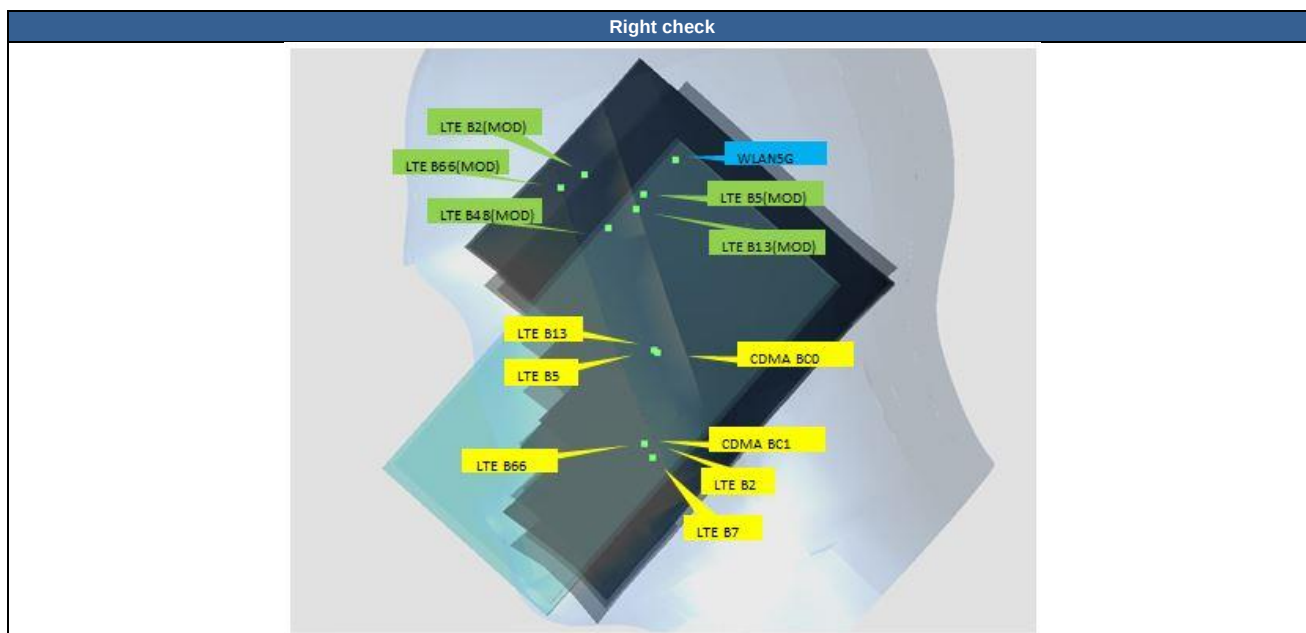
<WWAN Tx Off>

WWAN Band		Exposure Position	1	2	1+2 Summed 10g SAR (W/kg)
			WWAN	5GHz WLAN Ant 1	
			10g SAR (W/kg)	10g SAR (W/kg)	
LTE	LTE Band 2(MOD)	Front		1.090	1.090
		Back	0.400	0.515	0.915
		Left side		1.501	1.501
		Top side		0.609	0.609
	LTE Band 5 (MOD)	Front		1.090	1.090
		Back	0.778	0.515	1.293
		Left side		1.501	1.501
		Top side		0.609	0.609
	LTE Band 13(MOD)	Front		1.090	1.090
		Back	0.928	0.515	1.443
		Left side		1.501	1.501
		Top side		0.609	0.609
	LTE Band 66(MOD)	Front		1.090	1.090
		Back	0.505	0.515	1.020
		Left side		1.501	1.501
		Top side		0.609	0.609
	LTE Band 48(MOD)	Front		1.090	1.090
		Back	1.620	0.515	2.135
		Left side		1.501	1.501
		Top side		0.609	0.609

15.5 SPLSR Evaluation and Analysis

General Note:

1. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
2. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary
3. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.

<Each transmitter hot point and SPLSR analysis for Right Check exposure position>


	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 1	LTE B5 (MOD)+WLAN5GHz	Right Cheek	1.303	0	33.08	-22.34	-3.17	55.2	1.66	0.04	Not required
	CDMA BC0		0.354	0	43.19	31.9	-2.97				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	65.8	1.77	0.04	Not required
	CDMA BC0		0.354	0	43.19	31.9	-2.97				
	LTE B13 (MOD)+WLAN5GHz	Right Cheek	1.273	0	34.22	-24.35	-4.51	57.0	1.63	0.04	Not required
	CDMA BC0		0.354	0	43.19	31.9	-2.97				
	LTE B66 (MOD)+WLAN5GHz	Right Cheek	1.281	0	52.89	-35.26	1.66	68.0	1.64	0.03	Not required
	CDMA BC0		0.354	0	43.19	31.9	-2.97				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 2	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	95.8	1.71	0.02	Not required
	CDMA BC1		0.289	0	36.13	61.23	-1.69				

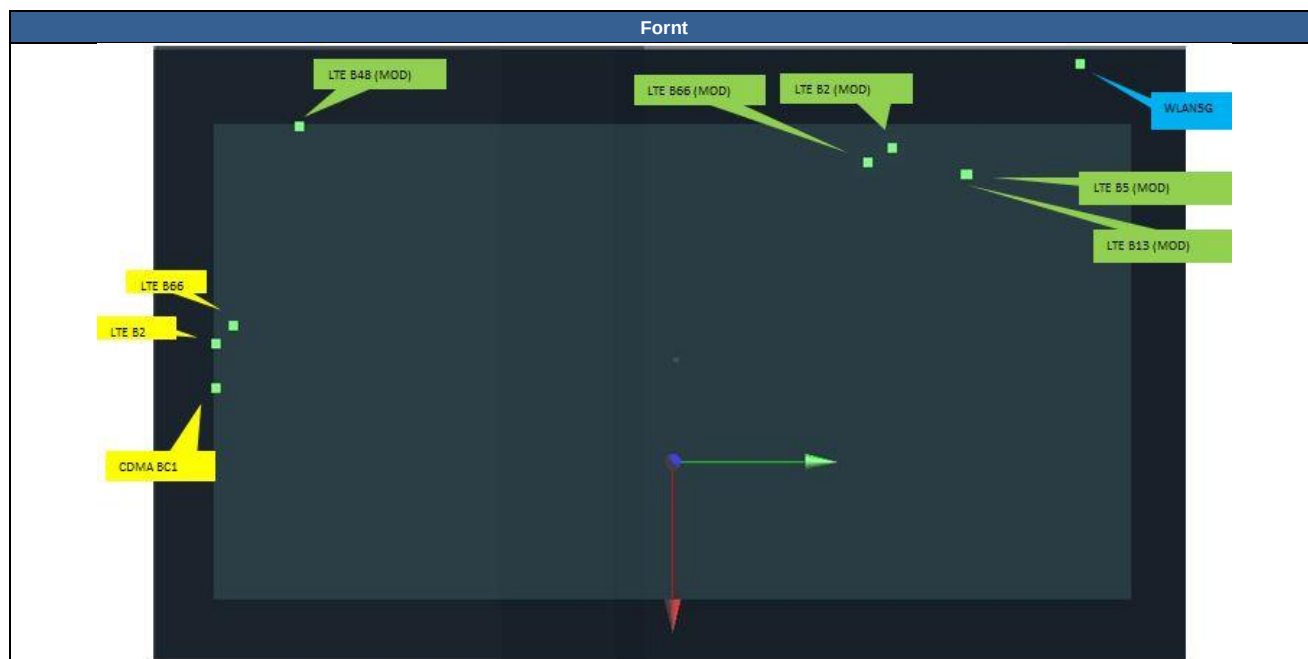
Case 3	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B5 (MOD)+WLAN5GHz	Right Cheek	1.303	0	33.08	-22.34	-3.17	84.7	1.62	0.02	Not required
	LTE B2		0.316	0	37.73	62.25	-1.81				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	96.6	1.74	0.02	Not required
	LTE B2		0.316	0	37.73	62.25	-1.81				

Case 4	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	66.4	1.68	0.03	Not required
	LTE B5		0.263	0	44.58	32.7	-2.93				

Case 5	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B48 (MOD)+WLAN5GHz	Right Cheek	1.22	0	45.86	0.65	-4.27	68.9	2.01	0.04	Not required
	LTE B7		0.788	0	54.55	68.76	0.9				
	LTE B5 (MOD)+WLAN5GHz	Right Cheek	1.303	0	33.08	-22.34	-3.17	93.7	2.09	0.03	Not required
	LTE B7		0.788	0	54.55	68.76	0.9				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	101.6	2.21	0.03	Not required
	LTE B7		0.788	0	54.55	68.76	0.9				
	LTE B13 (MOD)+WLAN5GHz	Right Cheek	1.273	0	34.22	-24.35	-4.51	95.5	2.06	0.03	Not required
	LTE B7		0.788	0	54.55	68.76	0.9				
	LTE B66 (MOD)+WLAN5GHz	Right Cheek	1.281	0	52.89	-35.26	1.66	104.0	2.07	0.03	Not required
	LTE B7		0.788	0	54.55	68.76	0.9				

Case 6	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	67.8	1.65	0.03	Not required
	LTE B13		0.227	0	43.85	33.99	-2.96				

Case 7	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B48 (MOD)+WLAN5GHz	Right Cheek	1.22	0	45.86	0.65	-4.27	68.1	1.79	0.04	Not required
	LTE B66		0.57	0	39.2	68.33	-0.83				
	LTE B5 (MOD)+WLAN5GHz	Right Cheek	1.303	0	33.08	-22.34	-3.17	90.9	1.87	0.03	Not required
	LTE B66		0.57	0	39.2	68.33	-0.83				
	LTE B2 (MOD)+WLAN5GHz	Right Cheek	1.419	0	54.2	-32.86	0.89	102.3	1.99	0.03	Not required
	LTE B66		0.57	0	39.2	68.33	-0.83				
	LTE B13 (MOD)+WLAN5GHz	Right Cheek	1.273	0	34.22	-24.35	-4.51	92.9	1.84	0.03	Not required
	LTE B66		0.57	0	39.2	68.33	-0.83				
	LTE B66 (MOD)+WLAN5GHz	Right Cheek	1.281	0	52.89	-35.26	1.66	104.5	1.85	0.02	Not required
	LTE B66		0.57	0	39.2	68.33	-0.83				

<Each transmitter hot point and SPLSR analysis for Front exposure position>


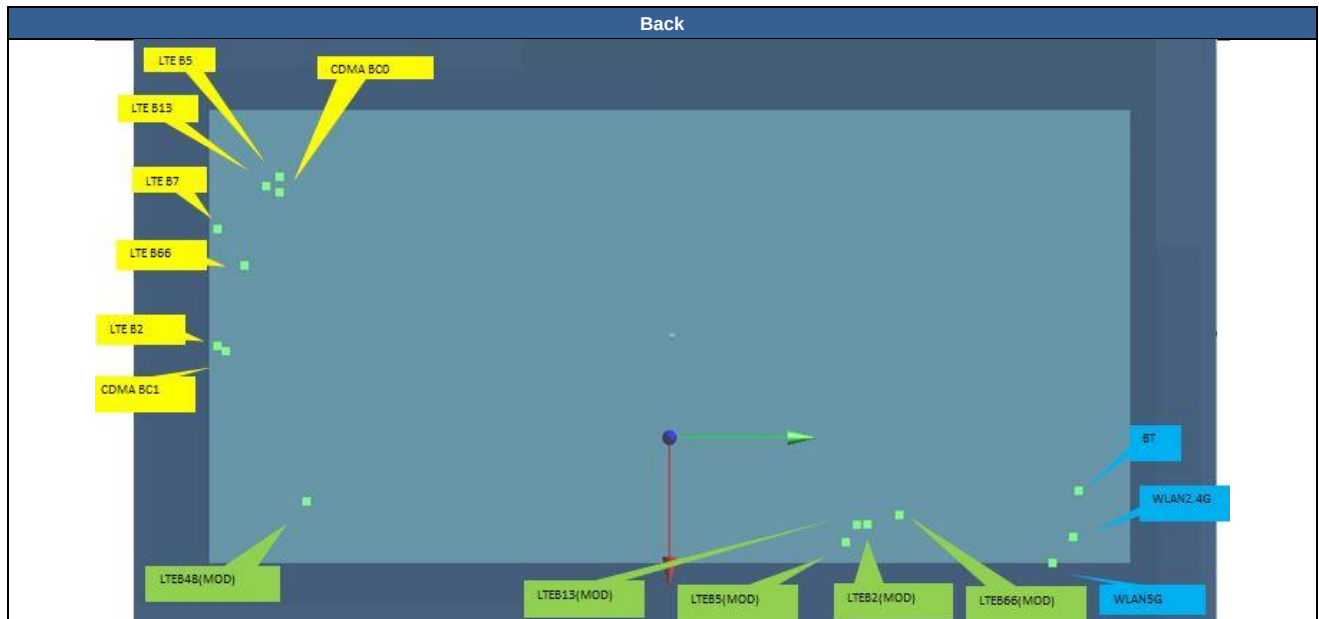
Case 8	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2(MOD)+WLAN5G	Front	0.796	5mm	-29.85	38.85	-1.88	123.9	1.70	0.02	Not required
	LTE B5		0.905	5mm	5.6	-79.9	-1.26				
	LTE B48(MOD)+LTE B66	Front	1.237	5mm	-39.55	-65	-2.16	137.4	1.75	0.02	Not required
	WLAN5G		0.513	5mm	-52.4	71.8	-0.98				

Case 9	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2(MOD)+WLAN5G	Front	0.796	5mm	-29.85	38.85	-1.88	116.9	1.73	0.02	Not required
	LTE B66		0.929	5mm	-2.8	-74.9	-1.18				
	LTE B48(MOD)+LTE B66	Front	1.237	5mm	-39.55	-65	-2.16	137.4	1.75	0.02	Not required
	WLAN5G		0.513	5mm	-52.4	71.8	-0.98				

Case 10	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2(MOD)+WLAN5G	Front	0.796	5mm	-29.85	38.85	-1.88	124.7	1.23	0.01	Not required
	BC1		0.43	5mm	9.3	-79.5	-1.05				
	LTE B5(MOD)+WLAN5G	Front	0.688	5mm	-29.85	51.5	-2.36	136.7	1.12	0.01	Not required
	BC1		0.43	5mm	9.3	-79.5	-1.05				
	LTE B13(MOD)+WLAN5G	Front	0.722	5mm	-31.46	51	-2.45	136.7	1.15	0.01	Not required
	BC1		0.43	5mm	9.3	-79.5	-1.05				
	LTE B66(MOD)+WLAN5G	Front	0.73	5mm	-29.95	29.98	-2.01	116.3	1.16	0.01	Not required
	BC1		0.43	5mm	9.3	-79.5	-1.05				
	LTE B48(MOD)+BC1	Front	0.738	5mm	-39.55	-65	-2.16	137.4	1.25	0.01	Not required
	WLAN5G		0.513	5mm	-52.4	71.8	-0.98				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 11	LTE B2(MOD)+WLAN5G	Front	0.796	5mm	-29.85	38.85	-1.88	123.7	1.71	0.02	Not required
	LTE B2		0.91	5mm	0.2	-81.1	-1.02				
	LTE B5(MOD)+WLAN5G	Front	0.688	5mm	-29.85	51.5	-2.36	136.0	1.60	0.01	Not required
	LTE B2		0.91	5mm	0.2	-81.1	-1.02				
	LTE B13(MOD)+WLAN5G	Front	0.722	5mm	-31.46	51	-2.45	135.8	1.63	0.02	Not required
	LTE B2		0.91	5mm	0.2	-81.1	-1.02				
	LTE B66(MOD)+WLAN5G	Front	0.73	5mm	-29.95	29.98	-2.01	115.1	1.64	0.02	Not required
	LTE B2		0.91	5mm	0.2	-81.1	-1.02				
	LTE B48(MOD)+LTE B2	Front	1.218	5mm	-39.55	-65	-2.16	137.4	1.73	0.02	Not required
	WLAN5G		0.513	5mm	-52.4	71.8	-0.98				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 12	LTE B2(MOD)+WLAN5G	Front	0.796	5mm	-29.85	38.85	-1.88	116.9	1.94	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				
	LTE B5(MOD)+WLAN5G	Front	0.688	5mm	-29.85	51.5	-2.36	129.3	1.83	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				
	LTE B13(MOD)+WLAN5G	Front	0.722	5mm	-31.46	51	-2.45	129.1	1.87	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				
	LTE B66(MOD)+WLAN5G	Front	0.73	5mm	-29.95	29.98	-2.01	108.3	1.87	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				
	LTE B48(MOD)+LTE B2	Front	1.218	5mm	-39.55	-65	-2.16	137.4	1.73	0.02	Not required
	WLAN5G		0.513	5mm	-52.4	71.8	-0.98				
	LTE B2(MOD)+WLAN2.4G	Front	0.485	5mm	-29.85	38.85	-1.88	116.9	1.63	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				
	LTE B13(MOD)+WLAN2.4G	Front	0.411	5mm	-31.46	51	-2.45	129.1	1.56	0.02	Not required
	LTE B66		1.144	5mm	-2.8	-74.9	-1.18				

<Each transmitter hot point and SPLSR analysis for Back exposure position>


	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 13	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	124.2	1.65	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	119.5	1.65	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	124.2	1.74	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	121.6	1.62	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	124.2	1.65	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	119.5	1.74	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	119.5	1.66	0.02	Not required
	CDMA BC0		0.222	5mm	-19.55	-74.9	-2.55				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 14	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	122.2	1.68	0.02	Not required
	CDMA BC1		0.166	5mm	-4.85	-78.11	-2.33				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	117.3	1.69	0.02	Not required
	CDMA BC1		0.166	5mm	-4.85	-78.11	-2.33				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 15	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	122.2	1.68	0.02	Not required
	LTE B2		0.162	5mm	-4.84	-78.1	-2.32				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	117.2	1.68	0.02	Not required
	LTE B2		0.162	5mm	-4.84	-78.1	-2.32				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 16	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	121.0	1.57	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	116.8	1.57	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	117.5	1.10	0.01	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	118.5	1.46	0.01	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B48(MOD)+LTE 7	Back	1.378	5mm	29.83	-64.6	-2.05	133.0	1.43	0.01	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	121.0	1.66	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	117.5	1.19	0.01	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	116.8	1.66	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	118.5	1.55	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	116.8	1.66	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B48(MOD)+LTE 7	Back	1.378	5mm	29.83	-64.6	-2.05	131.6	1.51	0.01	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	120.4	1.66	0.02	Not required
	LTE B7		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	121.0	1.57	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	116.8	1.58	0.02	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	118.5	1.46	0.01	Not required
	LTE B7		0.143	5mm	-36	-62.4	-1.47				
	LTE B48(MOD)+LTE 7	Back	1.378	5mm	29.83	-64.6	-2.05	130.6	1.43	0.01	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 17	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	124.2	1.66	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	119.6	1.66	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	120.4	1.18	0.01	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	121.6	1.54	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B48(MOD)+LTE 13	Back	1.464	5mm	29.83	-64.6	-2.05	133.0	1.51	0.01	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	124.2	1.75	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	120.4	1.27	0.01	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	119.6	1.75	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	121.6	1.63	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	119.6	1.75	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B48(MOD)+LTE 13	Back	1.464	5mm	29.83	-64.6	-2.05	131.6	1.60	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	120.4	1.61	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	124.2	1.66	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	119.6	1.66	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	121.6	1.55	0.02	Not required
	LTE B13		0.229	5mm	-19.59	-74.9	-2.48				
	LTE B48(MOD)+LTE 13	Back	1.464	5mm	29.83	-64.6	-2.05	130.6	1.51	0.01	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 18	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	111.8	1.77	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	111.8	1.68	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	111.8	1.68	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	116.6	1.68	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	116.6	1.76	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	116.6	1.68	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	113.9	1.65	0.02	Not required
	LTE B66		0.247	5mm	-10.37	-70.41	-1.61				
	LTE B48(MOD)+LTE 66	Back	1.482	5mm	29.83	-64.6	-2.05	131.6	1.62	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				

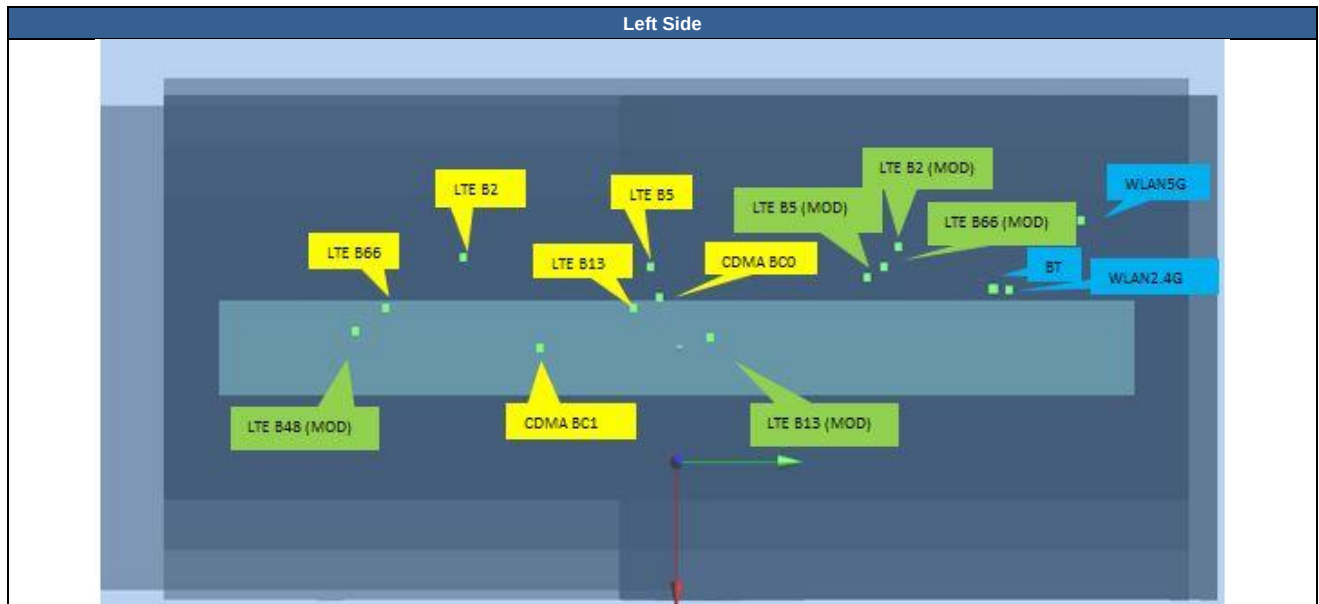
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 19	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	124.2	1.71	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	119.5	1.71	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	120.4	1.24	0.01	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	121.6	1.60	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B48(MOD)+BC 0	Back	1.517	5mm	29.83	-64.6	-2.05	133.0	1.56	0.01	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	124.2	1.80	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	120.4	1.33	0.01	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	121.6	1.68	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	119.5	1.80	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B48(MOD)+BC 0	Back	1.517	5mm	29.83	-64.6	-2.05	131.6	1.65	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	120.4	1.66	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	124.2	1.71	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	119.5	1.72	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	121.6	1.60	0.02	Not required
	BC0		0.282	5mm	-19.55	-74.9	-2.55				
	LTE B48(MOD)+BC 0	Back	1.517	5mm	29.83	-64.6	-2.05	130.6	1.57	0.02	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 20	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	122.2	1.68	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	117.3	1.68	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	118.1	1.20	0.01	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	119.5	1.56	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B48(MOD)+BC 1	Back	1.484	5mm	29.83	-64.6	-2.05	133.0	1.53	0.01	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	122.2	1.77	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	118.1	1.29	0.01	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	119.5	1.65	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	117.3	1.77	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B48(MOD)+BC 1	Back	1.484	5mm	29.83	-64.6	-2.05	131.6	1.62	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	118.1	1.63	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	122.2	1.68	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	117.3	1.68	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	119.5	1.57	0.02	Not required
	BC 1		0.249	5mm	-4.85	-78.11	-2.33				
	LTE B48(MOD)+BC 1	Back	1.484	5mm	29.83	-64.6	-2.05	130.6	1.53	0.01	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 21	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	122.2	1.67	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	117.2	1.67	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	118.1	1.19	0.01	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	119.5	1.55	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B48(MOD)+LTE 2	Back	1.474	5mm	29.83	-64.6	-2.05	133.0	1.52	0.01	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	122.2	1.76	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	118.1	1.28	0.01	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	119.5	1.64	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	117.2	1.76	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B48(MOD)+LTE 2	Back	1.474	5mm	29.83	-64.6	-2.05	131.6	1.61	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	118.1	1.62	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	122.2	1.67	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	117.2	1.67	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	119.5	1.56	0.02	Not required
	LTE 2		0.239	5mm	-4.84	-78.1	-2.32				
	LTE B48(MOD)+LTE 2	Back	1.474	5mm	29.83	-64.6	-2.05	130.6	1.52	0.01	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 22	LTE B2(MOD)+WLAN2.4G	Back	1.428	5mm	30.05	39	-1.98	116.6	1.74	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	111.8	1.75	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B5(MOD)+WLAN2.4G	Back	0.955	5mm	30.24	34.7	-2.38	112.7	1.27	0.01	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	113.9	1.63	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B48(MOD)+LTE 66	Back	1.55	5mm	29.83	-64.6	-2.05	133.0	1.60	0.02	Not required
	WLAN2.4G		0.047	5mm	29.63	68.41	-0.44				
	LTE B2(MOD)+WLAN5G	Back	1.517	5mm	30.05	39	-1.98	116.6	1.83	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B5(MOD)+WLAN5G	Back	1.044	5mm	30.24	34.7	-2.38	112.7	1.36	0.01	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	113.9	1.72	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	111.8	1.83	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B48(MOD)+LTE 66	Back	1.55	5mm	29.83	-64.6	-2.05	131.6	1.69	0.02	Not required
	WLAN5G		0.136	5mm	19.8	66.6	-0.98				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	112.7	1.69	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B2(MOD)+BT	Back	1.431	5mm	30.05	39	-1.98	116.6	1.75	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	111.8	1.75	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	113.9	1.63	0.02	Not required
	LTE 66		0.315	5mm	-10.37	-70.41	-1.61				
	LTE B48(MOD)+LTE 66	Back	1.55	5mm	29.83	-64.6	-2.05	130.6	1.60	0.02	Not required
	BT		0.05	5mm	31.85	66.02	-0.47				

	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 30	LTE B2(MOD)+WLAN5G	Back	1.308	5mm	30.05	39	-1.98	125.1	1.61	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B5(MOD)+WLAN5G	Back	1.464	5mm	30.24	34.7	-2.38	121.2	1.76	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B13(MOD)+WLAN5G	Back	1.519	5mm	30.23	33.78	-2.37	120.4	1.82	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B5(MOD)+WLAN2.4G	Back	1.375	5mm	30.24	34.7	-2.38	121.2	1.67	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B13(MOD)+WLAN2.4G	Back	1.43	5mm	30.23	33.78	-2.37	120.4	1.73	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B5(MOD)+BT	Back	1.378	5mm	30.24	34.7	-2.38	121.2	1.68	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B13(MOD)+BT	Back	1.433	5mm	30.23	33.78	-2.37	120.4	1.73	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B48(MOD)+LTE B5	Back	1.488	5mm	-17.95	-76.51	-2.54	153.0	1.62	0.01	Not required
	WLAN5G		0.136	5mm	41.99	64.23	-0.26				
	LTE B66(MOD)+WLAN2.4G	Back	1.313	5mm	29.56	36.29	-2.21	122.4	1.61	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B66(MOD)+BT	Back	1.316	5mm	29.56	36.29	-2.21	122.4	1.62	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				
	LTE B66(MOD)+WLAN5G	Back	1.402	5mm	29.56	36.29	-2.21	122.4	1.70	0.02	Not required
	LTE B5		0.299	5mm	-17.95	-76.51	-2.54				

<Each transmitter hot point and SPLSR analysis for Left Side exposure position>


	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 23	LTE B13(MOD)+BC0	Left Side	0.909	5mm	-3.05	12.4	-2.93	57.7	1.82	0.04	Not required
	WLAN5G		0.912	5mm	-17.6	68.2	-1.18				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.5	1.31	0.03	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	72.2	1.23	0.02	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	130.9	1.91	0.02	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.5	1.31	0.03	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	62.3	0.70	0.01	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	120.0	1.38	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.5	1.31	0.03	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	68.2	0.67	0.01	Not required
	CDMA BC0		0.314	5mm	-5.9	-3	-1.9				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	126.6	1.35	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				

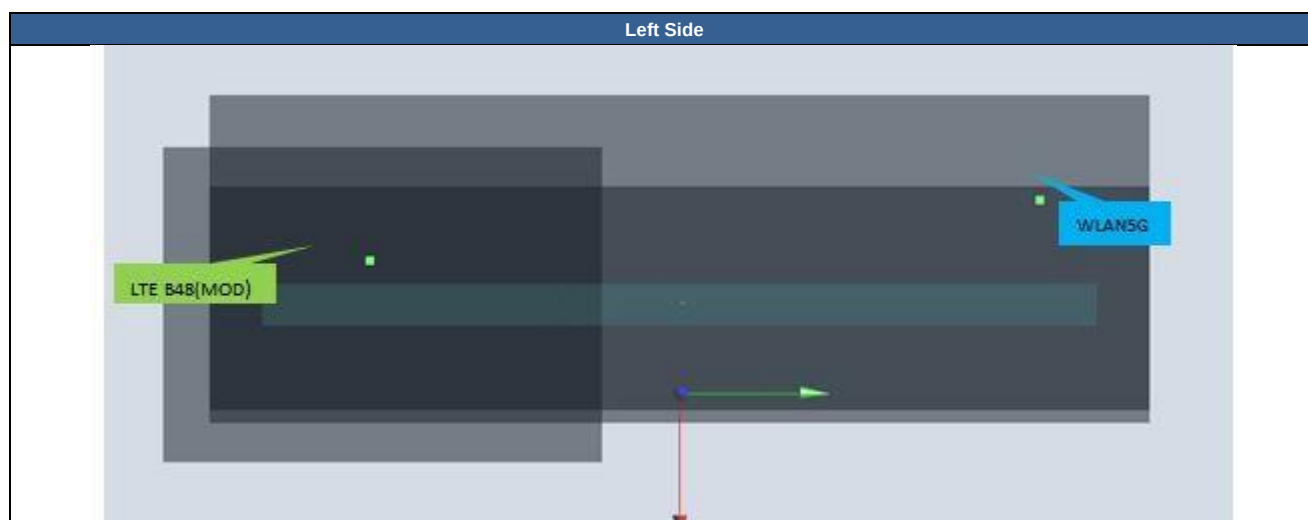
Case 24	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 24	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	23.4	1.01	0.04	Not required
	CDMA BC1		0.017	5mm	-1.6	-40	-1.53				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	109.4	0.93	0.01	Not required
	CDMA BC1		0.017	5mm	-1.6	-40	-1.53				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	130.9	1.91	0.02	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				

Case 25	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 25	LTE B48(MOD)+LTE B2	Left Side	1.014	5mm	-10.3	-53.5	-1.27	121.9	1.93	0.02	Not required
	WLAN5G		0.912	5mm	-17.6	68.2	-1.18				

Case 26	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 26	LTE B13(MOD)+LTE B5	Left Side	0.925	5mm	-3.05	12.4	-2.93	57.7	1.84	0.04	Not required
	WLAN5G		0.912	5mm	-17.6	68.2	-1.18				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.7	1.32	0.03	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	71.2	1.24	0.02	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	130.9	1.91	0.02	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.7	1.32	0.03	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	60.4	0.71	0.01	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	120.0	1.38	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	59.7	1.32	0.03	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	66.9	0.68	0.01	Not required
	LTE B5		0.33	5mm	-13.6	-2.9	-1.61				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	126.6	1.35	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 28	LTE B13(MOD)+LTE B13	Left Side	0.925	5mm	-3.05	12.4	-2.93	57.7	1.84	0.04	Not required
	WLAN5G		0.912	5mm	-17.6	68.2	-1.18				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	55.0	1.38	0.03	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	76.6	1.29	0.02	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	130.9	1.91	0.02	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	55.0	1.38	0.03	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	66.6	0.77	0.01	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	WLAN 2.4G	Left Side	0.384	5mm	-24.2	56.6	-1.8	120.0	1.38	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				
	LTE B48(MOD)	Left Side	0.993	5mm	-8.4	-62.4	-1.16	55.0	1.38	0.03	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	72.6	0.74	0.01	Not required
	LTE B13		0.382	5mm	-6	-7.5	-1.93				
	BT	Left Side	0.353	5mm	-20.6	63.6	-1.8	126.6	1.35	0.01	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				

	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 29	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	119.8	1.98	0.02	Not required
	LTE B48(MOD)+LTE B66		1.072	5mm	-6	-51	-1.45				

<Each transmitter hot point and SPLSR analysis for Left Side exposure position>


Case 30	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	WLAN5G	Left Side	0.912	5mm	-17.6	68.2	-1.18	130.9	1.91	0.02	Not required
	LTE B48(MOD)		0.993	5mm	-8.4	-62.4	-1.16				

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16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg. Therefore, the measurement uncertainty table is not required in this report.

17. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
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- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 648474 D03 v01r04, "Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers" Dec 2015.
- [8] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [9] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [10] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [11] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [12] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [13] FCC KDB 941225 D07 v01r02, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", Oct 2015.
- [14] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [15] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.