

# FCC SAR Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2271-3, XT2271-4  
FCC ID : IHDT56ZP6  
STANDARD : FCC 47 CFR Part 2 (2.1093)

We, Sporton International Inc. (Shenzhen), 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 test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.



Approved by: Si Zhang

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People's Republic of China



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### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2271-3, XT2271-4**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	1.03	1.31	1.31	1.59
		GSM1900	1.30	1.42	1.25	
	WCDMA	WCDMA V	1.31	1.34	1.34	
		WCDMA IV	0.55	1.04	1.04	
		WCDMA II	1.23	1.25	1.24	
	LTE	LTE Band 12	0.76	1.30	1.30	
		LTE Band 13	0.55	1.35	1.35	
		LTE Band 14	0.55	1.43	1.43	
		LTE Band 5	1.24	1.27	1.27	
		LTE Band 66/4	0.43	<b>1.45</b>	<b>1.45</b>	
LTE Band 2		1.32	1.22	1.20		
	LTE Band 30	1.25	1.44	1.44		
DTS	WLAN	2.4GHz WLAN	<b>1.33</b>	0.32	<b>1.45</b>	1.59
NII		5GHz WLAN	1.02	0.62	1.19	1.59
DSS	Bluetooth	Bluetooth	0.16	0.26	0.26	1.59
Highest 10g SAR Summary						
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)		Highest Simultaneous Transmission 10g SAR (W/kg)	
License	GSM	GSM850	3.44		3.99	
		GSM1900	<b>3.53</b>			
	WCDMA	WCDMA V	3.21			
		WCDMA IV	2.90			
		WCDMA II	3.25			
	LTE	LTE Band 12	2.18			
		LTE Band 13	3.00			
		LTE Band 14	3.08			
		LTE Band 5	3.06			
		LTE Band 66/4	3.44			
LTE Band 2		3.11				
	LTE Band 30	3.29				
DTS	WLAN	2.4GHz WLAN	1.96		3.90	
NII		5GHz WLAN	3.06		3.99	
Date of Testing:			2022/10/25 ~ 2022/11/20			
<b>Remark:</b> This device supports both LTE B4 and B66. Since the supported frequency span for LTE B4 falls completely within the supports frequency span for LTE B66, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66.						



Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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.

2. Administration Data

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Table with 4 columns: Test Firm, Test Site Location, Test Site No., and FCC Test Firm Registration No. under the heading Testing Laboratory.

Table with 2 columns: Company Name and Address under the heading Applicant.

Table with 2 columns: Company Name and Address under the heading Manufacturer.



### **3. 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 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- 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

## 4. Equipment Under Test (EUT) Information

### 4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2271-3, XT2271-4
FCC ID	IHDT56ZP6
IMEI Code	Sample 1: 358390900028989 Sample 2: 358390900031322
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 14 : 788 MHz ~ 798 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 66: 1710 MHz ~ 1780 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	PVT
SW Version	S3SG32.39-32
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>WLAN operation in 5600 MHz ~ 5650 MHz is notched</li> <li>This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.</li> <li>This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.</li> <li>This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).</li> <li>This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.</li> <li>The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at original report.</li> <li>For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot and</li> </ol>	



- extremity. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn.
8. For some WWAN bands, sensor on power level is higher than hotspot power level, so front/back sensor on SAR can represent hotspot conservatively.
  9. There are two samples. The difference between them could be referred to the XT2271-3, XT2271-4\_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose sample 1 for full testing and sample 2 for worst case verification.
  10. This device has two batteries. For battery 1/2 only suppliers are different, so we only choose battery 1 to perform full SAR testing.

**4.2 General LTE SAR Test and Reporting Considerations**

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56ZP6																																																														
Equipment Name	Mobile Cellular Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 14 : 788 MHz ~ 798 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 66: 1710 MHz ~ 1780 MHz																																																														
Channel Bandwidth	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 30: 5MHz, 10MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R11, Cat7																																																														
CA Support	Supported, Downlink only																																																														
LTE MPR permanently built-in by design	<p><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (<math>N_{RB}</math>)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6" style="text-align: center;">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	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
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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, when operating in Proximity sensors/receiver/hotspot detect mechanism; head/body-worn/hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.																																																														
LTE Carrier Aggregation Combinations	Intra-Band and Inter-Band possible combinations and the detail power verification please referred to section 13.																																																														
LTE Carrier Aggregation Additional Information	This device supports maximum of 2 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)	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 12												
	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)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
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 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Channel #		Channel #		Freq.(MHz)					
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 30												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	27685		2307.5		27710		2310					
M	27710		2310									
H	27735		2312.5									
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

## 5. RF Exposure Limits

### 5.1 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.

### 5.2 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)

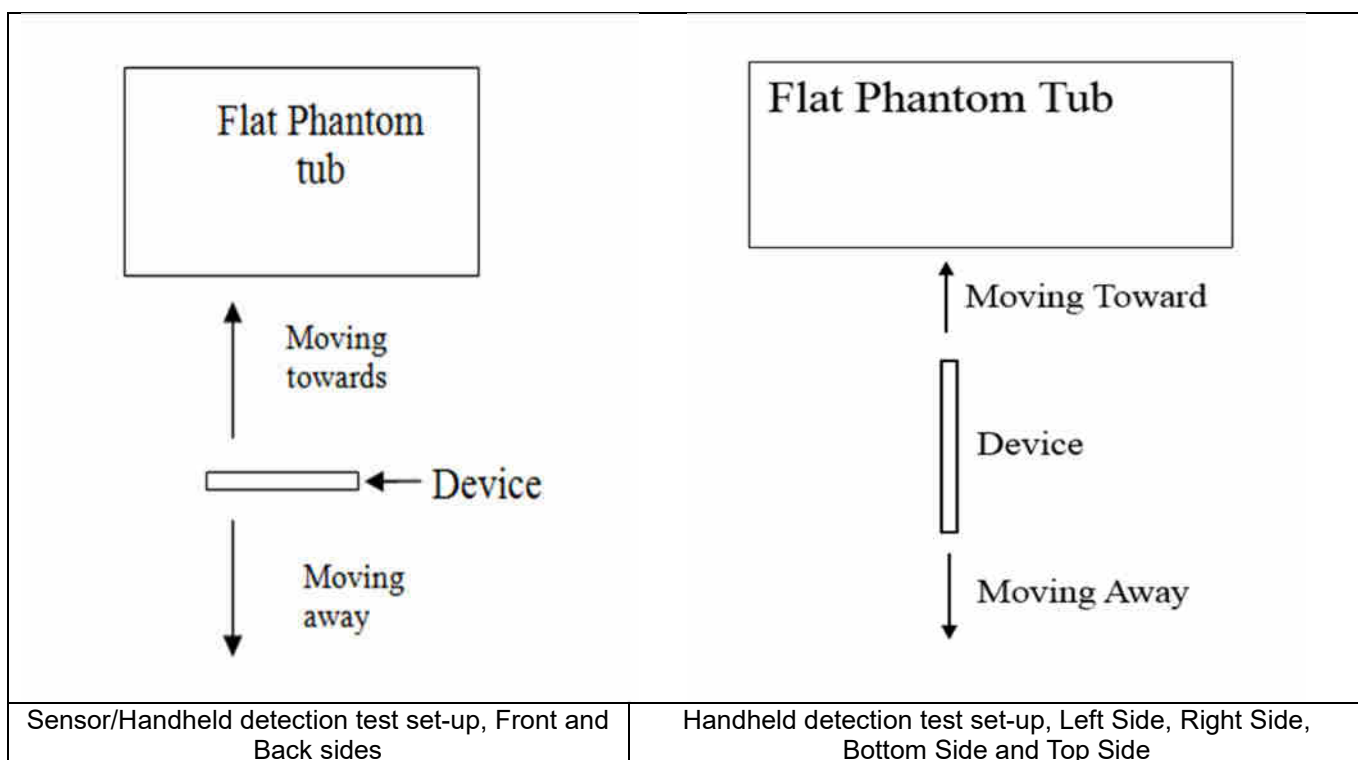
Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

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.

## 6. 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 (5850MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left/right sides of the device. When front/back/top/bottom/left/right sides of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



**<P-Sensor>**

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	20	25	25	31

**<Handheld for ANT1>**

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	9	15	15	24	4	6	15	22

**<Handheld for ANT2>**

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	8	13	15	24	6	14	13	18

## 7. Specific Absorption Rate (SAR)

### 7.1 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.

### 7.2 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 ( $\rho$ ). The equation description is as below:

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

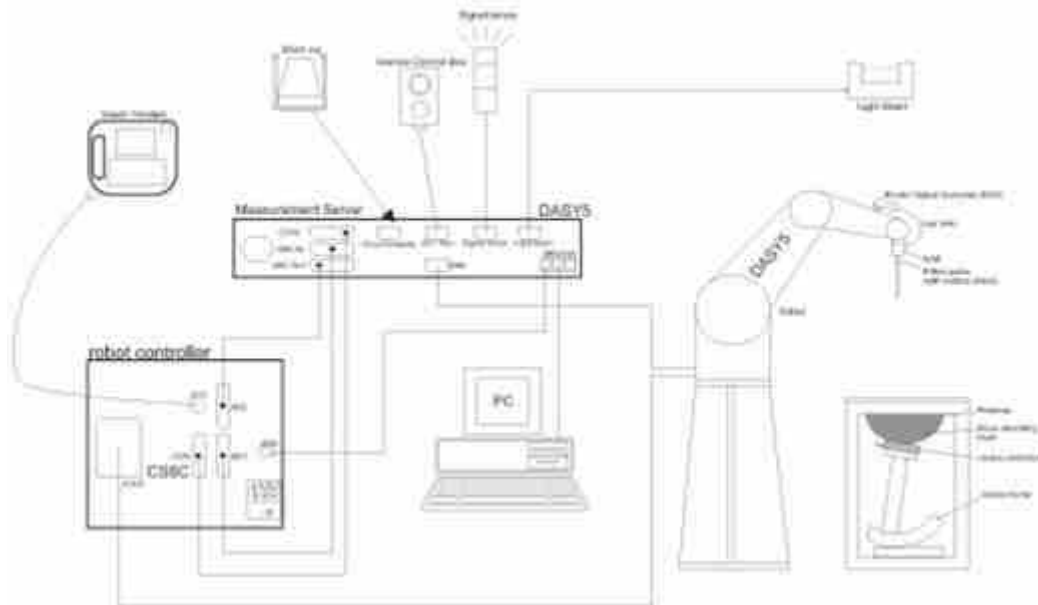
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

## **8. System Description and Setup**

The DASY5 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.


**8.1 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>**

<b>Construction</b>	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
<b>Directivity</b>	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
<b>Dimensions</b>	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>**

<b>Construction</b>	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)	
<b>Directivity</b>	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)	
<b>Dimensions</b>	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	

**8.2 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.



**Photo of DAE**


**8.3 Phantom**

**<SAM Twin Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
<b>Filling Volume</b>	Approx. 25 liters	
<b>Dimensions</b>	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
<b>Measurement Areas</b>	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>**

<b>Shell Thickness</b>	2 ± 0.2 mm (sagging: <1%)	
<b>Filling Volume</b>	Approx. 30 liters	
<b>Dimensions</b>	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.



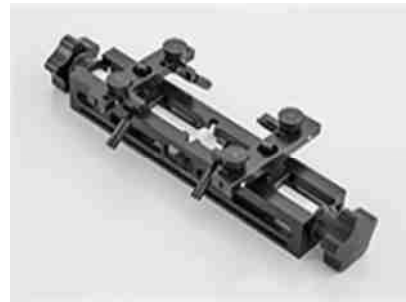
## 8.4 Device Holder

### <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

## 9. 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

### 9.1 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

**9.2 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.

**9.3 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.

	$\leq 3$ GHz	$> 3$ GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1$ 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: $\Delta x_{Area}$ , $\Delta y_{Area}$	$\leq 2$ GHz: $\leq 15$ mm $2 - 3$ GHz: $\leq 12$ mm	$3 - 4$ GHz: $\leq 12$ mm $4 - 6$ GHz: $\leq 10$ 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.	

### 9.4 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: $\Delta x_{Zoom}$ , $\Delta y_{Zoom}$			$\leq 2$ GHz: $\leq 8$ mm $2 - 3$ GHz: $\leq 5$ mm*	$3 - 4$ GHz: $\leq 5$ mm* $4 - 6$ GHz: $\leq 4$ mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		$\leq 5$ mm	$3 - 4$ GHz: $\leq 4$ mm $4 - 5$ GHz: $\leq 3$ mm $5 - 6$ GHz: $\leq 2$ mm
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface	$\leq 4$ mm	$3 - 4$ GHz: $\leq 3$ mm $4 - 5$ GHz: $\leq 2.5$ mm $5 - 6$ GHz: $\leq 2$ mm
		$\Delta z_{Zoom}(n>1)$ : between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		$\geq 30$ mm	$3 - 4$ GHz: $\geq 28$ mm $4 - 5$ GHz: $\geq 25$ mm $5 - 6$ GHz: $\geq 22$ mm
Note: $\delta$ 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 $\leq 1.4$ W/kg, $\leq 8$ mm, $\leq 7$ mm and $\leq 5$ 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.				

### 9.5 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.

### 9.6 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.



### 10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 14, 2022
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 16, 2022
SPEAG	1750MHz System Validation Kit	D1750V2	1090	Feb. 24, 2022	Feb. 23, 2023
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 19, 2022
SPEAG	2300MHz System Validation Kit	D2300V2	1055	Sep. 15, 2020	Sep. 13, 2023
SPEAG	2450MHz System Validation Kit	D2450V2	1040	May. 06, 2020	May. 04, 2023
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 12, 2022
SPEAG	Data Acquisition Electronics	DAE4	1664	May. 30, 2022	May. 29, 2023
SPEAG	Dosimetric E-Field Probe	ES3DV3	3282	Nov. 04, 2021	Nov. 03, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	Nov. 23, 2021	Nov. 22, 2022
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1671	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 07, 2022	Jul. 06, 2023
Anritsu	Radio communication analyzer	MT8821C	6262314715	Jun. 27, 2022	Jun. 26, 2023
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 17, 2022	Oct. 16, 2023
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Jan. 24, 2022	Jan. 23, 2023
Agilent	Signal Generator	N5181A	MY50145381	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Sensor	MA2411B	1542004	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Meter	ML2495A	1339473	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Sensor	MA2411B	1542004	Dec. 28, 2021	Dec. 27, 2022
Anritsu	Power Meter	ML2495A	1339473	Dec. 28, 2021	Dec. 27, 2022
R&S	Power Sensor	NRP50S	101254	Apr. 07, 2022	Apr. 06, 2023
R&S	Power Sensor	NRP8S	109228	Apr. 07, 2022	Apr. 06, 2023
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 28, 2021	Dec. 27, 2022
R&S	Spectrum Analyzer	FSP7	100818	Jul. 07, 2022	Jul. 06, 2023
TES	Hygrometer	1310	200505600	Jul. 12, 2022	Jul. 11, 2023
Anymetre	Thermo-Hygrometer	JR593	2015030904	Jul. 12, 2022	Jul. 11, 2023
SPEAG	Device Holder	N/A	N/A	N/A	N/A
ARRA	Power Divider	A3200-2	N/A	Note 1	
AR	Amplifier	5S1G4	0333096	Note 1	
Mini-Circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
Mini-Circuits	Amplifier	ZVA-183W-S+	726202215	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	

**Note:**

1. 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
2. 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.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

## 11. System Verification

### 11.1 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. 11.1. 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. 11.2.



Fig 11.1 Photo of Liquid Height for Head SAR

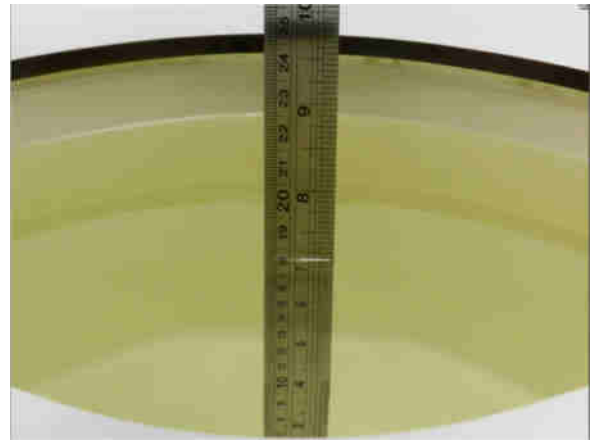


Fig 11.2 Photo of Liquid Height for Body SAR

### 11.2 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 ( $\sigma$ )	Permittivity ( $\epsilon_r$ )
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
1800, 1900	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

#### Simulating Liquid for 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 <sub>r</sub> )	Conductivity Target (σ)	Permittivity Target (ε <sub>r</sub> )	Delta (σ) (%)	Delta (ε <sub>r</sub> ) (%)	Limit (%)	Date
750	Head	22.5	0.880	40.797	0.89	41.90	-1.12	-2.63	±5	2022/10/26
750	Head	22.6	0.860	40.936	0.89	41.90	-3.37	-2.30	±5	2022/11/1
835	Head	22.3	0.897	40.781	0.90	41.50	-0.33	-1.73	±5	2022/10/27
835	Head	22.5	0.929	41.793	0.90	41.50	3.22	0.71	±5	2022/11/15
1750	Head	22.6	1.374	38.860	1.37	40.10	0.29	-3.09	±5	2022/10/25
1750	Head	22.6	1.355	38.395	1.37	40.10	-1.09	-4.25	±5	2022/11/12
1900	Head	22.2	1.457	39.135	1.40	40.00	4.07	-2.16	±5	2022/10/26
1900	Head	22.3	1.460	39.248	1.40	40.00	4.29	-1.88	±5	2022/11/17
2300	Head	22.4	1.680	38.788	1.67	39.50	0.60	-1.80	±5	2022/10/28
2450	Head	22.3	1.881	37.273	1.80	39.20	4.50	-4.92	±5	2022/10/25
2450	Head	22.2	1.825	39.644	1.80	39.20	1.39	1.13	±5	2022/11/18
5250	Head	22.3	4.857	35.394	4.71	35.95	3.12	-1.55	±5	2022/11/17
5250	Head	22.4	4.757	36.931	4.71	35.95	1.00	2.73	±5	2022/11/18
5600	Head	22.5	4.996	36.130	5.07	35.50	-1.46	1.77	±5	2022/11/18
5600	Head	22.5	5.211	36.228	5.07	35.50	2.78	2.05	±5	2022/11/19
5750	Head	22.3	5.122	34.348	5.22	35.35	-1.88	-2.83	±5	2022/11/19
5750	Head	22.4	5.383	35.944	5.22	35.35	3.12	1.68	±5	2022/11/20

**11.3 System Performance Check Results**

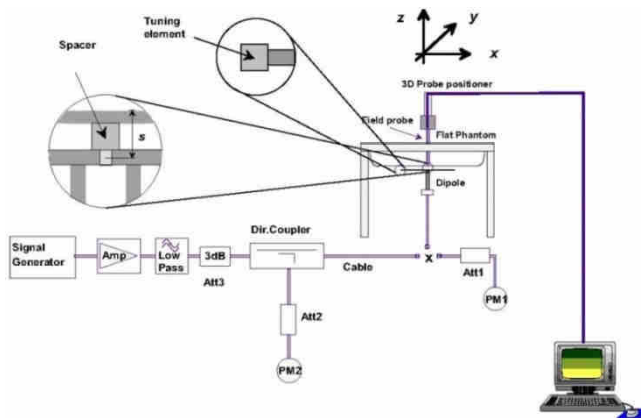
Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the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

**<1g SAR>**

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 (%)
2022/10/26	750	Head	250	1099	3282	1664	2.110	8.540	8.44	-1.17
2022/11/1	750	Head	250	1099	7577	1664	2.220	8.540	8.88	3.98
2022/10/27	835	Head	250	4d162	3282	1664	2.520	9.640	10.08	4.56
2022/11/15	835	Head	250	4d162	7577	1664	2.380	9.640	9.52	-1.24
2022/10/25	1750	Head	250	1090	3282	1664	8.890	37.000	35.56	-3.89
2022/11/12	1750	Head	250	1090	7577	1664	9.190	37.000	36.76	-0.65
2022/10/26	1900	Head	250	5d182	3282	1664	10.100	39.600	40.4	2.02
2022/11/17	1900	Head	250	5d182	7577	1664	9.950	39.600	39.8	0.51
2022/10/28	2300	Head	250	1055	3282	1664	12.900	47.700	51.6	8.18
2022/10/25	2450	Head	250	1040	3282	1664	12.500	51.800	50	-3.47
2022/11/18	2450	Head	250	1040	7577	1664	12.600	51.800	50.4	-2.70
2022/11/17	5250	Head	100	1341	7577	1664	7.840	80.700	78.4	-2.85
2022/11/18	5250	Head	100	1341	7577	1664	8.140	80.700	81.4	0.87
2022/11/18	5600	Head	100	1341	7577	1664	7.950	84.500	79.5	-5.92
2022/11/19	5600	Head	100	1341	7577	1664	7.790	84.500	77.9	-7.81
2022/11/19	5750	Head	100	1341	7577	1664	8.340	80.600	83.4	3.47
2022/11/20	5750	Head	100	1341	7577	1664	8.860	80.600	88.6	9.93

**<10g SAR>**

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 (%)
2022/10/26	750	Head	250	1099	3282	1664	1.400	5.650	5.6	-0.88
2022/11/1	750	Head	250	1099	7577	1664	1.330	5.650	5.32	-5.84
2022/10/27	835	Head	250	4d162	3282	1664	1.660	6.260	6.64	6.07
2022/11/15	835	Head	250	4d162	7577	1664	1.480	6.260	5.92	-5.43
2022/10/25	1750	Head	250	1090	3282	1664	4.710	19.500	18.84	-3.38
2022/11/12	1750	Head	250	1090	7577	1664	5.060	19.500	20.24	3.79
2022/10/26	1900	Head	250	5d182	3282	1664	5.270	20.200	21.08	4.36
2022/11/17	1900	Head	250	5d182	7577	1664	4.970	20.200	19.88	-1.58
2022/10/28	2300	Head	250	1055	3282	1664	6.150	22.900	24.6	7.42
2022/10/25	2450	Head	250	1040	3282	1664	5.930	24.000	23.72	-1.17
2022/11/18	2450	Head	250	1040	7577	1664	6.260	24.000	25.04	4.33
2022/11/17	5250	Head	100	1341	7577	1664	2.170	23.100	21.7	-6.06
2022/11/18	5250	Head	100	1341	7577	1664	2.440	23.100	24.4	5.63
2022/11/18	5600	Head	100	1341	7577	1664	2.520	24.000	25.2	5.00
2022/11/19	5600	Head	100	1341	7577	1664	2.370	24.000	23.7	-1.25
2022/11/19	5750	Head	100	1341	7577	1664	2.310	22.700	23.1	1.76
2022/11/20	5750	Head	100	1341	7577	1664	2.350	22.700	23.5	3.52



**Fig 11.3.1 System Performance Check Setup**



**Fig 11.3.2 Setup Photo**



## 12. RF Exposure Positions

### 12.1 Ear and handset reference point

Figure 12.1.1 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 12.1.2 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 12.1.3). 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 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

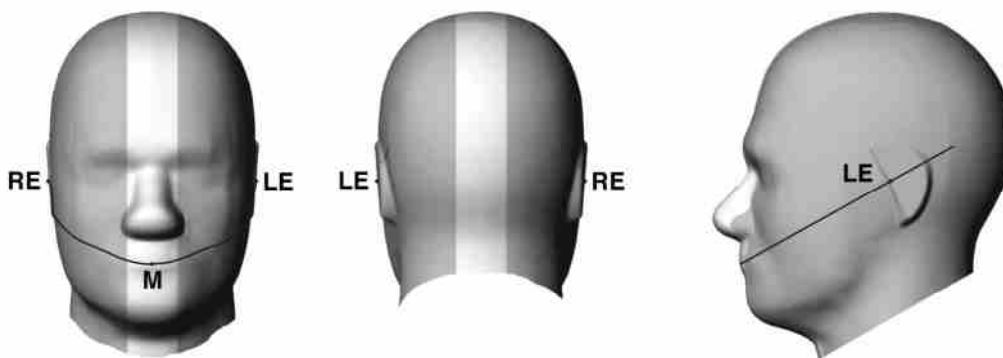


Fig 12.1.1 Front, back, and side views of SAM twin phantom

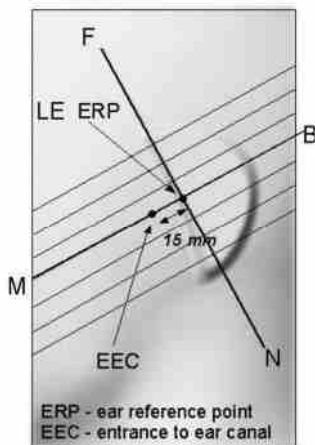


Fig 12.1.2 Close-up side view of phantom showing the ear region.

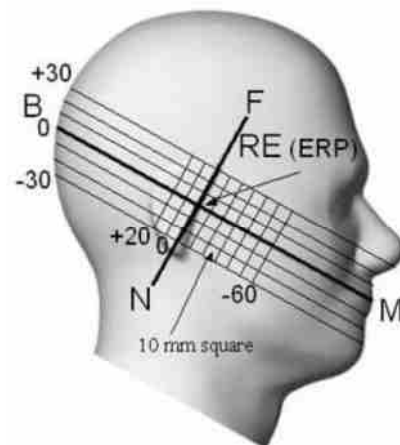
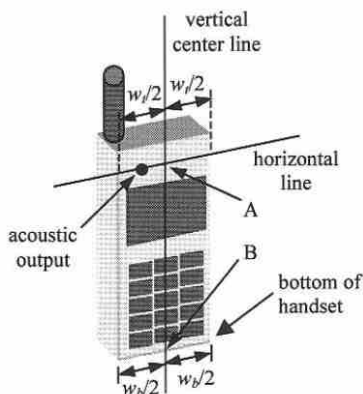


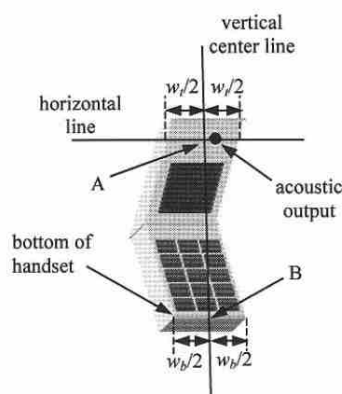
Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

## 12.2 Definition of the cheek position

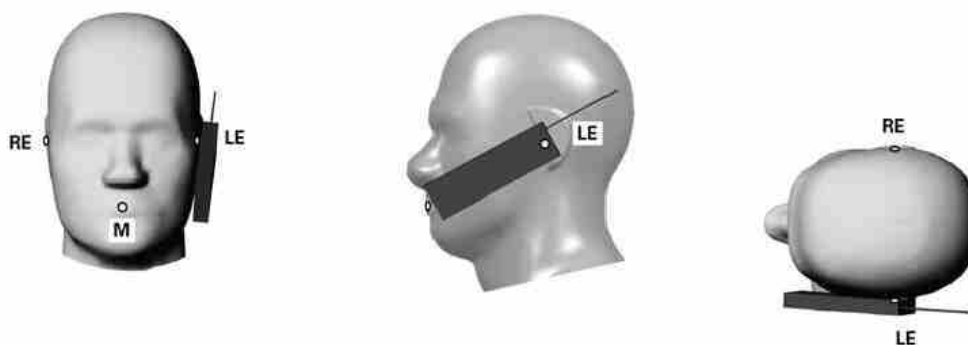
1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal 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 12.2.1 and Figure 12.2.2), 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 12.2.1). 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 12.2.2), 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 12.2.3), 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 12.2.3. The actual rotation angles should be documented in the test report.



**Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”**



**Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”**



**Fig 12.2.3 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.**

### 12.3 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 12.3.1. 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

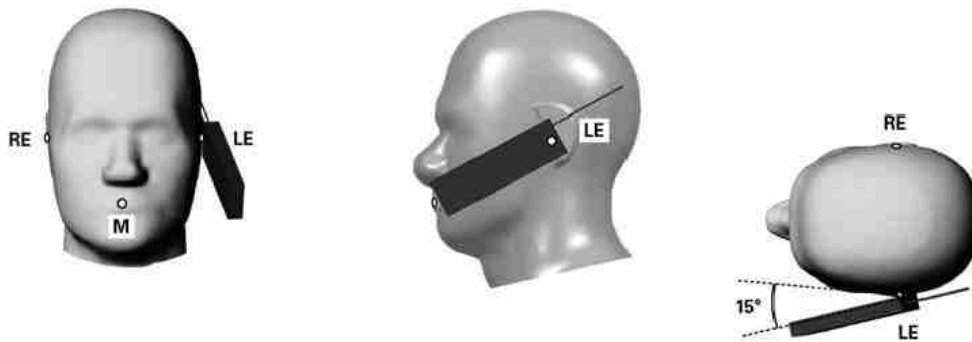


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

## 12.4 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 12.4). 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  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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 tested 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.

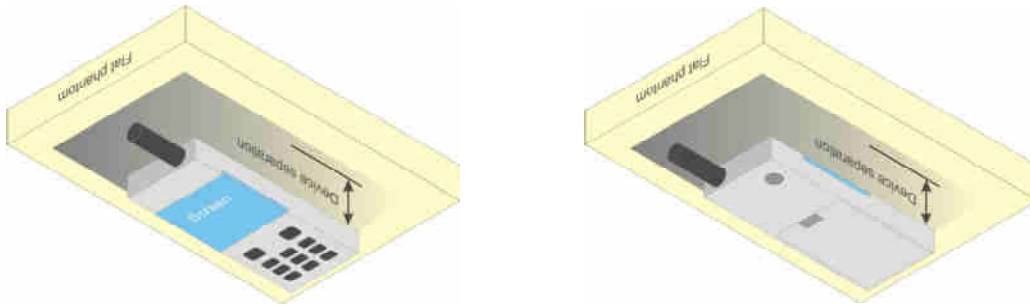


Fig 12.4 Body Worn Position

## 12.5 Product Specific 10g SAR 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  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity 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 extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

## 12.6 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.

### **13. Conducted RF Output Power (Unit: dBm)**

The detailed conducted power table can refer to Appendix E.

#### **<GSM Conducted Power>**

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

#### **<WCDMA Conducted Power>**

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

#### **HSDPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each
  - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
  - iii. Set RMC 12.2Kbps + HSDPA mode.
  - iv. Set Cell Power = -86 dBm
  - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
  - vi. Select HSDPA Uplink Parameters
  - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
  - viii. Set Ack-Nack Repetition Factor to 3
  - ix. Set CQI Feedback Cycle (k) to 4 ms
  - x. Set CQI Repetition Factor to 2
  - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_o/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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

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

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

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

Setup Configuration



**HSUPA Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
  - iii. Set Cell Power = -86 dBm
  - iv. Set Channel Type = 12.2k + HSPA
  - v. Set UE Target Power
  - vi. Power Ctrl Mode= Alternating bits
  - vii. Set and observe the E-TFCI
  - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

Sub-test	$\beta_c$	$\beta_d$	$\beta_{sf}$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (Note 4) (Note 5)	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CDI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CDI} = 5/15$  with  $\beta_{HS} = 5/15 * \beta_c$ .

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

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

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

**Setup Configuration**



**DC-HSDPA 3GPP release 8 Setup Configuration:**

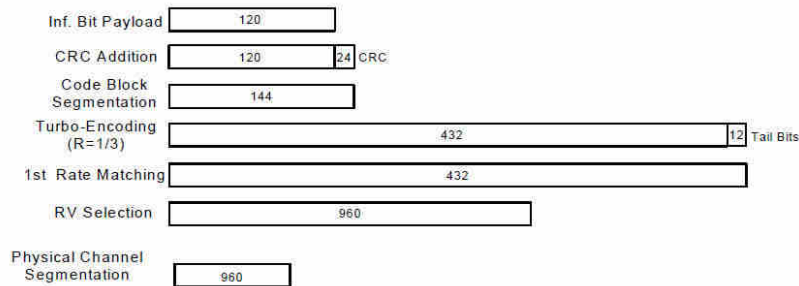
- a. The EUT was connected to Base Station referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
  - iv. Select HSDPA Uplink Parameters
  - v. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
    - a). Subtest 1:  $\beta_c/\beta_d=2/15$
    - b). Subtest 2:  $\beta_c/\beta_d=12/15$
    - c). Subtest 3:  $\beta_c/\beta_d=15/8$
    - d). Subtest 4:  $\beta_c/\beta_d=15/4$
  - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
  - vii. Set Ack-Nack Repetition Factor to 3
  - viii. Set CQI Feedback Cycle (k) to 4 ms
  - ix. Set CQI Repetition Factor to 2
  - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

**C.8.1.12 Fixed Reference Channel Definition H-Set 12**

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload ( $N_{INF}$ )	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		



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

**Setup Configuration**

**HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:**

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2E:HSPA+:UL with 16QAM
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E
  - iii. Set Channel Parmns
  - iv. Set Cell Power = -86 dBm
  - v. Set Channel Type = HSPA
  - vi. Set UE Target Power =21 dBm
  - vii. Power Ctrl Mode= All Up Bits
  - viii. Set Manual Uplink DPCH Bc/Bd = Manual
  - ix. Set Manual Uplink DPCH Bc and Bd=15,15(for 34.121-1 v8.10.0 table C11.1.4 sub-test 1)
  - x. Set HSPA Conn DL Channel Levels
  - xi. Set HS-SCCH Configs
  - xii. Set RB Test Mode Setup
  - xiii. Set Common HSUPA Parameters
  - xiv. Set Serving Grant
  - xv. Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

**Table C.11.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

Sub-test	$\beta_c$ (Note3)	$\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (2xSF2) (Note 4)	$\beta_{ed}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}$ : 30/15 $\beta_{ed2}$ : 30/15	$\beta_{ed3}$ : 24/15 $\beta_{ed4}$ : 24/15	3.5	2.5	14	105	105

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

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.

Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

**Setup Configuration**



**<WCDMA Conducted Power>**

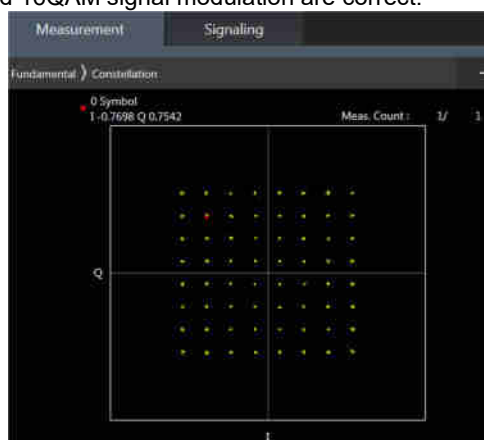
**General Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

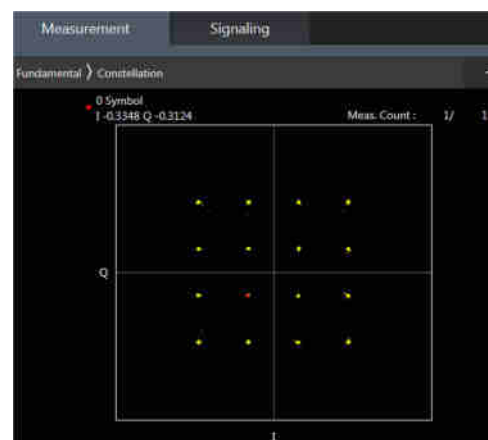
**<LTE Conducted Power>**

**General Note:**

1. Anritsu MT8820C 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  $\leq 0.8$  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/64QAM 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  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM 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  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4/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.
9. LTE B4 SAR test was covered by B66; 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 May 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**

**<LTE Carrier Aggregation>**

**General Note:**

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation	
Number	Combination
1.	CA_2A-2A
2.	CA_2A-5A
3.	CA_2A-12A
4.	CA_2A-29A
5.	CA_2C
6.	CA_4A-4A
7.	CA_4A-5A
8.	CA_4A-12A
9.	CA_4A-29A
10.	CA_5A-30A
11.	CA_5B
12.	CA_12A-30A
13.	CA_13A-2A
14.	CA_29A-30A
15.	CA_66A-66A
16.	CA_66B
17.	CA_66C

**LTE Carrier Aggregation Conducted Power (Downlink)**

- i. 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.
- ii. 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.
- iii. 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.
- iv. 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.
- v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.
- vi. 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.
- vii. 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.

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

**<WLAN Conducted Power>****General Note:**

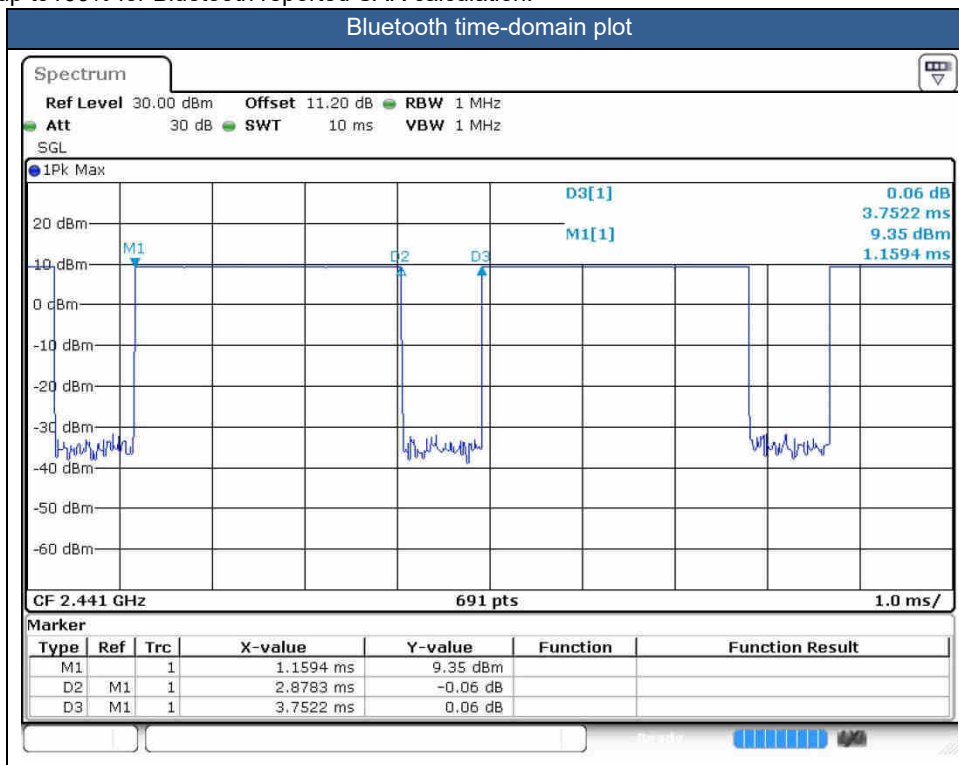
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
  - a. When the reported SAR of the initial test position is  $\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
  - b. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
  - c. For all positions/configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.



<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.71 % as following figure, according to Oct. 2016 TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation.







## **14. Antenna Location**

The detailed antenna location information can refer to SAR Test Setup Photos.

## 15. SAR Test Results

### 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 SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
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:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  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
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is  $\geq 0.8$ W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at original report.
5. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot and extremity. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn.
6. For some WWAN bands, sensor on power level is higher than hotspot power level, so front/back sensor on SAR can represent hotspot conservatively.
7. There are two samples. The difference between them could be referred to the XT2271-3, XT2271-4\_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose sample 1 for full testing and sample 2 for worst case verification.
8. 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 extremity 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.
  - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/5/12/13/14/30/66 and WLAN 2.4GHz /WLAN 5.3/5.5/5.8GHz therefore product specific 10g SAR is necessary.
  - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
  - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.

**GSM Note:**

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

**WCDMA Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is  $\leq \frac{1}{4}$  dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than  $\frac{1}{4}$  dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

**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  $\leq 0.8$  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/64QAM 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  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM 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  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/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 B4 SAR test was covered by B66; 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



**WLAN Note:**

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is  $\leq 1.2$  W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
<b>750MHz</b>																			
	LTE Band 12	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	Full Power	23095	707.5	1	22.60	24.00	1.380	0.12	0.411	0.567
	LTE Band 12	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	Full Power	23095	707.5	1	22.60	24.00	1.380	-0.01	0.196	0.271
	LTE Band 12	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	Full Power	23095	707.5	1	22.60	24.00	1.380	0.18	0.284	0.392
	LTE Band 12	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	Full Power	23095	707.5	1	22.60	24.00	1.380	0.13	0.165	0.228
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	Full Power	23095	707.5	1	21.53	23.00	1.403	0.14	0.237	0.332
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	Full Power	23095	707.5	1	21.53	23.00	1.403	0.17	0.154	0.216
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	Full Power	23095	707.5	1	21.53	23.00	1.403	-0.08	0.229	0.321
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	Full Power	23095	707.5	1	21.53	23.00	1.403	-0.08	0.131	0.184
01	LTE Band 12	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	-0.06	0.597	<b>0.755</b>
	LTE Band 12	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	0.02	0.584	0.739
	LTE Band 12	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	-0.13	0.463	0.586
	LTE Band 12	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	0.05	0.419	0.530
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	-0.05	0.513	0.650
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.14	0.459	0.582
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.09	0.353	0.447
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.08	0.317	0.402
02	LTE Band 13	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	-0.02	0.394	<b>0.551</b>
	LTE Band 13	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	0.08	0.244	0.341
	LTE Band 13	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	0.16	0.355	0.497
	LTE Band 13	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	0.09	0.205	0.287
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	-0.03	0.339	0.498
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	0.17	0.227	0.333
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	-0.11	0.324	0.476
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	0.04	0.191	0.281
03	LTE Band 14	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	0.16	0.385	<b>0.546</b>
	LTE Band 14	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	-0.01	0.221	0.314
	LTE Band 14	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	-0.02	0.335	0.475
	LTE Band 14	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	-0.14	0.188	0.267
	LTE Band 14	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	0.09	0.299	0.436
	LTE Band 14	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	-0.09	0.186	0.271
	LTE Band 14	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	0.03	0.278	0.406
	LTE Band 14	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	0.03	0.157	0.229
<b>835MHz</b>																			
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	-0.05	0.680	0.987
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 1	Full Power	189	836.4	1	28.79	30.50	1.483	-0.07	0.604	0.895
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 1	Full Power	251	848.8	1	28.81	30.50	1.476	-0.18	0.543	0.801
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	-0.09	0.406	0.590
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	-0.04	0.576	0.836
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 1	Full Power	189	836.4	1	28.79	30.50	1.483	0.02	0.511	0.758
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 1	Full Power	251	848.8	1	28.81	30.50	1.476	0.03	0.499	0.736
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Tilted	0mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	-0.08	0.360	0.523
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.05	0.933	0.964
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 2	Reduced	189	836.4	1	25.72	26.00	1.067	-0.06	0.933	0.995
04	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 2	Reduced	251	848.8	1	25.59	26.00	1.099	-0.01	0.941	<b>1.034</b>
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	-0.17	0.784	0.810
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	189	836.4	1	25.72	26.00	1.067	0.03	0.741	0.790
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	251	848.8	1	25.59	26.00	1.099	-0.11	0.699	0.768
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.16	0.667	0.689
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Tilted	0mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	-0.04	0.627	0.648
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.01	0.442	0.610
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.13	0.246	0.340



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	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.02	0.218	0.301
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	-0.04	0.115	0.159
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4132	826.4	1	21.10	22.00	1.230	0.01	0.995	1.224
05	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4233	846.6	1	21.05	22.00	1.245	0.05	1.050	1.307
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4233	846.6	2	21.05	22.00	1.245	-0.04	0.622	0.774
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4182	836.4	1	21.08	22.00	1.236	-0.04	0.974	1.204
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4132	826.4	1	21.10	22.00	1.230	0.09	0.937	1.153
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4233	846.6	1	21.05	22.00	1.245	0.09	0.895	1.114
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4182	836.4	1	21.08	22.00	1.236	-0.02	0.861	1.064
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4132	826.4	1	21.10	22.00	1.230	0.18	0.851	1.047
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4233	846.6	1	21.05	22.00	1.245	0.05	0.842	1.048
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4182	836.4	1	21.08	22.00	1.236	0.01	0.822	1.016
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	4132	826.4	1	21.10	22.00	1.230	-0.14	0.798	0.982
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	4233	846.6	1	21.05	22.00	1.245	0.03	0.758	0.943
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	4182	836.4	1	21.08	22.00	1.236	0.07	0.761	0.941
	LTE Band 5	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.14	0.499	0.697
	LTE Band 5	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.06	0.232	0.324
	LTE Band 5	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.18	0.430	0.600
	LTE Band 5	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.04	0.211	0.295
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	-0.04	0.441	0.646
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.11	0.193	0.283
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.06	0.354	0.519
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.02	0.173	0.254
06	LTE Band 5	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 2	Reduced	20525	836.5	1	21.27	22.00	1.183	0.17	1.050	1.242
	LTE Band 5	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 2	Reduced	20525	836.5	1	21.27	22.00	1.183	0.05	0.987	1.168
	LTE Band 5	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 2	Reduced	20525	836.5	1	21.27	22.00	1.183	-0.14	0.810	0.958
	LTE Band 5	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 2	Reduced	20525	836.5	1	21.27	22.00	1.183	0.11	0.701	0.829
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 2	Reduced	20525	836.5	1	20.24	21.00	1.191	0.08	0.866	1.032
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 2	Reduced	20525	836.5	1	20.24	21.00	1.191	0.17	0.843	1.004
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 2	Reduced	20525	836.5	1	20.24	21.00	1.191	-0.04	0.689	0.821
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 2	Reduced	20525	836.5	1	20.24	21.00	1.191	0.11	0.587	0.699
	LTE Band 5	10M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	Reduced	20525	836.5	1	20.22	21.00	1.197	0.06	0.835	0.999
	LTE Band 5	10M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	Reduced	20525	836.5	1	20.22	21.00	1.197	0.03	0.811	0.971
	LTE Band 5	10M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	Reduced	20525	836.5	1	20.22	21.00	1.197	0.15	0.612	0.732
	LTE Band 5	10M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	Reduced	20525	836.5	1	20.22	21.00	1.197	-0.04	0.575	0.688
<b>1750MHz</b>																			
07	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	0.06	0.399	0.546
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	0.13	0.191	0.261
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	-0.17	0.066	0.090
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	-0.1	0.051	0.070
08	LTE Band 66	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	-0.03	0.301	0.428
	LTE Band 66	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	-0.06	0.175	0.249
	LTE Band 66	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	0.13	0.062	0.088
	LTE Band 66	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	-0.17	0.049	0.070
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	Full Power	132322	1745	1	21.61	23.00	1.377	0.18	0.260	0.358
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	Full Power	132322	1745	1	21.61	23.00	1.377	-0.1	0.152	0.209
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Full Power	132322	1745	1	21.61	23.00	1.377	0.06	0.062	0.085
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	Full Power	132322	1745	1	21.61	23.00	1.377	-0.02	0.045	0.062
<b>1900MHz</b>																			
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	-0.18	0.538	0.693
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	0.14	0.311	0.401
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	0.12	0.089	0.115
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Tilted	0mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	-0.05	0.275	0.354
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Cheek	0mm	Ant 2	Reduced	810	1909.8	1	21.23	21.50	1.064	0.18	0.651	0.693
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	810	1909.8	1	21.23	21.50	1.064	0.02	1.090	1.160
09	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	512	1850.2	1	21.07	21.50	1.104	-0.1	1.180	1.303

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	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Tilted	0mm	Ant 2	Reduced	661	1880	1	21.18	21.50	1.076	0.01	1.100	1.184	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Cheek	0mm	Ant 2	Reduced	810	1909.8	1	21.23	21.50	1.064	0.01	0.496	0.528	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Tilted	0mm	Ant 2	Reduced	810	1909.8	1	21.23	21.50	1.064	0.18	0.583	0.620	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	-0.08	0.396	0.544	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	-0.16	0.285	0.392	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	0.15	0.115	0.158	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	-0.1	0.089	0.122	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9538	1907.6	1	17.37	18.50	1.297	0.16	0.629	0.816	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9262	1852.4	1	17.22	18.50	1.343	0.05	0.587	0.788	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9400	1880	1	17.31	18.50	1.315	0.01	0.576	0.758	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9538	1907.6	1	17.37	18.50	1.297	-0.02	0.886	1.149	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9262	1852.4	1	17.22	18.50	1.343	-0.04	0.842	1.131	
10	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9400	1880	1	17.31	18.50	1.315	-0.02	0.935	1.230	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	9538	1907.6	1	17.37	18.50	1.297	-0.17	0.465	0.603	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	9538	1907.6	1	17.37	18.50	1.297	-0.1	0.530	0.688	
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	0.13	0.444	0.607	
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	-0.09	0.303	0.414	
	LTE Band 2	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	-0.1	0.110	0.150	
	LTE Band 2	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	-0.03	0.083	0.114	
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	Full Power	18900	1880	1	21.54	23.00	1.400	-0.15	0.327	0.458	
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	Full Power	18900	1880	1	21.54	23.00	1.400	-0.02	0.236	0.330	
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Full Power	18900	1880	1	21.54	23.00	1.400	0.1	0.111	0.155	
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	Full Power	18900	1880	1	21.54	23.00	1.400	-0.14	0.085	0.119	
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 2	Reduced	18900	1880	1	18.50	19.00	1.122	0.01	0.819	0.919	
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 2	Reduced	18700	1860	1	18.49	19.00	1.125	0.09	0.758	0.852	
	LTE Band 2	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 2	Reduced	19100	1900	1	18.22	19.00	1.197	-0.14	0.749	0.896	
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 2	Reduced	18900	1880	1	18.50	19.00	1.122	0.15	0.952	1.068	
11	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 2	Reduced	18700	1860	1	18.49	19.00	1.125	0.16	1.170	1.316	
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 2	Reduced	18700	1860	2	18.49	19.00	1.125	0.16	0.692	0.778	
	LTE Band 2	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 2	Reduced	19100	1900	1	18.22	19.00	1.197	0.17	0.987	1.181	
	LTE Band 2	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 2	Reduced	18900	1880	1	18.50	19.00	1.122	0.04	0.346	0.388	
	LTE Band 2	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 2	Reduced	18900	1880	1	18.50	19.00	1.122	-0.17	0.414	0.465	
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	0.05	0.567	0.648	
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	0.03	0.758	0.866	
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	Reduced	18700	1860	1	17.33	18.00	1.167	-0.05	0.602	0.702	
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	Reduced	19100	1900	1	17.38	18.00	1.153	0.15	0.581	0.670	
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	-0.15	0.275	0.314	
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	-0.18	0.329	0.376	
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	0.01	0.506	0.593	
	LTE Band 2	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	-0.07	0.682	0.799	
<b>2300MHz</b>																				
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.07	0.331	0.465	
	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.07	0.227	0.319	
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	-0.12	0.631	0.887	
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.06	0.313	0.440	
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	Full Power	27710	2310	1	21.40	23.00	1.445	-0.13	0.284	0.411	
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	Full Power	27710	2310	1	21.40	23.00	1.445	-0.07	0.187	0.270	
	LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	Full Power	27710	2310	1	21.40	23.00	1.445	0.09	0.506	0.731	
	LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	Full Power	27710	2310	1	21.40	23.00	1.445	0.04	0.273	0.395	
	LTE Band 30	10M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Full Power	27710	2310	1	21.39	23.00	1.449	0.03	0.488	0.707	
	LTE Band 30	10M	QPSK	1	25	-	Right Cheek	0mm	Ant 2	Reduced	27710	2310	1	13.87	14.50	1.156	-0.01	0.571	0.660	
12	LTE Band 30	10M	QPSK	1	25	-	Right Tilted	0mm	Ant 2	Reduced	27710	2310	1	13.87	14.50	1.156	-0.12	1.080	1.249	
	LTE Band 30	10M	QPSK	1	25	-	Left Cheek	0mm	Ant 2	Reduced	27710	2310	1	13.87	14.50	1.156	-0.15	0.262	0.303	
	LTE Band 30	10M	QPSK	1	25	-	Left Tilted	0mm	Ant 2	Reduced	27710	2310	1	13.87	14.50	1.156	-0.13	0.337	0.390	
	LTE Band 30	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 2	Reduced	27710	2310	1	12.84	13.50	1.164	0.07	0.464	0.540	
	LTE Band 30	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 2	Reduced	27710	2310	1	12.84	13.50	1.164	-0.13	0.851	0.991	



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LTE Band 30	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 2	Reduced	27710	2310	1	12.84	13.50	1.164	-0.14	0.224	0.261
LTE Band 30	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 2	Reduced	27710	2310	1	12.84	13.50	1.164	0.07	0.313	0.364
LTE Band 30	10M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	Reduced	27710	2310	1	12.90	13.50	1.148	0.03	0.825	0.947

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)	
<b>2450MHz</b>																		
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	-0.11	0.047	0.097	
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.08	0.040	0.083	
13	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.18	0.078	<b>0.161</b>	
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.07	0.053	0.110	
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Reduced	11	2462	1	17.34	19.30	1.570	99.31	1.007	0.06	0.323	0.511	
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Reduced	11	2462	1	17.34	19.30	1.570	99.31	1.007	-0.02	0.288	0.455	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	11	2462	1	17.34	19.30	1.570	99.31	1.007	0.02	0.747	1.181	
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Reduced	11	2462	1	17.34	19.30	1.570	99.31	1.007	0.06	0.440	0.696	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	1	2412	1	17.05	19.00	1.567	99.31	1.007	-0.15	0.725	1.144	
14	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	6	2437	1	17.11	19.10	1.581	99.31	1.007	0.03	0.833	<b>1.326</b>	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Reduced	6	2437	2	17.11	19.10	1.581	99.31	1.007	0.01	0.600	0.955	
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Simultaneous	11	2462	1	12.23	14.20	1.574	99.31	1.007	-0.12	0.101	0.160	
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Simultaneous	11	2462	1	12.23	14.20	1.574	99.31	1.007	-0.04	0.091	0.144	
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Simultaneous	11	2462	1	12.23	14.20	1.574	99.31	1.007	-0.04	0.232	0.368	
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Simultaneous	11	2462	1	12.23	14.20	1.574	99.31	1.007	-0.07	0.165	0.262	
<b>5250-5750MHz</b>																		
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 4	Reduced	54	5270	1	16.24	18.10	1.535	93.92	1.065	-0.01	0.253	0.413	
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 4	Reduced	54	5270	1	16.24	18.10	1.535	93.92	1.065	0.13	0.311	0.508	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 4	Reduced	54	5270	1	16.24	18.10	1.535	93.92	1.065	0.09	0.341	0.557	
15	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 4	Reduced	54	5270	1	16.24	18.10	1.535	93.92	1.065	-0.01	0.623	<b>1.018</b>	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 4	Reduced	54	5270	2	16.24	18.10	1.535	93.92	1.065	0.03	0.486	0.794	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 4	Reduced	62	5310	1	14.50	16.50	1.584	93.92	1.065	-0.16	0.511	0.862	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	58	5290	1	11.77	13.60	1.524	87.84	1.138	0.06	0.109	0.189	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	58	5290	1	11.77	13.60	1.524	87.84	1.138	-0.1	0.110	0.191	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	58	5290	1	11.77	13.60	1.524	87.84	1.138	0.1	0.135	0.234	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	58	5290	1	11.77	13.60	1.524	87.84	1.138	-0.08	0.161	0.279	
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 4	Reduced	110	5550	1	16.61	18.60	1.581	93.92	1.065	-0.17	0.263	0.443	
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 4	Reduced	110	5550	1	16.61	18.60	1.581	93.92	1.065	-0.02	0.294	0.495	
16	WLAN5.5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 4	Reduced	110	5550	1	16.61	18.60	1.581	93.92	1.065	0.06	0.573	<b>0.965</b>	
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 4	Reduced	110	5550	1	16.61	18.60	1.581	93.92	1.065	0.16	0.386	0.650	
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 4	Reduced	134	5670	1	16.55	18.50	1.567	93.92	1.065	0.06	0.453	0.756	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	106	5530	1	13.03	15.00	1.574	87.84	1.138	-0.03	0.088	0.158	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	106	5530	1	13.03	15.00	1.574	87.84	1.138	0.01	0.108	0.193	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	106	5530	1	13.03	15.00	1.574	87.84	1.138	0.15	0.174	0.312	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	106	5530	1	13.03	15.00	1.574	87.84	1.138	0.09	0.168	0.301	
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	-0.08	0.187	0.303	
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	0.01	0.236	0.382	
17	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	-0.01	0.582	<b>0.942</b>	
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	-0.11	0.333	0.539	
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 4	Full Power	157	5785	1	18.02	20.00	1.578	96.82	1.033	0.07	0.553	0.901	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Simultaneous	155	5775	1	12.98	14.50	1.419	87.84	1.138	0.14	0.073	0.118	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Simultaneous	155	5775	1	12.98	14.50	1.419	87.84	1.138	0.17	0.070	0.113	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	155	5775	1	12.98	14.50	1.419	87.84	1.138	-0.05	0.184	0.297	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	155	5775	1	12.98	14.50	1.419	87.84	1.138	-0.07	0.114	0.184	





15.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
<b>750MHz</b>																			
	LTE Band 12	10M	QPSK	1	25	-	Front	5mm	Ant 1	Reduced	23095	707.5	1	21.74	23.00	1.337	-0.01	0.434	0.580
18	LTE Band 12	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23095	707.5	1	21.74	23.00	1.337	0.05	0.975	<b>1.303</b>
	LTE Band 12	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Reduced	23095	707.5	1	21.74	23.00	1.337	0.08	0.351	0.469
	LTE Band 12	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Reduced	23095	707.5	1	21.74	23.00	1.337	0.09	0.578	0.773
	LTE Band 12	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 1	Reduced	23095	707.5	1	21.74	23.00	1.337	0.16	0.557	0.744
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 1	Reduced	23095	707.5	1	20.63	22.00	1.371	-0.1	0.349	0.478
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 1	Reduced	23095	707.5	1	20.63	22.00	1.371	0.06	0.774	1.061
	LTE Band 12	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	Reduced	23095	707.5	1	20.63	22.00	1.371	0.15	0.299	0.410
	LTE Band 12	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	Reduced	23095	707.5	1	20.63	22.00	1.371	-0.18	0.501	0.687
	LTE Band 12	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 1	Reduced	23095	707.5	1	20.63	22.00	1.371	-0.01	0.485	0.665
	LTE Band 12	10M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	23095	707.5	1	20.61	22.00	1.377	0.07	0.753	1.037
	LTE Band 12	10M	QPSK	1	25	-	Front	5mm	Ant 2	Reduced	23095	707.5	1	21.98	23.00	1.265	0.15	0.388	0.491
	LTE Band 12	10M	QPSK	1	25	-	Back	5mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	0.04	0.615	0.778
	LTE Band 12	10M	QPSK	1	25	-	Left Side	5mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	-0.09	0.234	0.296
	LTE Band 12	10M	QPSK	1	25	-	Right Side	5mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	0.17	0.153	0.194
	LTE Band 12	10M	QPSK	1	25	-	Top Side	5mm	Ant 2	Full Power	23095	707.5	1	21.98	23.00	1.265	-0.06	0.522	0.660
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	-0.01	0.170	0.216
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.04	0.396	0.502
	LTE Band 12	10M	QPSK	25	0	-	Left Side	5mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.09	0.180	0.228
	LTE Band 12	10M	QPSK	25	0	-	Right Side	5mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	-0.11	0.116	0.147
	LTE Band 12	10M	QPSK	25	0	-	Top Side	5mm	Ant 2	Full Power	23095	707.5	1	20.97	22.00	1.268	0.03	0.345	0.437
	LTE Band 13	10M	QPSK	1	25	-	Front	5mm	Ant 1	Reduced	23230	782	1	20.07	21.50	1.390	0.09	0.390	0.542
19	LTE Band 13	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23230	782	1	20.07	21.50	1.390	-0.13	0.972	<b>1.351</b>
	LTE Band 13	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Reduced	23230	782	1	20.07	21.50	1.390	0.07	0.238	0.331
	LTE Band 13	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Reduced	23230	782	1	20.07	21.50	1.390	0.08	0.423	0.588
	LTE Band 13	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 1	Reduced	23230	782	1	20.07	21.50	1.390	-0.05	0.670	0.931
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 1	Reduced	23230	782	1	19.18	20.50	1.355	0.14	0.343	0.465
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 1	Reduced	23230	782	1	19.18	20.50	1.355	-0.12	0.694	0.941
	LTE Band 13	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	Reduced	23230	782	1	19.18	20.50	1.355	0.16	0.197	0.267
	LTE Band 13	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	Reduced	23230	782	1	19.18	20.50	1.355	-0.09	0.351	0.476
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 1	Reduced	23230	782	1	19.18	20.50	1.355	0.07	0.657	0.890
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	23230	782	1	19.13	20.50	1.371	0.07	0.677	0.928
	LTE Band 13	10M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	23230	782	1	19.13	20.50	1.371	-0.04	0.635	0.871
	LTE Band 14	10M	QPSK	1	25	-	Front	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-0.03	0.403	0.558
20	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-0.11	1.030	<b>1.425</b>
	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23330	793	2	20.09	21.50	1.384	0.03	0.419	0.580
	LTE Band 14	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	0.02	0.199	0.275
	LTE Band 14	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-0.18	0.409	0.566
	LTE Band 14	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-0.07	0.716	0.991
	LTE Band 14	10M	QPSK	25	0	-	Front	5mm	Ant 1	Reduced	23330	793	1	19.22	20.50	1.343	-0.08	0.331	0.444
	LTE Band 14	10M	QPSK	25	0	-	Back	5mm	Ant 1	Reduced	23330	793	1	19.22	20.50	1.343	-0.03	0.770	1.034
	LTE Band 14	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	Reduced	23330	793	1	19.22	20.50	1.343	0.14	0.172	0.231
	LTE Band 14	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	Reduced	23330	793	1	19.22	20.50	1.343	0.14	0.341	0.458
	LTE Band 14	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 1	Reduced	23330	793	1	19.22	20.50	1.343	-0.14	0.595	0.799
	LTE Band 14	10M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	23330	793	1	19.05	20.50	1.396	-0.01	0.725	1.012
	LTE Band 14	10M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	23330	793	1	19.05	20.50	1.396	0.1	0.576	0.804
<b>835MHz</b>																			
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 1	Reduced	128	824.2	1	24.27	25.50	1.327	-0.04	0.465	0.617
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	128	824.2	1	24.27	25.50	1.327	0.11	0.911	1.209



	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	189	836.4	1	24.25	25.50	1.334	-0.14	0.905	1.207
21	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	251	848.8	1	24.21	25.50	1.346	-0.01	0.971	1.307
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Side	5mm	Ant 1	Reduced	128	824.2	1	24.27	25.50	1.327	-0.06	0.205	0.272
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Side	5mm	Ant 1	Reduced	128	824.2	1	24.27	25.50	1.327	-0.11	0.360	0.478
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	128	824.2	1	24.27	25.50	1.327	-0.1	0.861	1.143
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	189	836.4	1	24.25	25.50	1.334	-0.14	0.856	1.141
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	251	848.8	1	24.21	25.50	1.346	-0.1	0.826	1.112
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.11	0.373	0.385
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	-0.17	0.889	0.918
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	189	836.4	1	25.72	26.00	1.067	0.01	0.852	0.909
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	251	848.8	1	25.59	26.00	1.099	-0.11	1.030	1.132
	GSM850	-	-	-	-	GPRS (4 TX slots)	Left Side	5mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.15	0.144	0.149
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Side	5mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.06	0.158	0.163
	GSM850	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	128	824.2	1	25.86	26.00	1.033	0.16	0.578	0.597
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	4132	826.4	1	19.03	20.00	1.250	-0.11	0.493	0.616
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	1	19.03	20.00	1.250	0.06	0.921	1.151
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4182	836.4	1	19.01	20.00	1.256	-0.17	0.835	1.049
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4233	846.6	1	18.98	20.00	1.265	-0.18	0.797	1.008
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	4132	826.4	1	19.03	20.00	1.250	0.09	0.229	0.286
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	4132	826.4	1	19.03	20.00	1.250	0.02	0.432	0.540
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4132	826.4	1	19.03	20.00	1.250	0.17	0.789	0.986
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4182	836.4	1	19.01	20.00	1.256	-0.12	0.775	0.973
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4233	846.6	1	18.98	20.00	1.265	-0.18	0.783	0.990
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	4132	826.4	1	20.28	21.00	1.180	0.1	0.306	0.361
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4132	826.4	1	20.28	21.00	1.180	-0.12	0.995	1.174
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4182	836.4	1	20.26	21.00	1.186	0.15	1.010	1.198
22	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4233	846.6	1	20.22	21.00	1.197	-0.15	1.120	1.340
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	4132	826.4	1	20.28	21.00	1.180	0.03	0.134	0.158
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	4132	826.4	1	20.28	21.00	1.180	0.17	0.147	0.174
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4132	826.4	1	20.28	21.00	1.180	0.18	0.586	0.692
	LTE Band 5	10M	QPSK	1	25	-	Front	5mm	Ant 1	Reduced	20525	836.5	1	19.43	20.50	1.279	0.18	0.465	0.595
	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	20525	836.5	1	19.43	20.50	1.279	0.01	0.980	1.254
	LTE Band 5	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Reduced	20525	836.5	1	19.43	20.50	1.279	0.15	0.158	0.202
	LTE Band 5	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Reduced	20525	836.5	1	19.43	20.50	1.279	0.01	0.324	0.415
	LTE Band 5	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	1	19.43	20.50	1.279	0.03	0.860	1.100
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 1	Reduced	20525	836.5	1	18.48	19.50	1.265	0.11	0.388	0.491
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 1	Reduced	20525	836.5	1	18.48	19.50	1.265	-0.08	0.727	0.919
	LTE Band 5	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	Reduced	20525	836.5	1	18.48	19.50	1.265	0.08	0.134	0.169
	LTE Band 5	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	Reduced	20525	836.5	1	18.48	19.50	1.265	0.08	0.265	0.335
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	1	18.48	19.50	1.265	0.09	0.683	0.864
	LTE Band 5	10M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	20525	836.5	1	18.39	19.50	1.291	-0.06	0.711	0.918
	LTE Band 5	10M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	1	18.39	19.50	1.291	0.13	0.675	0.872
	LTE Band 5	10M	QPSK	1	25	-	Front	5mm	Ant 2	Reduced	20525	836.5	1	20.21	21.00	1.199	0.14	0.411	0.493
23	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 2	Reduced	20525	836.5	1	20.21	21.00	1.199	-0.01	1.060	1.271
	LTE Band 5	10M	QPSK	1	25	-	Left Side	5mm	Ant 2	Reduced	20525	836.5	1	20.21	21.00	1.199	-0.06	0.165	0.198
	LTE Band 5	10M	QPSK	1	25	-	Right Side	5mm	Ant 2	Reduced	20525	836.5	1	20.21	21.00	1.199	-0.15	0.180	0.216
	LTE Band 5	10M	QPSK	1	25	-	Top Side	5mm	Ant 2	Reduced	20525	836.5	1	20.21	21.00	1.199	-0.05	0.855	1.026
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 2	Reduced	20525	836.5	1	19.13	20.00	1.222	-0.02	0.343	0.419
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 2	Reduced	20525	836.5	1	19.13	20.00	1.222	0.05	0.681	0.832
	LTE Band 5	10M	QPSK	25	0	-	Left Side	5mm	Ant 2	Reduced	20525	836.5	1	19.13	20.00	1.222	-0.08	0.143	0.175
	LTE Band 5	10M	QPSK	25	0	-	Right Side	5mm	Ant 2	Reduced	20525	836.5	1	19.13	20.00	1.222	-0.18	0.151	0.184
	LTE Band 5	10M	QPSK	25	0	-	Top Side	5mm	Ant 2	Reduced	20525	836.5	1	19.13	20.00	1.222	0.15	0.632	0.772
	LTE Band 5	10M	QPSK	50	0	-	Back	5mm	Ant 2	Reduced	20525	836.5	1	19.17	20.00	1.211	-0.12	0.658	0.797
	LTE Band 5	10M	QPSK	50	0	-	Top Side	5mm	Ant 2	Reduced	20525	836.5	1	19.17	20.00	1.211	-0.06	0.624	0.755
<b>1750MHz</b>																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	1513	1752.6	1	17.24	18.00	1.191	-0.15	0.374	0.446



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	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1513	1752.6	1	17.24	18.00	1.191	-0.08	0.818	0.974	
24	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1312	1712.4	1	17.16	18.00	1.213	0.06	0.860	1.044	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1413	1732.6	1	17.22	18.00	1.197	0.04	0.813	0.973	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	1513	1752.6	1	16.19	17.00	1.205	-0.05	0.180	0.217	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	1513	1752.6	1	16.19	17.00	1.205	-0.11	0.082	0.099	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	1	16.19	17.00	1.205	0.03	0.854	1.029	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1312	1712.4	1	16.12	17.00	1.225	0.16	0.697	0.854	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1413	1732.6	1	16.17	17.00	1.211	-0.01	0.710	0.860	
	LTE Band 66	20M	QPSK	1	49	-	Front	5mm	Ant 1	Reduced	132322	1745	1	17.23	18.50	1.340	-0.08	0.471	0.631	
25	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132322	1745	1	17.23	18.50	1.340	0.01	1.080	1.447	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132322	1745	2	17.23	18.50	1.340	-0.12	0.517	0.693	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132072	1720	1	17.05	18.50	1.396	-0.01	0.958	1.338	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132572	1770	1	17.07	18.50	1.390	0.03	0.967	1.344	
	LTE Band 66	20M	QPSK	1	49	-	Left Side	5mm	Ant 1	Reduced	132322	1745	1	16.63	18.00	1.371	-0.03	0.201	0.276	
	LTE Band 66	20M	QPSK	1	49	-	Right Side	5mm	Ant 1	Reduced	132322	1745	1	16.63	18.00	1.371	0.03	0.116	0.159	
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	132322	1745	1	16.63	18.00	1.371	-0.09	1.050	1.439	
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	132072	1720	1	16.52	18.00	1.406	0.1	0.985	1.385	
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	132572	1770	1	16.50	18.00	1.413	-0.17	0.956	1.350	
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	132322	1745	1	16.24	17.50	1.337	0.1	0.351	0.469	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	132322	1745	1	16.24	17.50	1.337	-0.04	0.785	1.049	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	132072	1720	1	16.13	17.50	1.371	-0.11	0.798	1.094	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	132572	1770	1	16.19	17.50	1.352	-0.1	0.772	1.044	
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	132322	1745	1	15.74	17.00	1.337	0.15	0.153	0.204	
	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	Reduced	132322	1745	1	15.74	17.00	1.337	-0.07	0.082	0.110	
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	132322	1745	1	15.74	17.00	1.337	0.04	0.641	0.857	
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	132072	1720	1	15.66	17.00	1.361	-0.09	0.638	0.869	
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	132572	1770	1	15.70	17.00	1.349	0.04	0.625	0.843	
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 1	Reduced	132322	1745	1	16.11	17.50	1.377	0.14	0.755	1.040	
	LTE Band 66	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 1	Reduced	132322	1745	1	15.66	17.00	1.361	-0.03	0.612	0.833	
<b>1900MHz</b>																				
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 1	Reduced	810	1909.8	1	20.36	21.50	1.300	0.18	0.554	0.720	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	810	1909.8	1	20.36	21.50	1.300	0.02	0.935	1.216	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	512	1850.2	1	20.30	21.50	1.318	-0.03	0.950	1.252	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Reduced	661	1880	1	20.27	21.50	1.327	0.14	0.942	1.250	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	5mm	Ant 1	Reduced	810	1909.8	1	19.84	21.00	1.306	-0.15	0.322	0.421	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Side	5mm	Ant 1	Reduced	810	1909.8	1	19.84	21.00	1.306	0.05	0.144	0.188	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	810	1909.8	1	19.84	21.00	1.306	0.03	1.036	1.353	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	512	1850.2	1	19.81	21.00	1.315	-0.05	1.050	1.381	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	5mm	Ant 1	Reduced	661	1880	1	19.77	21.00	1.327	-0.01	1.021	1.355	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 2	Reduced	810	1909.8	1	21.24	21.50	1.062	0.17	0.535	0.568	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	810	1909.8	1	21.24	21.50	1.062	0.1	0.907	0.963	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	512	1850.2	1	21.23	21.50	1.064	0.06	1.130	1.202	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Reduced	661	1880	1	21.07	21.50	1.104	-0.06	1.056	1.166	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	5mm	Ant 2	Reduced	810	1909.8	1	19.61	20.00	1.094	-0.08	0.137	0.150	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Right Side	5mm	Ant 2	Reduced	810	1909.8	1	19.61	20.00	1.094	0.08	0.071	0.078	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	810	1909.8	1	19.61	20.00	1.094	0.15	1.020	1.116	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	512	1850.2	1	19.59	20.00	1.099	-0.17	1.150	1.264	
26	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	661	1880	1	19.56	20.00	1.107	0.15	1.280	1.416	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	9538	1907.6	1	17.03	18.00	1.250	-0.07	0.548	0.685	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9538	1907.6	1	17.03	18.00	1.250	0.13	0.852	1.065	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9262	1852.4	1	16.89	18.00	1.291	-0.02	0.963	1.243	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9400	1880	1	17.01	18.00	1.256	-0.01	0.811	1.019	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	9538	1907.6	1	15.61	16.50	1.227	0.11	0.254	0.312	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	9538	1907.6	1	15.61	16.50	1.227	0.08	0.115	0.141	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9538	1907.6	1	15.61	16.50	1.227	-0.02	0.711	0.873	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9262	1852.4	1	15.51	16.50	1.256	-0.08	0.852	1.070	



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	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9400	1880	1	15.57	16.50	1.239	-0.09	0.770	0.954	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	9538	1907.6	1	16.94	18.00	1.276	-0.04	0.334	0.426	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9538	1907.6	1	16.94	18.00	1.276	0.04	0.712	0.909	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9262	1852.4	1	16.93	18.00	1.279	-0.13	0.735	0.940	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9400	1880	1	16.89	18.00	1.291	0.08	0.852	1.100	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	9538	1907.6	1	16.94	18.00	1.276	-0.01	0.139	0.177	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	9538	1907.6	1	16.94	18.00	1.276	-0.11	0.057	0.073	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9538	1907.6	1	16.94	18.00	1.276	0.05	0.724	0.924	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9262	1852.4	1	16.93	18.00	1.279	-0.18	0.845	1.081	
27	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9400	1880	1	16.89	18.00	1.291	0.13	0.971	1.254	
	LTE Band 2	20M	QPSK	1	49	-	Front	5mm	Ant 1	Reduced	18900	1880	1	18.10	19.00	1.230	0.02	0.625	0.769	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	18900	1880	1	18.10	19.00	1.230	0.07	0.977	1.202	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	18700	1860	1	17.95	19.00	1.274	0.07	0.891	1.135	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	19100	1900	1	17.95	19.00	1.274	0.06	0.875	1.114	
	LTE Band 2	20M	QPSK	1	49	-	Left Side	5mm	Ant 1	Reduced	18900	1880	1	16.06	17.00	1.242	0.03	0.297	0.369	
	LTE Band 2	20M	QPSK	1	49	-	Right Side	5mm	Ant 1	Reduced	18900	1880	1	16.06	17.00	1.242	-0.14	0.096	0.119	
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	18900	1880	1	16.06	17.00	1.242	0.12	0.858	1.065	
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	18700	1860	1	16.05	17.00	1.245	-0.05	0.959	1.193	
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 1	Reduced	19100	1900	1	16.04	17.00	1.247	-0.17	0.902	1.125	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	18900	1880	1	17.01	18.00	1.256	-0.07	0.522	0.656	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	18900	1880	1	17.01	18.00	1.256	-0.14	0.843	1.059	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	18700	1860	1	16.92	18.00	1.282	-0.1	0.805	1.032	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	19100	1900	1	16.86	18.00	1.300	-0.07	0.789	1.026	
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	18900	1880	1	15.08	16.00	1.236	-0.17	0.256	0.316	
	LTE Band 2	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	Reduced	18900	1880	1	15.08	16.00	1.236	-0.17	0.083	0.103	
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	18900	1880	1	15.08	16.00	1.236	0.14	0.740	0.915	
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	18700	1860	1	15.00	16.00	1.259	-0.15	0.867	1.091	
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	19100	1900	1	15.03	16.00	1.250	-0.08	0.813	1.016	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 1	Reduced	18900	1880	1	16.94	18.00	1.276	0.09	0.786	1.003	
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 1	Reduced	18900	1880	1	15.01	16.00	1.256	0.02	0.715	0.898	
	LTE Band 2	20M	QPSK	1	49	-	Front	5mm	Ant 2	Reduced	18900	1880	1	18.47	19.00	1.130	-0.07	0.546	0.617	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	Reduced	18900	1880	1	18.47	19.00	1.130	0.1	1.030	1.164	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	Reduced	18700	1860	1	18.41	19.00	1.146	0.03	0.892	1.022	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	Reduced	19100	1900	1	18.22	19.00	1.197	-0.18	0.905	1.083	
	LTE Band 2	20M	QPSK	1	49	-	Left Side	5mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	-0.01	0.151	0.177	
	LTE Band 2	20M	QPSK	1	49	-	Right Side	5mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	-0.01	0.060	0.070	
28	LTE Band 2	20M	QPSK	1	49	-	Top Side	5mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	-0.14	1.040	1.219	
	LTE Band 2	20M	QPSK	1	49	-	Top Side	5mm	Ant 2	Reduced	18700	1860	1	17.30	18.00	1.175	-0.03	0.840	0.987	
	LTE Band 2	20M	QPSK	1	49	-	Top Side	5mm	Ant 2	Reduced	19100	1900	1	17.26	18.00	1.186	-0.02	0.782	0.927	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	0.13	0.445	0.509	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	Reduced	18900	1880	1	17.42	18.00	1.143	-0.06	0.762	0.871	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	Reduced	18700	1860	1	17.33	18.00	1.167	0.11	0.757	0.883	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	Reduced	19100	1900	1	17.38	18.00	1.153	-0.15	0.772	0.890	
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 2	Reduced	18900	1880	1	16.39	17.00	1.151	-0.1	0.125	0.144	
	LTE Band 2	20M	QPSK	50	0	-	Right Side	5mm	Ant 2	Reduced	18900	1880	1	16.39	17.00	1.151	0.04	0.047	0.054	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 2	Reduced	18900	1880	1	16.39	17.00	1.151	-0.17	0.788	0.907	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 2	Reduced	18700	1860	1	16.36	17.00	1.159	-0.01	0.740	0.857	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 2	Reduced	19100	1900	1	16.23	17.00	1.194	-0.13	0.605	0.722	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 2	Reduced	18900	1880	1	17.31	18.00	1.172	0.13	0.751	0.880	
	LTE Band 2	20M	QPSK	100	0	-	Top Side	5mm	Ant 2	Reduced	18900	1880	1	16.36	17.00	1.159	-0.06	0.771	0.893	
<b>2300MHz</b>																				
	LTE Band 30	10M	QPSK	1	25	-	Front	5mm	Ant 1	Reduced	27710	2310	1	17.37	18.50	1.297	-0.05	0.578	0.750	
	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	27710	2310	1	17.37	18.50	1.297	0.13	1.090	1.414	
	LTE Band 30	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Reduced	27710	2310	1	17.37	18.50	1.297	0.07	0.380	0.493	
	LTE Band 30	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Reduced	27710	2310	1	17.37	18.50	1.297	0.17	0.083	0.108	
	LTE Band 30	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 1	Reduced	27710	2310	1	17.37	18.50	1.297	0.05	0.493	0.640	





# FCC SAR Test Report

Report No. : FA260816-04

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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 30	10M	QPSK	25	0	-	Front	5mm	Ant 1	Reduced	27710	2310	1	16.41	17.50	1.285	0.08	0.474	0.609
	LTE Band 30	10M	QPSK	25	0	-	Back	5mm	Ant 1	Reduced	27710	2310	1	16.41	17.50	1.285	0.02	0.729	0.937
	LTE Band 30	10M	QPSK	25	0	-	Left Side	5mm	Ant 1	Reduced	27710	2310	1	16.41	17.50	1.285	-0.12	0.290	0.373
	LTE Band 30	10M	QPSK	25	0	-	Right Side	5mm	Ant 1	Reduced	27710	2310	1	16.41	17.50	1.285	-0.12	0.065	0.084
	LTE Band 30	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 1	Reduced	27710	2310	1	16.41	17.50	1.285	-0.08	0.389	0.500
	LTE Band 30	10M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	27710	2310	1	16.33	17.50	1.309	0.08	0.688	0.901
	LTE Band 30	10M	QPSK	1	25	-	Front	5mm	Ant 2	Reduced	27710	2310	1	14.95	16.00	1.274	0.12	0.585	0.745
29	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	Reduced	27710	2310	1	14.95	16.00	1.274	0.15	1.130	1.439
	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	Reduced	27710	2310	2	14.95	16.00	1.274	0.03	0.401	0.511
	LTE Band 30	10M	QPSK	1	25	-	Left Side	5mm	Ant 2	Reduced	27710	2310	1	12.87	14.00	1.297	0.13	0.153	0.198
	LTE Band 30	10M	QPSK	1	25	-	Right Side	5mm	Ant 2	Reduced	27710	2310	1	12.87	14.00	1.297	-0.18	0.014	0.018
	LTE Band 30	10M	QPSK	1	25	-	Top Side	5mm	Ant 2	Reduced	27710	2310	1	12.87	14.00	1.297	0.06	0.922	1.196
	LTE Band 30	10M	QPSK	25	0	-	Front	5mm	Ant 2	Reduced	27710	2310	1	13.84	15.00	1.306	0.14	0.481	0.628
	LTE Band 30	10M	QPSK	25	0	-	Back	5mm	Ant 2	Reduced	27710	2310	1	13.84	15.00	1.306	0.14	1.028	1.343
	LTE Band 30	10M	QPSK	25	0	-	Left Side	5mm	Ant 2	Reduced	27710	2310	1	11.84	13.00	1.306	-0.02	0.125	0.163
	LTE Band 30	10M	QPSK	25	0	-	Right Side	5mm	Ant 2	Reduced	27710	2310	1	11.84	13.00	1.306	-0.08	0.011	0.014
	LTE Band 30	10M	QPSK	25	0	-	Top Side	5mm	Ant 2	Reduced	27710	2310	1	11.84	13.00	1.306	-0.14	0.806	1.053
	LTE Band 30	10M	QPSK	50	0	-	Back	5mm	Ant 2	Reduced	27710	2310	1	13.90	15.00	1.288	0.04	0.975	1.256
	LTE Band 30	10M	QPSK	50	0	-	Top Side	5mm	Ant 2	Reduced	27710	2310	1	11.90	13.00	1.288	0.12	0.781	1.006

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)
<b>2450MHz</b>																	
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.18	0.051	0.105
30	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.01	0.126	0.260
	Bluetooth	DH5 1Mbps	Left Side	5mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.08	0.062	0.128
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	-0.13	0.021	0.043
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 3	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.11	0.083	0.172
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	Reduced	11	2462	1	11.52	13.50	1.578	99.31	1.007	0.11	0.086	0.137
31	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	11	2462	1	11.52	13.50	1.578	99.31	1.007	0.01	0.203	0.322
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 3	Reduced	11	2462	1	11.52	13.50	1.578	99.31	1.007	-	n/a	n/a
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 3	Reduced	11	2462	1	11.52	13.50	1.578	99.31	1.007	0.1	0.064	0.102
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 3	Reduced	11	2462	1	11.52	13.50	1.578	99.31	1.007	0.07	0.110	0.175
<b>5250-5750MHz</b>																	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	42	5210	1	12.41	14.10	1.476	87.84	1.138	0.03	0.075	0.126
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	42	5210	1	12.41	14.10	1.476	87.84	1.138	0.07	0.084	0.141
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	42	5210	1	12.41	14.10	1.476	87.84	1.138	0.09	0.018	0.030
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	42	5210	1	12.41	14.10	1.476	87.84	1.138	-0.04	0.132	0.222
32	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	42	5210	1	12.41	14.10	1.476	87.84	1.138	0.1	0.140	0.235
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.16	0.090	0.159
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.07	0.212	0.374
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.04	0.013	0.023
33	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.04	0.354	0.624
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	155	5775	2	9.60	11.50	1.549	87.84	1.138	0.03	0.261	0.460
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.17	0.022	0.039



15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
<b>750MHz</b>																				
	LTE Band 12	10M	QPSK	1	25	-	Front	5mm	Ant 1	-	Reduced	23095	707.5	1	21.74	23.00	1.337	-0.01	0.434	0.580
34	LTE Band 12	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	23095	707.5	1	21.74	23.00	1.337	0.05	0.975	1.303
	LTE Band 12	10M	QPSK	1	25	-	Back	5mm	Ant 1	Headset	Reduced	23095	707.5	1	21.74	23.00	1.337	0.12	0.825	1.103
	LTE Band 12	10M	QPSK	1	25	-	Front	19mm	Ant 1	-	Full Power	23095	707.5	1	22.60	24.00	1.380	-0.14	0.413	0.570
	LTE Band 12	10M	QPSK	1	25	-	Back	24mm	Ant 1	-	Full Power	23095	707.5	1	22.60	24.00	1.380	0.07	0.361	0.498
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 1	-	Reduced	23095	707.5	1	20.63	22.00	1.371	-0.1	0.349	0.478
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 1	-	Reduced	23095	707.5	1	20.63	22.00	1.371	0.06	0.774	1.061
	LTE Band 12	10M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	23095	707.5	1	20.61	22.00	1.377	0.07	0.753	1.037
	LTE Band 12	10M	QPSK	1	25	-	Front	5mm	Ant 2	-	Full Power	23095	707.5	1	21.98	23.00	1.265	0.15	0.388	0.491
	LTE Band 12	10M	QPSK	1	25	-	Back	5mm	Ant 2	-	Full Power	23095	707.5	1	21.98	23.00	1.265	0.04	0.615	0.778
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 2	-	Full Power	23095	707.5	1	20.97	22.00	1.268	-0.01	0.170	0.216
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 2	-	Full Power	23095	707.5	1	20.97	22.00	1.268	0.04	0.396	0.502
	LTE Band 13	10M	QPSK	1	25	-	Front	5mm	Ant 1	-	Reduced	23230	782	1	20.07	21.50	1.390	0.09	0.390	0.542
35	LTE Band 13	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	23230	782	1	20.07	21.50	1.390	-0.13	0.972	1.351
	LTE Band 13	10M	QPSK	1	25	-	Back	5mm	Ant 1	Headset	Reduced	23230	782	1	20.07	21.50	1.390	-0.1	0.952	1.323
	LTE Band 13	10M	QPSK	1	25	-	Front	19mm	Ant 1	-	Full Power	23230	782	1	22.54	24.00	1.400	0.16	0.364	0.509
	LTE Band 13	10M	QPSK	1	25	-	Back	24mm	Ant 1	-	Full Power	23230	782	1	22.54	24.00	1.400	0.11	0.321	0.449
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 1	-	Reduced	23230	782	1	19.18	20.50	1.355	0.14	0.343	0.465
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 1	-	Reduced	23230	782	1	19.18	20.50	1.355	-0.12	0.694	0.941
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	23230	782	1	19.13	20.50	1.371	0.07	0.677	0.928
	LTE Band 14	10M	QPSK	1	25	-	Front	5mm	Ant 1	-	Reduced	23330	793	1	20.09	21.50	1.384	-0.03	0.403	0.558
36	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	23330	793	1	20.09	21.50	1.384	-0.11	1.030	1.425
	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	23330	793	2	20.09	21.50	1.384	0.03	0.419	0.580
	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	Headset	Reduced	23330	793	1	20.09	21.50	1.384	-0.13	0.975	1.349
	LTE Band 14	10M	QPSK	1	25	-	Front	19mm	Ant 1	-	Full Power	23330	793	1	22.48	24.00	1.419	0.01	0.302	0.429
	LTE Band 14	10M	QPSK	1	25	-	Back	24mm	Ant 1	-	Full Power	23330	793	1	22.48	24.00	1.419	-0.12	0.221	0.314
	LTE Band 14	10M	QPSK	25	0	-	Front	5mm	Ant 1	-	Reduced	23330	793	1	19.22	20.50	1.343	-0.08	0.331	0.444
	LTE Band 14	10M	QPSK	25	0	-	Back	5mm	Ant 1	-	Reduced	23330	793	1	19.22	20.50	1.343	-0.03	0.770	1.034
	LTE Band 14	10M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	23330	793	1	19.05	20.50	1.396	-0.01	0.725	1.012
<b>835MHz</b>																				
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 1	-	Reduced	128	824.2	1	24.27	25.50	1.327	-0.04	0.465	0.617
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	128	824.2	1	24.27	25.50	1.327	0.11	0.911	1.209
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	189	836.4	1	24.25	25.50	1.334	-0.14	0.905	1.207
37	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	251	848.8	1	24.21	25.50	1.346	-0.1	0.971	1.307
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Headset	Reduced	251	848.8	1	24.21	25.50	1.346	-0.1	0.851	1.145
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	19mm	Ant 1	-	Full Power	128	824.2	1	28.88	30.50	1.452	-0.11	0.420	0.610
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	24mm	Ant 1	-	Full Power	251	848.8	1	28.81	30.50	1.476	0.01	0.271	0.400
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 2	-	Reduced	128	824.2	1	25.86	26.00	1.033	0.11	0.373	0.385
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	128	824.2	1	25.86	26.00	1.033	-0.17	0.889	0.918
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	189	836.4	1	25.72	26.00	1.067	0.01	0.852	0.909
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	251	848.8	1	25.59	26.00	1.099	-0.11	1.030	1.132
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	19mm	Ant 2	-	Full Power	128	824.2	1	27.86	29.00	1.300	-0.15	0.175	0.228
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	24mm	Ant 2	-	Full Power	251	848.8	1	27.66	29.00	1.361	0.07	0.191	0.260
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	4132	826.4	1	19.03	20.00	1.250	-0.11	0.493	0.616
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4132	826.4	1	19.03	20.00	1.250	0.06	0.921	1.151
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4182	836.4	1	19.01	20.00	1.256	-0.17	0.835	1.049
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4233	846.6	1	18.98	20.00	1.265	-0.18	0.797	1.008
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full Power	4132	826.4	1	22.60	24.00	1.380	-0.01	0.352	0.486
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full Power	4132	826.4	1	22.60	24.00	1.380	0.09	0.317	0.438
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	4132	826.4	1	20.28	21.00	1.180	0.1	0.306	0.361
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4132	826.4	1	20.28	21.00	1.180	-0.12	0.995	1.174



**FCC SAR Test Report**

**Report No. : FA260816-04**

	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4182	836.4	1	20.26	21.00	1.186	0.15	1.010	1.198	
38	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4233	846.6	1	20.22	21.00	1.197	-0.15	1.120	1.340	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Headset	Reduced	4233	846.6	1	20.22	21.00	1.197	-0.05	1.030	1.233	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	19mm	Ant 2	-	Full Power	4132	826.4	1	21.72	23.00	1.343	0.12	0.162	0.218	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full Power	4233	846.6	1	21.68	23.00	1.355	0.15	0.174	0.236	
	LTE Band 5	10M	QPSK	1	25	-	Front	5mm	Ant 1	-	Reduced	20525	836.5	1	19.43	20.50	1.279	0.18	0.465	0.595	
	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	20525	836.5	1	19.43	20.50	1.279	0.01	0.980	1.254	
	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 1	Headset	Reduced	20525	836.5	1	19.43	20.50	1.279	0.13	0.953	1.219	
	LTE Band 5	10M	QPSK	1	25	-	Front	19mm	Ant 1	-	Full Power	20525	836.5	1	22.55	24.00	1.396	-0.08	0.295	0.412	
	LTE Band 5	10M	QPSK	1	25	-	Back	24mm	Ant 1	-	Full Power	20525	836.5	1	22.55	24.00	1.396	-0.1	0.246	0.344	
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 1	-	Reduced	20525	836.5	1	18.48	19.50	1.265	0.11	0.388	0.491	
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 1	-	Reduced	20525	836.5	1	18.48	19.50	1.265	-0.08	0.727	0.919	
	LTE Band 5	10M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	20525	836.5	1	18.39	19.50	1.291	-0.06	0.711	0.918	
	LTE Band 5	10M	QPSK	1	25	-	Front	5mm	Ant 2	-	Reduced	20525	836.5	1	20.21	21.00	1.199	0.14	0.411	0.493	
39	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 2	-	Reduced	20525	836.5	1	20.21	21.00	1.199	-0.01	1.060	1.271	
	LTE Band 5	10M	QPSK	1	25	-	Back	5mm	Ant 2	Headset	Reduced	20525	836.5	1	20.21	21.00	1.199	0.06	0.958	1.149	
	LTE Band 5	10M	QPSK	1	25	-	Front	19mm	Ant 2	-	Full Power	20525	836.5	1	21.92	23.00	1.282	0.03	0.188	0.241	
	LTE Band 5	10M	QPSK	1	25	-	Back	24mm	Ant 2	-	Full Power	20525	836.5	1	21.92	23.00	1.282	-0.08	0.141	0.181	
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 2	-	Reduced	20525	836.5	1	19.13	20.00	1.222	-0.02	0.343	0.419	
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 2	-	Reduced	20525	836.5	1	19.13	20.00	1.222	0.05	0.681	0.832	
	LTE Band 5	10M	QPSK	50	0	-	Back	5mm	Ant 2	-	Reduced	20525	836.5	1	19.17	20.00	1.211	-0.12	0.658	0.797	
<b>1750MHz</b>																					
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	1513	1752.6	1	17.24	18.00	1.191	-0.15	0.374	0.446	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1513	1752.6	1	17.24	18.00	1.191	-0.08	0.818	0.974	
40	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1312	1712.4	1	17.16	18.00	1.213	0.06	0.860	1.044	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1413	1732.6	1	17.22	18.00	1.197	0.04	0.813	0.973	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full Power	1513	1752.6	1	22.64	24.00	1.368	-0.09	0.307	0.420	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full Power	1312	1712.4	1	22.47	24.00	1.422	-0.13	0.386	0.549	
	LTE Band 66	20M	QPSK	1	49	-	Front	5mm	Ant 1	-	Reduced	132322	1745	1	17.23	18.50	1.340	-0.08	0.471	0.631	
41	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	132322	1745	1	17.23	18.50	1.340	0.01	1.080	1.447	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	132322	1745	2	17.23	18.50	1.340	-0.12	0.517	0.693	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	132072	1720	1	17.05	18.50	1.396	-0.01	0.958	1.338	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	132572	1770	1	17.07	18.50	1.390	0.03	0.967	1.344	
	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Headset	Reduced	132322	1745	1	17.23	18.50	1.340	0.01	0.977	1.309	
	LTE Band 66	20M	QPSK	1	49	-	Front	19mm	Ant 1	-	Full Power	132322	1745	1	22.47	24.00	1.422	-0.11	0.337	0.479	
	LTE Band 66	20M	QPSK	1	49	-	Back	24mm	Ant 1	-	Full Power	132322	1745	1	22.47	24.00	1.422	0.17	0.298	0.424	
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	132322	1745	1	16.24	17.50	1.337	0.1	0.351	0.469	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	132322	1745	1	16.24	17.50	1.337	-0.04	0.785	1.049	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	132072	1720	1	16.13	17.50	1.371	-0.11	0.798	1.094	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	132572	1770	1	16.19	17.50	1.352	-0.1	0.772	1.044	
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 1	-	Reduced	132322	1745	1	16.11	17.50	1.377	0.14	0.755	1.040	
<b>1900MHz</b>																					
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 1	-	Reduced	810	1909.8	1	20.36	21.50	1.300	0.18	0.554	0.720	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	810	1909.8	1	20.36	21.50	1.300	0.02	0.935	1.216	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	661	1880	1	20.27	21.50	1.327	0.14	0.942	1.250	
42	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	-	Reduced	512	1850.2	1	20.30	21.50	1.318	-0.03	0.950	1.252	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 1	Headset	Reduced	512	1850.2	1	20.30	21.50	1.318	0.1	0.944	1.244	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	19mm	Ant 1	-	Full Power	810	1909.8	1	26.40	27.50	1.288	-0.09	0.446	0.575	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	24mm	Ant 1	-	Full Power	512	1850.2	1	26.38	27.50	1.294	0.18	0.523	0.677	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	5mm	Ant 2	-	Reduced	810	1909.8	1	21.24	21.50	1.062	0.17	0.535	0.568	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	810	1909.8	1	21.24	21.50	1.062	0.1	0.907	0.963	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	661	1880	1	21.07	21.50	1.104	-0.06	1.056	1.166	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	-	Reduced	512	1850.2	1	21.23	21.50	1.064	0.06	1.130	1.202	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	5mm	Ant 2	Headset	Reduced	512	1850.2	1	21.23	21.50	1.064	0.14	1.070	1.139	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	19mm	Ant 2	-	Full Power	810	1909.8	1	24.15	25.00	1.216	-0.18	0.158	0.192	
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	24mm	Ant 2	-	Full Power	512	1850.2	1	24.07	25.00	1.239	0.18	0.167	0.207	





	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	9538	1907.6	1	17.03	18.00	1.250	-0.07	0.548	0.685	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9538	1907.6	1	17.03	18.00	1.250	0.13	0.852	1.065	
43	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9262	1852.4	1	16.89	18.00	1.291	-0.02	0.963	1.243	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9400	1880	1	17.01	18.00	1.256	-0.01	0.811	1.019	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	9262	1852.4	1	16.89	18.00	1.291	0.11	0.894	1.154	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full Power	9538	1907.6	1	22.62	24.00	1.374	0.05	0.409	0.562	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full Power	9262	1852.4	1	22.41	24.00	1.442	0.16	0.418	0.603	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	9538	1907.6	1	16.94	18.00	1.276	-0.04	0.334	0.426	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9538	1907.6	1	16.94	18.00	1.276	0.04	0.712	0.909	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9262	1852.4	1	16.93	18.00	1.279	-0.13	0.735	0.940	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9400	1880	1	16.89	18.00	1.291	0.08	0.852	1.100	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	19mm	Ant 2	-	Full Power	9538	1907.6	1	20.89	22.50	1.449	0.04	0.119	0.172	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full Power	9400	1880	1	20.87	22.50	1.455	-0.02	0.124	0.180	
	LTE Band 2	20M	QPSK	1	49	-	Front	5mm	Ant 1	-	Reduced	18900	1880	1	18.10	19.00	1.230	0.02	0.625	0.769	
44	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	18900	1880	1	18.10	19.00	1.230	0.07	0.977	1.202	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	18700	1860	1	17.95	19.00	1.274	0.07	0.891	1.135	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	-	Reduced	19100	1900	1	17.95	19.00	1.274	0.06	0.875	1.114	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 1	Headset	Reduced	18900	1880	1	18.10	19.00	1.230	-0.11	0.926	1.139	
	LTE Band 2	20M	QPSK	1	49	-	Front	19mm	Ant 1	-	Full Power	18900	1880	1	22.64	24.00	1.368	-0.07	0.526	0.719	
	LTE Band 2	20M	QPSK	1	49	-	Back	24mm	Ant 1	-	Full Power	18900	1880	1	22.64	24.00	1.368	0.03	0.443	0.606	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	18900	1880	1	17.01	18.00	1.256	-0.07	0.522	0.656	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	18900	1880	1	17.01	18.00	1.256	-0.14	0.843	1.059	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	18700	1860	1	16.92	18.00	1.282	-0.1	0.805	1.032	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	19100	1900	1	16.86	18.00	1.300	-0.07	0.789	1.026	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 1	-	Reduced	18900	1880	1	16.94	18.00	1.276	0.09	0.786	1.003	
	LTE Band 2	20M	QPSK	1	49	-	Front	5mm	Ant 2	-	Reduced	18900	1880	1	18.47	19.00	1.130	-0.07	0.546	0.617	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	-	Reduced	18900	1880	1	18.47	19.00	1.130	0.1	1.030	1.164	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	-	Reduced	18700	1860	1	18.41	19.00	1.146	0.03	0.892	1.022	
	LTE Band 2	20M	QPSK	1	49	-	Back	5mm	Ant 2	-	Reduced	19100	1900	1	18.22	19.00	1.197	-0.18	0.905	1.083	
	LTE Band 2	20M	QPSK	1	49	-	Front	19mm	Ant 2	-	Full Power	18900	1880	1	21.07	22.00	1.239	-0.17	0.157	0.194	
	LTE Band 2	20M	QPSK	1	49	-	Back	24mm	Ant 2	-	Full Power	18900	1880	1	21.07	22.00	1.239	-0.09	0.145	0.180	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 2	-	Reduced	18900	1880	1	17.42	18.00	1.143	0.13	0.445	0.509	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	-	Reduced	18900	1880	1	17.42	18.00	1.143	-0.06	0.762	0.871	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	-	Reduced	18700	1860	1	17.33	18.00	1.167	0.11	0.757	0.883	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 2	-	Reduced	19100	1900	1	17.38	18.00	1.153	-0.15	0.772	0.890	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 2	-	Reduced	18900	1880	1	17.31	18.00	1.172	0.13	0.751	0.880	
<b>2300MHz</b>																					
	LTE Band 30	10M	QPSK	1	25	-	Front	5mm	Ant 1	-	Reduced	27710	2310	1	17.37	18.50	1.297	-0.05	0.578	0.750	
	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 1	-	Reduced	27710	2310	1	17.37	18.50	1.297	0.13	1.090	1.414	
	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 1	Headset	Reduced	27710	2310	1	17.37	18.50	1.297	0.13	0.982	1.274	
	LTE Band 30	10M	QPSK	1	25	-	Front	19mm	Ant 1	-	Full Power	27710	2310	1	22.52	24.00	1.406	-0.07	0.378	0.531	
	LTE Band 30	10M	QPSK	1	25	-	Back	24mm	Ant 1	-	Full Power	27710	2310	1	22.52	24.00	1.406	-0.01	0.184	0.259	
	LTE Band 30	10M	QPSK	25	0	-	Front	5mm	Ant 1	-	Reduced	27710	2310	1	16.41	17.50	1.285	0.08	0.474	0.609	
	LTE Band 30	10M	QPSK	25	0	-	Back	5mm	Ant 1	-	Reduced	27710	2310	1	16.41	17.50	1.285	0.02	0.729	0.937	
	LTE Band 30	10M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	27710	2310	1	16.33	17.50	1.309	0.08	0.359	0.470	
	LTE Band 30	10M	QPSK	1	25	-	Front	5mm	Ant 2	-	Reduced	27710	2310	1	14.95	16.00	1.274	0.12	0.585	0.745	
45	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	-	Reduced	27710	2310	1	14.95	16.00	1.274	0.13	1.130	1.439	
	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	Headset	Reduced	27710	2310	1	14.95	16.00	1.274	0.09	1.030	1.312	
	LTE Band 30	10M	QPSK	1	25	-	Front	19mm	Ant 2	-	Full Power	27710	2310	1	20.92	22.00	1.282	-0.1	0.381	0.489	
	LTE Band 30	10M	QPSK	1	25	-	Back	24mm	Ant 2	-	Full Power	27710	2310	1	20.92	22.00	1.282	-0.01	0.268	0.344	
	LTE Band 30	10M	QPSK	25	0	-	Front	5mm	Ant 2	-	Reduced	27710	2310	1	13.84	15.00	1.306	0.14	0.481	0.628	
	LTE Band 30	10M	QPSK	25	0	-	Back	5mm	Ant 2	-	Reduced	27710	2310	1	13.84	15.00	1.306	0.14	1.028	1.343	
	LTE Band 30	10M	QPSK	50	0	-	Back	5mm	Ant 2	-	Reduced	27710	2310	1	13.90	15.00	1.288	0.04	0.975	1.256	



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Sample	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)	
<b>2450MHz</b>																			
46	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	-	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.18	0.051	0.105	
	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	-	Full Power	39	2441	1	9.60	11.60	1.585	76.71	1.304	0.01	0.126	<b>0.260</b>	
47	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Reduced	11	2462	1	18.08	20.00	1.556	99.31	1.007	0.01	0.409	0.641	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	11	2462	1	18.08	20.00	1.556	99.31	1.007	0.09	0.924	<b>1.448</b>	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Headset	Reduced	11	2462	1	18.08	20.00	1.556	99.31	1.007	0.08	0.876	1.373	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	11	2462	2	18.08	20.00	1.556	99.31	1.007	0.03	0.671	1.051	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	6	2437	1	17.94	19.90	1.570	99.31	1.007	0.05	0.852	1.347	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	1	2412	1	17.82	19.80	1.578	99.31	1.007	0.13	0.868	1.379	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Simultaneous	11	2462	1	11.52	13.50	1.578	99.31	1.007	-0.07	0.087	0.138	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Simultaneous	11	2462	1	11.52	13.50	1.578	99.31	1.007	0.01	0.203	0.322	
	WLAN2.4GHz	802.11b 1Mbps	Front	19mm	Ant 2	-	Full Power	11	2462	1	19.70	21.70	1.585	99.31	1.007	0.05	0.072	0.115	
	WLAN2.4GHz	802.11b 1Mbps	Back	24mm	Ant 2	-	Full Power	11	2462	1	19.70	21.70	1.585	99.31	1.007	0.08	0.102	0.163	
<b>5250-5750MHz</b>																			
	WLAN5.3GHz	802.11a 6Mbps	Front	5mm	Ant 4	-	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	-0.03	0.353	0.578	
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant 4	-	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	-0.08	0.489	0.801	
48	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant 4	-	Full Power	56	5280	1	18.58	20.50	1.556	96.82	1.033	-0.16	0.502	<b>0.807</b>	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	58	5290	1	12.26	14.10	1.528	87.84	1.138	0.01	0.092	0.160	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	58	5290	1	12.26	14.10	1.528	87.84	1.138	-0.02	0.117	0.203	
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	5mm	Ant 4	-	Reduced	110	5550	1	14.52	16.50	1.578	93.92	1.065	0.17	0.188	0.316	
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	5mm	Ant 4	-	Reduced	110	5550	1	14.52	16.50	1.578	93.92	1.065	0.03	0.536	0.901	
49	WLAN5.5GHz	802.11n-HT40 MCS0	Back	5mm	Ant 4	-	Reduced	134	5670	1	14.40	16.40	1.585	93.92	1.065	0.01	0.701	<b>1.183</b>	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	106	5530	1	12.17	14.00	1.524	87.84	1.138	-0.1	0.078	0.135	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	106	5530	1	12.17	14.00	1.524	87.84	1.138	-0.13	0.209	0.362	
	WLAN5.5GHz	802.11a 6Mbps	Front	19mm	Ant 4	-	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	-0.02	0.148	0.242	
	WLAN5.5GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	-0.14	0.256	0.419	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Reduced	155	5775	1	14.44	16.00	1.432	87.84	1.138	-0.08	0.192	0.313	
50	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Reduced	155	5775	1	14.44	16.00	1.432	87.84	1.138	-0.16	0.732	<b>1.193</b>	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Reduced	155	5775	2	14.44	16.00	1.432	87.84	1.138	0.04	0.481	0.784	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.16	0.090	0.159	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	155	5775	1	9.60	11.50	1.549	87.84	1.138	-0.07	0.212	0.374	
	WLAN5.8GHz	802.11a 6Mbps	Front	19mm	Ant 4	-	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	0.01	0.133	0.215	
	WLAN5.8GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	0.14	0.709	1.147	



15.4 Product Specific SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
<b>750MHz</b>																			
51	LTE Band 12	10M	QPSK	1	25	-	Back	0mm	Ant 1	Full Power	23095	707.5	1	22.60	24.00	1.380	-0.09	1.580	2.181
	LTE Band 12	10M	QPSK	25	0	-	Back	0mm	Ant 1	Full Power	23095	707.5	1	21.53	23.00	1.403	-0.09	1.310	1.838
	LTE Band 12	10M	QPSK	50	0	-	Back	0mm	Ant 1	Full Power	23095	707.5	1	21.55	23.00	1.396	0.05	1.250	1.745
	LTE Band 13	10M	QPSK	1	25	-	Back	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	-0.06	1.760	2.463
52	LTE Band 13	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Full Power	23230	782	1	22.54	24.00	1.400	-0.02	2.140	2.995
	LTE Band 13	10M	QPSK	25	0	-	Back	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	-0.05	1.310	1.924
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	0mm	Ant 1	Full Power	23230	782	1	21.33	23.00	1.469	-0.08	1.420	2.086
	LTE Band 13	10M	QPSK	50	0	-	Back	0mm	Ant 1	Full Power	23230	782	1	21.31	23.00	1.476	0.01	1.240	1.830
	LTE Band 13	10M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Full Power	23230	782	1	21.31	23.00	1.476	0.13	1.370	2.022
	LTE Band 14	10M	QPSK	1	25	-	Back	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	0.07	1.800	2.554
53	LTE Band 14	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	0.18	2.170	3.079
	LTE Band 14	10M	QPSK	25	0	-	Back	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	-0.03	1.420	2.072
	LTE Band 14	10M	QPSK	25	0	-	Bottom Side	0mm	Ant 1	Full Power	23330	793	1	21.36	23.00	1.459	-0.01	1.730	2.524
	LTE Band 14	10M	QPSK	50	0	-	Back	0mm	Ant 1	Full Power	23330	793	1	21.34	23.00	1.466	0.01	1.380	2.022
	LTE Band 14	10M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Full Power	23330	793	1	21.34	23.00	1.466	0.09	1.650	2.418
<b>835MHz</b>																			
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	0mm	Ant 1	Reduced	128	824.2	1	27.72	29.50	1.507	0.14	1.737	2.617
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	0mm	Ant 1	Reduced	189	836.4	1	27.70	29.50	1.514	-0.16	1.620	2.452
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	0mm	Ant 1	Reduced	251	848.8	1	27.67	29.50	1.524	-0.02	1.560	2.378
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	128	824.2	1	27.72	29.50	1.507	-0.18	2.240	3.375
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	189	836.4	1	27.70	29.50	1.514	0.03	2.120	3.209
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	251	848.8	1	27.67	29.50	1.524	0.18	2.050	3.124
	GSM850	-	-	-	-	GPRS (4 TX slots)	Right Side	0mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	-0.05	0.852	1.237
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	128	824.2	1	27.72	29.50	1.507	0.12	2.050	3.089
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	189	836.4	1	27.70	29.50	1.514	-0.01	2.110	3.194
54	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	251	848.8	1	27.67	29.50	1.524	0.17	2.260	3.444
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	251	848.8	2	27.67	29.50	1.524	0.02	1.360	2.073
	GSM850	-	-	-	-	GPRS (4 TX slots)	Front	8mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	0.04	0.520	0.755
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	14mm	Ant 1	Full Power	128	824.2	1	28.88	30.50	1.452	0.04	0.358	0.520
	GSM850	-	-	-	-	GPRS (4 TX slots)	Bottom Side	14mm	Ant 1	Full Power	251	848.8	1	28.81	30.50	1.476	-0.11	0.281	0.415
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	128	824.2	1	25.76	27.00	1.330	0.12	2.050	2.727
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	189	836.4	1	25.69	27.00	1.352	0.03	1.970	2.664
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	251	848.8	1	25.71	27.00	1.346	-0.01	1.860	2.503
	GSM850	-	-	-	-	GPRS (4 TX slots)	Back	14mm	Ant 2	Full Power	128	824.2	1	27.86	29.00	1.300	-0.1	0.458	0.595
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.09	1.480	2.043
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Full Power	4182	836.4	1	22.55	24.00	1.396	-0.02	1.500	2.095
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Full Power	4233	846.6	1	22.53	24.00	1.403	0.17	1.350	1.894
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.1	1.670	2.305
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Full Power	4182	836.4	1	22.55	24.00	1.396	-0.04	2.060	2.877
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Full Power	4233	846.6	1	22.53	24.00	1.403	0.02	1.520	2.132
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full Power	4132	826.4	1	22.60	24.00	1.380	0.14	1.740	2.402
55	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full Power	4182	836.4	1	22.55	24.00	1.396	0.05	2.300	3.212
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full Power	4233	846.6	1	22.53	24.00	1.403	0.17	1.660	2.329
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Full Power	4132	826.4	1	21.72	23.00	1.343	0.03	2.160	2.900
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Full Power	4182	836.4	1	21.52	23.00	1.406	0.15	1.920	2.700
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Full Power	4233	846.6	1	21.68	23.00	1.355	-0.06	1.560	2.114
	LTE Band 5	10M	QPSK	1	25	-	Front	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.07	1.560	2.178
	LTE Band 5	10M	QPSK	1	25	-	Back	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	-0.1	1.700	2.374
56	LTE Band 5	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Full Power	20525	836.5	1	22.55	24.00	1.396	0.02	2.190	3.058
	LTE Band 5	10M	QPSK	25	0	-	Front	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.07	1.320	1.935



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	LTE Band 5	10M	QPSK	25	0	-	Back	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.01	1.400	2.052
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	0mm	Ant 1	Full Power	20525	836.5	1	21.34	23.00	1.466	0.17	1.700	2.491
	LTE Band 5	10M	QPSK	50	0	-	Front	0mm	Ant 1	Full Power	20525	836.5	1	21.30	23.00	1.479	0.02	1.240	1.834
	LTE Band 5	10M	QPSK	50	0	-	Back	0mm	Ant 1	Full Power	20525	836.5	1	21.30	23.00	1.479	-0.05	1.350	1.997
	LTE Band 5	10M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Full Power	20525	836.5	1	21.30	23.00	1.479	0.12	1.630	2.411
	LTE Band 5	10M	QPSK	1	25	-	Back	0mm	Ant 2	Full Power	20525	836.5	1	21.92	23.00	1.282	0.02	1.670	2.141
	LTE Band 5	10M	QPSK	1	25	-	Top Side	0mm	Ant 2	Full Power	20525	836.5	1	21.92	23.00	1.282	-0.01	1.100	1.411
	LTE Band 5	10M	QPSK	25	0	-	Back	0mm	Ant 2	Full Power	20525	836.5	1	20.77	22.00	1.327	0.14	1.470	1.951
	LTE Band 5	10M	QPSK	25	0	-	Top Side	0mm	Ant 2	Full Power	20525	836.5	1	20.77	22.00	1.327	-0.06	0.896	1.189
	LTE Band 5	10M	QPSK	50	0	-	Back	0mm	Ant 2	Full Power	20525	836.5	1	20.84	22.00	1.306	0.02	1.410	1.842
<b>1750MHz</b>																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	1513	1752.6	1	19.21	20.00	1.199	-0.1	1.055	1.265
57	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	1	19.21	20.00	1.199	0.11	2.420	2.903
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1312	1712.4	1	19.13	20.00	1.222	0.17	2.220	2.712
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1413	1732.6	1	19.18	20.00	1.208	0.02	2.190	2.645
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1513	1752.6	1	19.21	20.00	1.199	0.04	2.110	2.531
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1312	1712.4	1	19.13	20.00	1.222	-0.07	1.930	2.358
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1413	1732.6	1	19.18	20.00	1.208	0.09	2.010	2.428
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	8mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	0.05	0.670	0.916
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	14mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	-0.03	0.531	0.726
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	14mm	Ant 1	Full Power	1513	1752.6	1	22.64	24.00	1.368	-0.1	0.609	0.833
	LTE Band 66	20M	QPSK	1	49	-	Front	0mm	Ant 1	Reduced	132322	1745	1	18.56	20.00	1.393	0.02	1.150	1.602
58	LTE Band 66	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	132322	1745	1	18.56	20.00	1.393	0.12	2.470	3.441
	LTE Band 66	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	132072	1720	1	18.47	20.00	1.422	0.05	2.250	3.200
	LTE Band 66	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	132572	1770	1	18.55	20.00	1.396	0.07	2.100	2.932
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	132322	1745	1	18.56	20.00	1.393	-0.14	1.764	2.458
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	132072	1720	1	18.47	20.00	1.422	-0.02	1.730	2.461
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	132572	1770	1	18.55	20.00	1.396	-0.08	1.650	2.304
	LTE Band 66	20M	QPSK	1	49	-	Front	8mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	0.01	0.689	0.980
	LTE Band 66	20M	QPSK	1	49	-	Back	14mm	Ant 1	Full Power	132322	1745	1	22.47	24.00	1.422	-0.02	0.487	0.693
	LTE Band 66	20M	QPSK	1	49	-	Bottom Side	14mm	Ant 1	Full Power	132072	1720	1	22.37	24.00	1.455	0.09	0.565	0.822
	LTE Band 66	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	132322	1745	1	17.53	19.00	1.403	0.06	0.937	1.314
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	132322	1745	1	17.53	19.00	1.403	0.18	1.950	2.735
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	132072	1720	1	17.52	19.00	1.406	-0.14	1.750	2.461
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	132572	1770	1	17.43	19.00	1.435	-0.06	1.710	2.455
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	132322	1745	1	17.53	19.00	1.403	-0.01	1.480	2.076
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	132072	1720	1	17.52	19.00	1.406	0.12	1.420	1.997
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	132572	1770	1	17.43	19.00	1.435	0.05	1.460	2.096
	LTE Band 66	20M	QPSK	100	0	-	Back	0mm	Ant 1	Reduced	132322	1745	1	17.48	19.00	1.419	0.13	1.780	2.526
	LTE Band 66	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 1	Reduced	132322	1745	1	17.48	19.00	1.419	0.05	1.350	1.916
<b>1900MHz</b>																			
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	0mm	Ant 1	Reduced	810	1909.8	1	21.41	22.50	1.285	0.15	1.170	1.504
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	810	1909.8	1	21.41	22.50	1.285	-0.18	2.270	2.918
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	512	1850.2	1	21.38	22.50	1.294	0.05	2.050	2.653
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 1	Reduced	661	1880	1	21.28	22.50	1.324	0.11	2.100	2.781
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	0mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	-0.12	2.330	3.002
59	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	0mm	Ant 1	Full Power	512	1850.2	1	26.38	27.50	1.294	0.03	2.730	3.533
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	0mm	Ant 1	Full Power	512	1850.2	2	26.38	27.50	1.294	0.03	1.110	1.437
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Left Side	0mm	Ant 1	Full Power	661	1880	1	26.39	27.50	1.291	0.03	2.680	3.460
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	810	1909.8	1	21.41	22.50	1.285	-0.11	1.768	2.272
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	512	1850.2	1	21.38	22.50	1.294	0.17	1.692	2.190
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	0mm	Ant 1	Reduced	661	1880	1	21.28	22.50	1.324	-0.07	1.739	2.303
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	8mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	0.03	0.973	1.253
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	14mm	Ant 1	Full Power	810	1909.8	1	26.40	27.50	1.288	-0.04	0.582	0.750
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Bottom Side	14mm	Ant 1	Full Power	661	1880	1	26.39	27.50	1.291	0.03	0.819	1.058
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	0mm	Ant 2	Reduced	810	1909.8	1	22.08	22.50	1.102	0.04	1.368	1.507



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	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	810	1909.8	1	22.08	22.50	1.102	-0.01	2.347	2.585
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	512	1850.2	1	22.05	22.50	1.109	-0.1	2.590	2.873
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	0mm	Ant 2	Reduced	661	1880	1	22.07	22.50	1.104	0.11	2.450	2.705
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	0mm	Ant 2	Reduced	810	1909.8	1	22.08	22.50	1.102	-0.09	2.442	2.690
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	0mm	Ant 2	Reduced	512	1850.2	1	22.05	22.50	1.109	0.18	2.586	2.868
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	0mm	Ant 2	Reduced	661	1880	1	22.07	22.50	1.104	-0.11	2.780	3.069
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Front	7mm	Ant 2	Full Power	810	1909.8	1	24.15	25.00	1.216	0.05	0.474	0.576
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Back	14mm	Ant 2	Full Power	512	1850.2	1	24.07	25.00	1.239	0.13	0.263	0.326
	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	12mm	Ant 2	Full Power	661	1880	1	24.11	25.00	1.227	0.16	0.439	0.539
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	9538	1907.6	1	18.62	19.50	1.225	0.18	1.114	1.364
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9538	1907.6	1	18.62	19.50	1.225	-0.09	2.040	2.498
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9262	1852.4	1	18.51	19.50	1.256	0.11	2.070	2.600
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9400	1880	1	18.57	19.50	1.239	-0.14	2.310	2.862
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	0.03	2.100	2.885
60	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full Power	9262	1852.4	1	22.41	24.00	1.442	0.06	2.250	<b>3.245</b>
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full Power	9400	1880	1	22.51	24.00	1.409	-0.08	2.220	3.129
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9538	1907.6	1	18.62	19.50	1.225	-0.18	1.398	1.712
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	8mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	-0.05	0.851	1.169
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	14mm	Ant 1	Full Power	9400	1880	1	22.51	24.00	1.409	0.14	0.603	0.850
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	14mm	Ant 1	Full Power	9538	1907.6	1	22.62	24.00	1.374	0.04	0.775	1.065
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 2	Reduced	9538	1907.6	1	16.81	18.50	1.476	-0.06	0.619	0.913
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9538	1907.6	1	16.81	18.50	1.476	0.13	1.520	2.243
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9262	1852.4	1	16.77	18.50	1.489	-0.12	1.490	2.219
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9400	1880	1	16.77	18.50	1.489	-0.18	1.460	2.174
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9538	1907.6	1	16.81	18.50	1.476	-0.08	2.170	3.202
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9262	1852.4	1	16.77	18.50	1.489	-0.17	1.790	2.666
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9400	1880	1	16.77	18.50	1.489	0.05	1.870	2.785
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	7mm	Ant 2	Full Power	9538	1907.6	1	20.89	22.50	1.449	0.15	0.321	0.465
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	14mm	Ant 2	Full Power	9538	1907.6	1	20.89	22.50	1.449	-0.03	0.204	0.296
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	12mm	Ant 2	Full Power	9538	1907.6	1	20.89	22.50	1.449	-0.08	0.305	0.442
	LTE Band 2	20M	QPSK	1	49	-	Front	0mm	Ant 1	Reduced	18900	1880	1	18.86	20.00	1.300	0.17	1.338	1.740
61	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	18900	1880	1	18.86	20.00	1.300	0.11	2.390	<b>3.107</b>
	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	18700	1860	1	18.85	20.00	1.303	0.16	2.220	2.893
	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	19100	1900	1	18.71	20.00	1.346	-0.01	2.150	2.894
	LTE Band 2	20M	QPSK	1	49	-	Left Side	0mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	0.03	2.130	2.913
	LTE Band 2	20M	QPSK	1	49	-	Left Side	0mm	Ant 1	Full Power	18700	1860	1	22.44	24.00	1.432	0.01	2.010	2.879
	LTE Band 2	20M	QPSK	1	49	-	Left Side	0mm	Ant 1	Full Power	19100	1900	1	22.45	24.00	1.429	0.16	1.970	2.815
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	18900	1880	1	18.86	20.00	1.300	-0.14	1.708	2.221
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	18700	1860	1	18.85	20.00	1.303	-0.07	1.700	2.215
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	0mm	Ant 1	Reduced	19100	1900	1	18.71	20.00	1.346	0.1	1.537	2.069
	LTE Band 2	20M	QPSK	1	49	-	Front	8mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	0.09	0.878	1.201
	LTE Band 2	20M	QPSK	1	49	-	Back	14mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	0.09	0.638	0.873
	LTE Band 2	20M	QPSK	1	49	-	Bottom Side	14mm	Ant 1	Full Power	18900	1880	1	22.64	24.00	1.368	-0.12	0.812	1.111
	LTE Band 2	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	18900	1880	1	17.88	19.00	1.294	0.02	1.210	1.566
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	18900	1880	1	17.88	19.00	1.294	0.03	1.716	2.221
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	18700	1860	1	17.63	19.00	1.371	0.05	1.624	2.226
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	19100	1900	1	17.69	19.00	1.352	-0.18	1.660	2.244
	LTE Band 2	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full Power	18900	1880	1	21.54	23.00	1.400	0.11	1.420	1.987
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	18900	1880	1	17.88	19.00	1.294	-0.06	1.557	2.015
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	18700	1860	1	17.63	19.00	1.371	0.04	1.529	2.096
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	19100	1900	1	17.69	19.00	1.352	-0.16	1.421	1.921
	LTE Band 2	20M	QPSK	100	0	-	Back	0mm	Ant 1	Reduced	18900	1880	1	17.69	19.00	1.352	0.12	1.640	2.217
	LTE Band 2	20M	QPSK	100	0	-	Left Side	0mm	Ant 1	Full Power	18900	1880	1	21.52	23.00	1.406	-0.05	1.350	1.898
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 1	Reduced	18900	1880	1	17.69	19.00	1.352	0.03	1.510	2.042
	LTE Band 2	20M	QPSK	1	49	-	Front	0mm	Ant 2	Reduced	18900	1880	1	19.12	20.00	1.225	0.12	0.996	1.220
	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 2	Reduced	18900	1880	1	19.12	20.00	1.225	0.12	1.047	1.282





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	LTE Band 2	20M	QPSK	1	49	-	Top Side	0mm	Ant 2	Reduced	18900	1880	1	19.12	20.00	1.225	0.14	2.420	2.964
	LTE Band 2	20M	QPSK	1	49	-	Top Side	0mm	Ant 2	Reduced	18700	1860	1	19.06	20.00	1.242	0.06	2.150	2.670
	LTE Band 2	20M	QPSK	1	49	-	Top Side	0mm	Ant 2	Reduced	19100	1900	1	19.04	20.00	1.247	0.11	2.220	2.769
	LTE Band 2	20M	QPSK	1	49	-	Front	7mm	Ant 2	Full Power	18900	1880	1	21.07	22.00	1.239	0.12	0.404	0.500
	LTE Band 2	20M	QPSK	1	49	-	Back	14mm	Ant 2	Full Power	18900	1880	1	21.07	22.00	1.239	0.11	0.155	0.192
	LTE Band 2	20M	QPSK	1	49	-	Top Side	12mm	Ant 2	Full Power	18900	1880	1	21.07	22.00	1.239	-0.12	0.360	0.446
	LTE Band 2	20M	QPSK	50	0	-	Front	0mm	Ant 2	Reduced	18900	1880	1	18.36	19.00	1.159	0.12	0.800	0.927
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 2	Reduced	18900	1880	1	18.36	19.00	1.159	-0.12	0.861	0.998
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 2	Reduced	18900	1880	1	18.36	19.00	1.159	-0.09	1.819	2.108
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 2	Reduced	18700	1860	1	18.35	19.00	1.161	0.02	1.665	1.934
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 2	Reduced	19100	1900	1	18.34	19.00	1.164	0.03	1.759	2.048
	LTE Band 2	20M	QPSK	100	0	-	Top Side	0mm	Ant 2	Reduced	18900	1880	1	18.33	20.00	1.469	0.02	1.720	2.527
<b>2300MHz</b>																			
	LTE Band 30	10M	QPSK	1	25	-	Front	0mm	Ant 1	Reduced	27710	2310	1	18.51	19.50	1.256	-0.18	0.965	1.212
62	LTE Band 30	10M	QPSK	1	25	-	Back	0mm	Ant 1	Reduced	27710	2310	1	18.51	19.50	1.256	0.08	2.620	3.291
	LTE Band 30	10M	QPSK	1	25	-	Back	0mm	Ant 1	Reduced	27710	2310	2	18.51	19.50	1.256	-0.03	1.340	1.683
	LTE Band 30	10M	QPSK	1	25	-	Left Side	0mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.03	2.020	2.840
	LTE Band 30	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Reduced	27710	2310	1	18.51	19.50	1.256	0.05	0.646	0.811
	LTE Band 30	10M	QPSK	1	25	-	Front	8mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	-0.18	0.635	0.893
	LTE Band 30	10M	QPSK	1	25	-	Back	14mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.18	0.344	0.484
	LTE Band 30	10M	QPSK	1	25	-	Bottom Side	14mm	Ant 1	Full Power	27710	2310	1	22.52	24.00	1.406	0.15	0.297	0.418
	LTE Band 30	10M	QPSK	25	0	-	Front	0mm	Ant 1	Reduced	27710	2310	1	17.64	18.50	1.219	-0.03	0.838	1.022
	LTE Band 30	10M	QPSK	25	0	-	Back	0mm	Ant 1	Reduced	27710	2310	1	17.64	18.50	1.219	0.16	2.150	2.621
	LTE Band 30	10M	QPSK	25	0	-	Left Side	0mm	Ant 1	Full Power	27710	2310	1	21.40	23.00	1.445	0.15	1.750	2.530
	LTE Band 30	10M	QPSK	25	0	-	Bottom Side	0mm	Ant 1	Reduced	27710	2310	1	17.64	18.50	1.219	0.06	0.517	0.630
	LTE Band 30	10M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	27710	2310	1	17.52	18.50	1.253	0.02	2.050	2.569
	LTE Band 30	10M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full Power	27710	2310	1	21.39	23.00	1.449	0.09	1.680	2.434
	LTE Band 30	10M	QPSK	1	25	-	Front	0mm	Ant 2	Reduced	27710	2310	1	18.35	19.50	1.303	0.08	1.406	1.832
	LTE Band 30	10M	QPSK	1	25	-	Back	0mm	Ant 2	Reduced	27710	2310	1	18.35	19.50	1.303	-0.09	1.878	2.447
	LTE Band 30	10M	QPSK	1	25	-	Left Side	0mm	Ant 2	Full Power	27710	2310	1	20.92	22.00	1.282	-0.08	1.380	1.770
	LTE Band 30	10M	QPSK	1	25	-	Top Side	0mm	Ant 2	Reduced	27710	2310	1	18.35	19.50	1.303	-0.08	2.470	3.219
	LTE Band 30	10M	QPSK	1	25	-	Front	7mm	Ant 2	Full Power	27710	2310	1	20.92	22.00	1.282	-0.12	1.100	1.411
	LTE Band 30	10M	QPSK	1	25	-	Back	14mm	Ant 2	Full Power	27710	2310	1	20.92	22.00	1.282	-0.11	0.405	0.519
	LTE Band 30	10M	QPSK	1	25	-	Top Side	12mm	Ant 2	Full Power	27710	2310	1	20.92	22.00	1.282	0.06	0.647	0.830
	LTE Band 30	10M	QPSK	25	0	-	Front	0mm	Ant 2	Reduced	27710	2310	1	17.23	18.50	1.340	0.05	1.142	1.530
	LTE Band 30	10M	QPSK	25	0	-	Back	0mm	Ant 2	Reduced	27710	2310	1	17.23	18.50	1.340	0.15	1.541	2.064
	LTE Band 30	10M	QPSK	25	0	-	Left Side	0mm	Ant 2	Full Power	27710	2310	1	19.84	21.00	1.306	-0.08	1.110	1.450
	LTE Band 30	10M	QPSK	25	0	-	Top Side	0mm	Ant 2	Reduced	27710	2310	1	17.23	18.50	1.340	-0.14	1.844	2.470
	LTE Band 30	10M	QPSK	50	0	-	Back	0mm	Ant 2	Reduced	27710	2310	1	17.29	18.50	1.321	0.02	1.520	2.008
	LTE Band 30	10M	QPSK	50	0	-	Top Side	0mm	Ant 2	Reduced	27710	2310	1	17.29	18.50	1.321	-0.05	1.730	2.286



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)	
<b>2450MHz</b>																		
63	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Full Power	11	2462	1	19.70	21.70	1.585	99.31	1.007	0.17	1.230	<b>1.963</b>	
	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 3	Full Power	11	2462	1	19.70	21.70	1.585	99.31	1.007	0.05	0.713	1.138	
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Simultaneous	11	2462	1	16.73	18.70	1.574	99.31	1.007	-0.11	0.619	0.981	
	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 3	Simultaneous	11	2462	1	16.73	18.70	1.574	99.31	1.007	-0.04	0.327	0.518	
<b>5250-5750MHz</b>																		
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 4	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	-0.16	0.425	0.696	
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	-0.11	0.677	1.108	
	WLAN5.3GHz	802.11a 6Mbps	Left Side	0mm	Ant 4	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	0.12	0.036	0.059	
64	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	0.03	1.020	<b>1.670</b>	
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 4	Full Power	52	5260	1	18.60	20.60	1.585	96.82	1.033	-0.14	0.774	1.267	
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 4	Simultaneous	54	5270	1	17.11	19.10	1.581	93.92	1.065	0.06	0.277	0.466	
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 4	Simultaneous	54	5270	1	17.11	19.10	1.581	93.92	1.065	-0.01	0.413	0.696	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 4	Simultaneous	54	5270	1	17.11	19.10	1.581	93.92	1.065	-0.16	0.026	0.044	
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 4	Simultaneous	54	5270	1	17.11	19.10	1.581	93.92	1.065	0.12	0.463	0.780	
	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 4	Simultaneous	54	5270	1	17.11	19.10	1.581	93.92	1.065	0.04	0.290	0.488	
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 4	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	0.13	0.634	1.038	
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	0.02	0.952	1.559	
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	Ant 4	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	0.06	0.059	0.097	
65	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	-0.15	1.740	<b>2.849</b>	
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	132	5660	1	17.95	19.90	1.567	96.82	1.033	-0.05	1.280	2.072	
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 4	Full Power	116	5580	1	18.50	20.50	1.585	96.82	1.033	-0.01	0.589	0.964	
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 4	Simultaneous	116	5580	1	17.73	19.50	1.503	96.82	1.033	-0.09	0.540	0.838	
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 4	Simultaneous	116	5580	1	17.73	19.50	1.503	96.82	1.033	0.07	0.635	0.986	
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	Ant 4	Simultaneous	116	5580	1	17.73	19.50	1.503	96.82	1.033	-0.05	0.049	0.076	
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Simultaneous	116	5580	1	17.73	19.50	1.503	96.82	1.033	-0.18	1.190	1.848	
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 4	Simultaneous	116	5580	1	17.73	19.50	1.503	96.82	1.033	0.02	0.457	0.710	
	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	0.05	0.951	1.539	
66	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	165	5825	1	18.05	20.00	1.567	96.82	1.033	-0.02	1.890	<b>3.059</b>	
	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	165	5825	2	18.05	20.00	1.567	96.82	1.033	0.04	1.260	2.039	
	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	157	5785	1	18.02	20.00	1.578	96.82	1.033	-0.03	1.540	2.510	
	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full Power	149	5745	1	17.97	19.90	1.560	96.82	1.033	0.07	1.660	2.674	
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	0mm	Ant 4	Simultaneous	151	5755	1	16.58	18.50	1.556	93.92	1.065	0.04	0.646	1.070	
	WLAN5.8GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 4	Simultaneous	151	5755	1	16.58	18.50	1.556	93.92	1.065	0.17	1.310	2.171	





15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-	-	-0.11	1.030	1	1.425
2nd	LTE Band 14	10M	QPSK	1	25	-	Back	5mm	Ant 1	Reduced	23330	793	1	20.09	21.50	1.384	-	-	0.03	0.991	1.039	1.371
1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4233	846.6	1	20.22	21.00	1.197	-	-	-0.15	1.120	1	1.340
2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4233	846.6	1	20.22	21.00	1.197	-	-	0.05	1.050	1.067	1.257
1st	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132322	1745	1	17.23	18.50	1.340	-	-	0.01	1.080	1	1.447
2nd	LTE Band 66	20M	QPSK	1	49	-	Back	5mm	Ant 1	Reduced	132322	1745	1	17.23	18.50	1.340	-	-	0.05	1.010	1.069	1.353
1st	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	661	1880	1	19.56	20.00	1.107	-	-	0.15	1.280	1	1.416
2nd	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	5mm	Ant 2	Reduced	661	1880	1	19.56	20.00	1.107	-	-	0.05	1.190	1.076	1.317
1st	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	Reduced	27710	2310	1	14.95	16.00	1.274	-	-	0.15	1.130	1	1.439
2nd	LTE Band 30	10M	QPSK	1	25	-	Back	5mm	Ant 2	Reduced	27710	2310	1	14.95	16.00	1.274	-	-	0.15	1.040	1.087	1.324
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	11	2462	1	18.08	20.00	1.556	99.31	1.007	0.09	0.924	1	1.448
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	11	2462	1	18.08	20.00	1.556	99.31	1.007	0.03	0.886	1.043	1.388

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 14	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	0.18	2.170	1	3.079
2nd	LTE Band 14	10M	QPSK	1	25	-	Bottom Side	0mm	Ant 1	Full Power	23330	793	1	22.48	24.00	1.419	0.05	2.050	1.059	2.909
1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full Power	4182	836.4	1	22.55	24.00	1.396	0.05	2.300	1	3.212
2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full Power	4182	836.4	1	22.55	24.00	1.396	0.09	2.250	1.022	3.142
1st	LTE Band 66	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	132322	1745	1	18.56	20.00	1.393	0.12	2.470	1	3.441
2nd	LTE Band 66	20M	QPSK	1	49	-	Back	0mm	Ant 1	Reduced	132322	1745	1	18.56	20.00	1.393	0.05	2.380	1.038	3.316
1st	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	0mm	Ant 2	Reduced	661	1880	1	22.07	22.50	1.104	-0.11	2.780	1	3.069
2nd	GSM1900	-	-	-	-	GPRS (4 TX slots)	Top Side	0mm	Ant 2	Reduced	661	1880	1	22.07	22.50	1.104	0.07	2.630	1.057	2.904
1st	LTE Band 30	10M	QPSK	1	25	-	Back	0mm	Ant 1	Reduced	27710	2310	1	18.51	19.50	1.256	0.08	2.620	1	3.291
2nd	LTE Band 30	10M	QPSK	1	25	-	Back	0mm	Ant 1	Reduced	27710	2310	1	18.51	19.50	1.256	0.05	2.520	1.040	3.165

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8W/kg$ .
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45W/kg$ , only one repeated measurement is required.
- Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
- The 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.

## 16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes

**General Note:**

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
5. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
6. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
7. According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
8. The maximum SAR summation is calculated based on the same configuration and test position.
9. For distance SAR and non-distance SAR always chose higher SAR to do co-located analysis.
10. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
  - ii)  $SPLSR = (SAR1 + SAR2)^{1.5} / (\min. \text{ separation distance, mm})$ , 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  $SPLSR \leq 0.04$  for 1g SAR and  $SPLSR \leq 0.10$  for 10g SAR, simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
  - v) The SPLSR calculated results please refer to section 16.5.



16.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3+4
		WWAN	WLAN2.4GHz	WLAN5GHz	Bluetooth	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 12 Ant 1	Right Cheek	0.567	0.160	0.189	0.097	0.73	0.85
	Right Tilted	0.271	0.144	0.193	0.083	0.42	0.55
	Left Cheek	0.392	0.368	0.312	0.161	0.76	0.87
	Left Tilted	0.228	0.262	0.301	0.110	0.49	0.64
LTE Band 12 Ant 2	Right Cheek	0.755	0.160	0.189	0.097	0.92	1.04
	Right Tilted	0.739	0.144	0.193	0.083	0.88	1.02
	Left Cheek	0.586	0.368	0.312	0.161	0.95	1.06
	Left Tilted	0.530	0.262	0.301	0.110	0.79	0.94
LTE Band 13 Ant 1	Right Cheek	0.551	0.160	0.189	0.097	0.71	0.84
	Right Tilted	0.341	0.144	0.193	0.083	0.49	0.62
	Left Cheek	0.497	0.368	0.312	0.161	0.87	0.97
	Left Tilted	0.287	0.262	0.301	0.110	0.55	0.70
LTE Band 14 Ant 1	Right Cheek	0.546	0.160	0.189	0.097	0.71	0.83
	Right Tilted	0.314	0.144	0.193	0.083	0.46	0.59
	Left Cheek	0.475	0.368	0.312	0.161	0.84	0.95
	Left Tilted	0.267	0.262	0.301	0.110	0.53	0.68
GSM850 Ant 1	Right Cheek	0.987	0.160	0.189	0.097	1.15	1.27
	Right Tilted	0.590	0.144	0.193	0.083	0.73	0.87
	Left Cheek	0.836	0.368	0.312	0.161	1.20	1.31
	Left Tilted	0.523	0.262	0.301	0.110	0.79	0.93
GSM850 Ant 2	Right Cheek	1.034	0.160	0.189	0.097	1.19	1.32
	Right Tilted	0.810	0.144	0.193	0.083	0.95	1.09
	Left Cheek	0.689	0.368	0.312	0.161	1.06	1.16
	Left Tilted	0.648	0.262	0.301	0.110	0.91	1.06
WCDMA V Ant 1	Right Cheek	0.610	0.160	0.189	0.097	0.77	0.90
	Right Tilted	0.340	0.144	0.193	0.083	0.48	0.62
	Left Cheek	0.301	0.368	0.312	0.161	0.67	0.77
	Left Tilted	0.159	0.262	0.301	0.110	0.42	0.57
WCDMA V Ant 2	Right Cheek	1.307	0.160	0.189	0.097	1.47	1.59
	Right Tilted	1.153	0.144	0.193	0.083	1.30	1.43
	Left Cheek	1.048	0.368	0.312	0.161	1.42	1.52
	Left Tilted	0.982	0.262	0.301	0.110	1.24	1.39
LTE Band 5 Ant 1	Right Cheek	0.697	0.160	0.189	0.097	0.86	0.98
	Right Tilted	0.324	0.144	0.193	0.083	0.47	0.60
	Left Cheek	0.600	0.368	0.312	0.161	0.97	1.07
	Left Tilted	0.295	0.262	0.301	0.110	0.56	0.71
LTE Band 5 Ant 2	Right Cheek	1.242	0.160	0.189	0.097	1.40	1.53
	Right Tilted	1.168	0.144	0.193	0.083	1.31	1.44
	Left Cheek	0.958	0.368	0.312	0.161	1.33	1.43
	Left Tilted	0.829	0.262	0.301	0.110	1.09	1.24
WCDMA IV Ant 1	Right Cheek	0.546	0.160	0.189	0.097	0.71	0.83
	Right Tilted	0.261	0.144	0.193	0.083	0.41	0.54
	Left Cheek	0.090	0.368	0.312	0.161	0.46	0.56
	Left Tilted	0.070	0.262	0.301	0.110	0.33	0.48
LTE Band 66 Ant 1	Right Cheek	0.428	0.160	0.189	0.097	0.59	0.71
	Right Tilted	0.249	0.144	0.193	0.083	0.39	0.53
	Left Cheek	0.088	0.368	0.312	0.161	0.46	0.56
	Left Tilted	0.070	0.262	0.301	0.110	0.33	0.48
GSM1900 Ant 1	Right Cheek	0.693	0.160	0.189	0.097	0.85	0.98
	Right Tilted	0.401	0.144	0.193	0.083	0.55	0.68
	Left Cheek	0.115	0.368	0.312	0.161	0.48	0.59



	Left Tilted	0.354	0.262	0.301	0.110	0.62	0.77
GSM1900 Ant 2	Right Cheek	0.693	0.160	0.189	0.097	0.85	0.98
	Right Tilted	1.303	0.144	0.193	0.083	1.45	1.58
	Left Cheek	0.528	0.368	0.312	0.161	0.90	1.00
	Left Tilted	0.620	0.262	0.301	0.110	0.88	1.03
WCDMA II Ant 1	Right Cheek	0.544	0.160	0.189	0.097	0.70	0.83
	Right Tilted	0.392	0.144	0.193	0.083	0.54	0.67
	Left Cheek	0.158	0.368	0.312	0.161	0.53	0.63
	Left Tilted	0.122	0.262	0.301	0.110	0.38	0.53
WCDMA II Ant 2	Right Cheek	0.816	0.160	0.189	0.097	0.98	1.10
	Right Tilted	1.230	0.144	0.193	0.083	1.37	1.51
	Left Cheek	0.603	0.368	0.312	0.161	0.97	1.08
	Left Tilted	0.688	0.262	0.301	0.110	0.95	1.10
LTE Band 2 Ant 1	Right Cheek	0.607	0.160	0.189	0.097	0.77	0.89
	Right Tilted	0.414	0.144	0.193	0.083	0.56	0.69
	Left Cheek	0.155	0.368	0.312	0.161	0.52	0.63
	Left Tilted	0.119	0.262	0.301	0.110	0.38	0.53
LTE Band 2 Ant 2	Right Cheek	0.919	0.160	0.189	0.097	1.08	1.21
	Right Tilted	1.316	0.144	0.193	0.083	1.46	1.59
	Left Cheek	0.388	0.368	0.312	0.161	0.76	0.86
	Left Tilted	0.465	0.262	0.301	0.110	0.73	0.88
LTE Band 30 Ant 1	Right Cheek	0.465	0.160	0.189	0.097	0.63	0.75
	Right Tilted	0.319	0.144	0.193	0.083	0.46	0.60
	Left Cheek	0.887	0.368	0.312	0.161	1.26	1.36
	Left Tilted	0.440	0.262	0.301	0.110	0.70	0.85
LTE Band 30 Ant 2	Right Cheek	0.660	0.160	0.189	0.097	0.82	0.95
	Right Tilted	1.249	0.144	0.193	0.083	1.39	1.53
	Left Cheek	0.303	0.368	0.312	0.161	0.67	0.78
	Left Tilted	0.390	0.262	0.301	0.110	0.65	0.80



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3+4	Case No
		WWAN	WLAN2.4GHz	WLAN5GHz	Bluetooth	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
LTE Band 12 Ant 1	Front	0.580	0.137	0.159	0.105	0.72	0.84	
	Back	1.303	0.322	0.374	0.260	1.63	1.94	Case1/2
	Left side	0.469		0.030	0.128	0.47	0.63	
	Right side	0.773	0.102	0.624	0.043	0.88	1.44	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	0.744				0.74	0.74	
LTE Band 12 Ant 2	Front	0.491	0.137	0.159	0.105	0.63	0.76	
	Back	0.778	0.322	0.374	0.260	1.10	1.41	
	Left side	0.296		0.030	0.128	0.30	0.45	
	Right side	0.194	0.102	0.624	0.043	0.30	0.86	
	Top side	0.660	0.175	0.235	0.172	0.84	1.07	
	Bottom side					0.00	0.00	
LTE Band 13 Ant 1	Front	0.542	0.137	0.159	0.105	0.68	0.81	
	Back	1.351	0.322	0.374	0.260	1.67	1.99	Case3/4
	Left side	0.331		0.030	0.128	0.33	0.49	
	Right side	0.588	0.102	0.624	0.043	0.69	1.26	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	0.931				0.93	0.93	
LTE Band 14 Ant 1	Front	0.558	0.137	0.159	0.105	0.70	0.82	
	Back	1.425	0.322	0.374	0.260	1.75	2.06	Case5/6
	Left side	0.275		0.030	0.128	0.28	0.43	
	Right side	0.566	0.102	0.624	0.043	0.67	1.23	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	0.991				0.99	0.99	
GSM850 Ant 1	Front	0.617	0.137	0.159	0.105	0.75	0.88	
	Back	1.307	0.322	0.374	0.260	1.63	1.94	Case7/8
	Left side	0.272		0.030	0.128	0.27	0.43	
	Right side	0.478	0.102	0.624	0.043	0.58	1.15	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.143				1.14	1.14	
GSM850 Ant 2	Front	0.385	0.137	0.159	0.105	0.52	0.65	
	Back	1.132	0.322	0.374	0.260	1.45	1.77	Case9
	Left side	0.149		0.030	0.128	0.15	0.31	
	Right side	0.163	0.102	0.624	0.043	0.27	0.83	
	Top side	0.597	0.175	0.235	0.172	0.77	1.00	
	Bottom side					0.00	0.00	
WCDMA V Ant 1	Front	0.616	0.137	0.159	0.105	0.75	0.88	
	Back	1.151	0.322	0.374	0.260	1.47	1.79	Case10
	Left side	0.286		0.030	0.128	0.29	0.44	
	Right side	0.540	0.102	0.624	0.043	0.64	1.21	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	0.990				0.99	0.99	
WCDMA V Ant 2	Front	0.361	0.137	0.159	0.105	0.50	0.63	
	Back	1.340	0.322	0.374	0.260	1.66	1.97	Case11/12
	Left side	0.158		0.030	0.128	0.16	0.32	
	Right side	0.174	0.102	0.624	0.043	0.28	0.84	
	Top side	0.692	0.175	0.235	0.172	0.87	1.10	
	Bottom side					0.00	0.00	
LTE Band 5 Ant 1	Front	0.595	0.137	0.159	0.105	0.73	0.86	
	Back	1.254	0.322	0.374	0.260	1.58	1.89	Case13
	Left side	0.202		0.030	0.128	0.20	0.36	



	Right side	0.415	0.102	0.624	0.043	0.52	1.08	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.100				1.10	1.10	
LTE Band 5 Ant 2	Front	0.493	0.137	0.159	0.105	0.63	0.76	
	Back	1.271	0.322	0.374	0.260	1.59	1.91	Case14
	Left side	0.198		0.030	0.128	0.20	0.36	
	Right side	0.216	0.102	0.624	0.043	0.32	0.88	
	Top side	1.026	0.175	0.235	0.172	1.20	1.43	
	Bottom side					0.00	0.00	
WCDMA IV Ant 1	Front	0.446	0.137	0.159	0.105	0.58	0.71	
	Back	1.044	0.322	0.374	0.260	1.37	1.68	Case15
	Left side	0.217		0.030	0.128	0.22	0.38	
	Right side	0.099	0.102	0.624	0.043	0.20	0.77	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.029				1.03	1.03	
LTE Band 66 Ant 1	Front	0.631	0.137	0.159	0.105	0.77	0.90	
	Back	1.447	0.322	0.374	0.260	1.77	2.08	Case16/17
	Left side	0.276		0.030	0.128	0.28	0.43	
	Right side	0.159	0.102	0.624	0.043	0.26	0.83	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.439				1.44	1.44	
GSM1900 Ant 1	Front	0.720	0.137	0.159	0.105	0.86	0.98	
	Back	1.252	0.322	0.374	0.260	1.57	1.89	Case18
	Left side	0.421		0.030	0.128	0.42	0.58	
	Right side	0.188	0.102	0.624	0.043	0.29	0.86	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.353				1.35	1.35	
GSM1900 Ant 2	Front	0.568	0.137	0.159	0.105	0.71	0.83	
	Back	1.202	0.322	0.374	0.260	1.52	1.84	Case19
	Left side	0.150		0.030	0.128	0.15	0.31	
	Right side	0.078	0.102	0.624	0.043	0.18	0.75	
	Top side	1.416	0.175	0.235	0.172	1.59	1.82	Case20
	Bottom side					0.00	0.00	
WCDMA II Ant 1	Front	0.685	0.137	0.159	0.105	0.82	0.95	
	Back	1.243	0.322	0.374	0.260	1.57	1.88	Case21
	Left side	0.312		0.030	0.128	0.31	0.47	
	Right side	0.141	0.102	0.624	0.043	0.24	0.81	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.070				1.07	1.07	
WCDMA II Ant 2	Front	0.426	0.137	0.159	0.105	0.56	0.69	
	Back	1.100	0.322	0.374	0.260	1.42	1.73	Case22
	Left side	0.177		0.030	0.128	0.18	0.34	
	Right side	0.073	0.102	0.624	0.043	0.18	0.74	
	Top side	1.254	0.175	0.235	0.172	1.43	1.66	Case23
	Bottom side					0.00	0.00	
LTE Band 2 Ant 1	Front	0.769	0.137	0.159	0.105	0.91	1.03	
	Back	1.202	0.322	0.374	0.260	1.52	1.84	Case24
	Left side	0.369		0.030	0.128	0.37	0.53	
	Right side	0.119	0.102	0.624	0.043	0.22	0.79	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	1.193				1.19	1.19	
LTE Band 2 Ant 2	Front	0.617	0.137	0.159	0.105	0.75	0.88	
	Back	1.164	0.322	0.374	0.260	1.49	1.80	Case25
	Left side	0.177		0.030	0.128	0.18	0.34	
	Right side	0.070	0.102	0.624	0.043	0.17	0.74	
	Top side	1.219	0.175	0.235	0.172	1.39	1.63	Case26
	Bottom side							



	Bottom side					0.00	0.00	
LTE Band 30 Ant 1	Front	0.750	0.137	0.159	0.105	0.89	1.01	
	Back	1.414	0.322	0.374	0.260	<b>1.74</b>	<b>2.05</b>	<b>Case27/28</b>
	Left side	0.493		0.030	0.128	0.49	0.65	
	Right side	0.108	0.102	0.624	0.043	0.21	0.78	
	Top side		0.175	0.235	0.172	0.18	0.41	
	Bottom side	0.640				0.64	0.64	
LTE Band 30 Ant 2	Front	0.745	0.137	0.159	0.105	0.88	1.01	
	Back	1.439	0.322	0.374	0.260	<b>1.76</b>	<b>2.07</b>	<b>Case29/30</b>
	Left side	0.198		0.030	0.128	0.20	0.36	
	Right side	0.018	0.102	0.624	0.043	0.12	0.69	
	Top side	1.196	0.175	0.235	0.172	1.37	<b>1.60</b>	<b>Case31</b>
	Bottom side					0.00	0.00	





16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	3	6	9	1+3	1+6+9	Case No
		WWAN	WLAN2.4GHz	WLAN5GHz	Bluetooth	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
LTE Band 12 Ant 1	Front	0.580	0.138	0.160	0.105	0.72	0.85	
	Back	1.303	0.322	0.374	0.260	1.63	1.94	Case1/2
LTE Band 12 Ant 2	Front	0.491	0.138	0.160	0.105	0.63	0.76	
	Back	0.778	0.322	0.374	0.260	1.10	1.41	
LTE Band 13 Ant 1	Front	0.542	0.138	0.160	0.105	0.68	0.81	
	Back	1.351	0.322	0.374	0.260	1.67	1.99	Case3/4
LTE Band 14 Ant 1	Front	0.558	0.138	0.160	0.105	0.70	0.82	
	Back	1.425	0.322	0.374	0.260	1.75	2.06	Case5/6
GSM850 Ant 1	Front	0.617	0.138	0.160	0.105	0.76	0.88	
	Back	1.307	0.322	0.374	0.260	1.63	1.94	Case7/8
GSM850 Ant 2	Front	0.385	0.138	0.160	0.105	0.52	0.65	
	Back	1.132	0.322	0.374	0.260	1.45	1.77	Case9
WCDMA V Ant 1	Front	0.616	0.138	0.160	0.105	0.75	0.88	
	Back	1.151	0.322	0.374	0.260	1.47	1.79	Case10
WCDMA V Ant 2	Front	0.361	0.138	0.160	0.105	0.50	0.63	
	Back	1.340	0.322	0.374	0.260	1.66	1.97	Case11/12
LTE Band 5 Ant 1	Front	0.595	0.138	0.160	0.105	0.73	0.86	
	Back	1.254	0.322	0.374	0.260	1.58	1.89	Case13
LTE Band 5 Ant 2	Front	0.493	0.138	0.160	0.105	0.63	0.76	
	Back	1.271	0.322	0.374	0.260	1.59	1.91	Case14
WCDMA IV Ant 1	Front	0.446	0.138	0.160	0.105	0.58	0.71	
	Back	1.044	0.322	0.374	0.260	1.37	1.68	Case15
LTE Band 66 Ant 1	Front	0.631	0.138	0.160	0.105	0.77	0.90	
	Back	1.447	0.322	0.374	0.260	1.77	2.08	Case16/17
GSM1900 Ant 1	Front	0.720	0.138	0.160	0.105	0.86	0.99	
	Back	1.252	0.322	0.374	0.260	1.57	1.89	Case18
GSM1900 Ant 2	Front	0.568	0.138	0.160	0.105	0.71	0.83	
	Back	1.202	0.322	0.374	0.260	1.52	1.84	Case19
WCDMA II Ant 1	Front	0.685	0.138	0.160	0.105	0.82	0.95	
	Back	1.243	0.322	0.374	0.260	1.57	1.88	Case21
WCDMA II Ant 2	Front	0.426	0.138	0.160	0.105	0.56	0.69	
	Back	1.100	0.322	0.374	0.260	1.42	1.73	Case22
LTE Band 2 Ant 1	Front	0.769	0.138	0.160	0.105	0.91	1.03	
	Back	1.202	0.322	0.374	0.260	1.52	1.84	Case24
LTE Band 2 Ant 2	Front	0.617	0.138	0.160	0.105	0.76	0.88	
	Back	1.164	0.322	0.374	0.260	1.49	1.80	Case25
LTE Band 30 Ant 1	Front	0.750	0.138	0.160	0.105	0.89	1.02	
	Back	1.414	0.322	0.374	0.260	1.74	2.05	Case27/28
LTE Band 30 Ant 2	Front	0.745	0.138	0.160	0.105	0.88	1.01	
	Back	1.439	0.322	0.374	0.260	1.76	2.07	Case29/30



16.4 Product Specific Exposure Conditions

Note: 1. For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.

WWAN Band	Exposure Position	1	2	3	1+2	1+3	Case No
		WWAN	WLAN2.4GHz	WLAN5GHz	Summed	Summed	
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	
LTE Band 12 Ant 1	Front			0.838	0.00	0.84	
	Back	2.181	0.981	1.070	3.16	3.25	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side				0.00	0.00	
LTE Band 12 Ant 2	Front			0.838	0.00	0.84	
	Back		0.981	1.070	0.98	1.07	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side				0.00	0.00	
LTE Band 13 Ant 1	Front			0.838	0.00	0.84	
	Back	2.463	0.981	1.070	3.44	3.53	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	2.995			3.00	3.00	
LTE Band 14 Ant 1	Front			0.838	0.00	0.84	
	Back	2.554	0.981	1.070	3.54	3.62	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	3.079			3.08	3.08	
GSM850 Ant 1	Front	2.617		0.838	2.62	3.46	
	Back	3.375	0.981	1.070	4.36	4.45	Case32/33
	Left side			0.076	0.00	0.08	
	Right side	1.237		2.171	1.24	3.41	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	3.444			3.44	3.44	
GSM850 Ant 2	Front			0.838	0.00	0.84	
	Back	2.727	0.981	1.070	3.71	3.80	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side				0.00	0.00	
WCDMA V Ant 1	Front	2.095		0.838	2.10	2.93	
	Back	2.877	0.981	1.070	3.86	3.95	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	3.212			3.21	3.21	
WCDMA V Ant 2	Front			0.838	0.00	0.84	
	Back	2.900	0.981	1.070	3.88	3.97	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side				0.00	0.00	
LTE Band 5 Ant	Front	2.178		0.838	2.18	3.02	



1	Back	2.374	0.981	1.070	3.36	3.44	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	3.058			3.06	3.06	
LTE Band 5 Ant 2	Front			0.838	0.00	0.84	
	Back	2.141	0.981	1.070	3.12	3.21	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side	1.411	0.518	0.710	1.93	2.12	
WCDMA IV Ant 1	Bottom side				0.00	0.00	
	Front	1.265		0.838	1.27	2.10	
	Back	2.903	0.981	1.070	3.88	3.97	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
LTE Band 66 Ant 1	Top side		0.518	0.710	0.52	0.71	
	Bottom side	2.531			2.53	2.53	
	Front	1.602		0.838	1.60	2.44	
	Back	3.441	0.981	1.070	4.42	4.51	case34/35
	Left side			0.076	0.00	0.08	
GSM1900 Ant 1	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	2.461			2.46	2.46	
	Front	1.504		0.838	1.50	2.34	
	Back	2.918	0.981	1.070	3.90	3.99	
GSM1900 Ant 2	Left side	3.533		0.076	3.53	3.61	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	2.303			2.30	2.30	
	Front	1.507		0.838	1.51	2.35	
WCDMA II Ant 1	Back	2.873	0.981	1.070	3.85	3.94	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
	Top side	3.069	0.518	0.710	3.59	3.78	
	Bottom side				0.00	0.00	
WCDMA II Ant 2	Front	1.364		0.838	1.36	2.20	
	Back	2.862	0.981	1.070	3.84	3.93	
	Left side	3.245		0.076	3.25	3.32	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
LTE Band 2 Ant 1	Bottom side	1.712			1.71	1.71	
	Front	0.913		0.838	0.91	1.75	
	Back	2.243	0.981	1.070	3.22	3.31	
	Left side			0.076	0.00	0.08	
	Right side			2.171	0.00	2.17	
LTE Band 2 Ant 2	Top side	3.202	0.518	0.710	3.72	3.91	
	Bottom side				0.00	0.00	
	Front	1.740		0.838	1.74	2.58	
	Back	3.107	0.981	1.070	4.09	4.18	case36/37
	Left side	2.913		0.076	2.91	2.99	
LTE Band 2 Ant 2	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	2.221			2.22	2.22	
LTE Band 2 Ant 2	Front	1.220		0.838	1.22	2.06	
	Back	1.282	0.981	1.070	2.26	2.35	
	Left side			0.076	0.00	0.08	

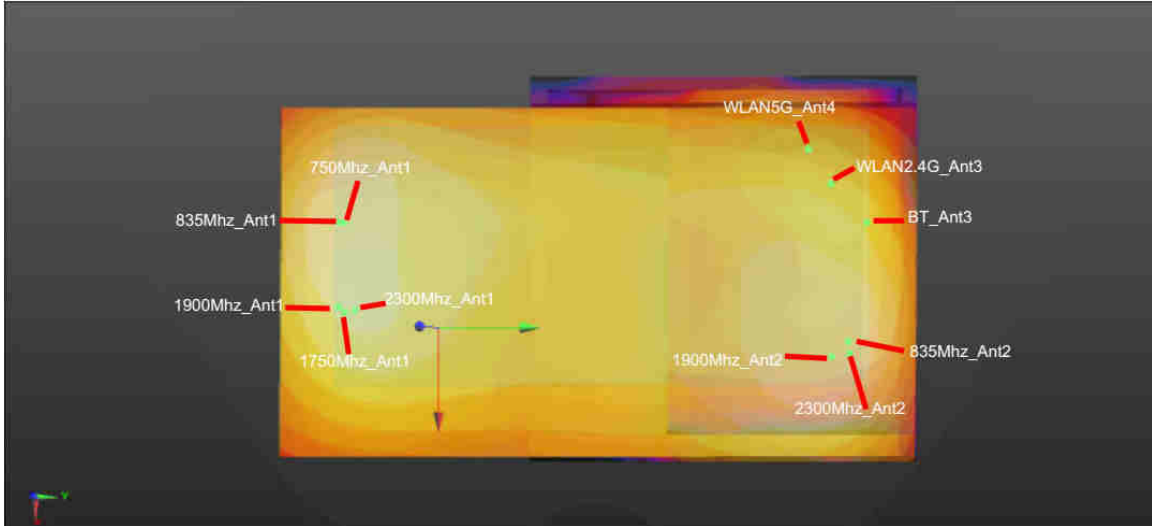


	Right side			2.171	0.00	2.17	
	Top side	2.964	0.518	0.710	3.48	3.67	
	Bottom side				0.00	0.00	
LTE Band 30 Ant 1	Front	1.212		0.838	1.21	2.05	
	Back	3.291	0.981	1.070	<b>4.27</b>	<b>4.36</b>	<b>case38/39</b>
	Left side	2.840		0.076	2.84	2.92	
	Right side			2.171	0.00	2.17	
	Top side		0.518	0.710	0.52	0.71	
	Bottom side	0.811			0.81	0.81	
LTE Band 30 Ant 2	Front	1.832		0.838	1.83	2.67	
	Back	2.447	0.981	1.070	3.43	3.52	
	Left side	1.770		0.076	1.77	1.85	
	Right side			2.171	0.00	2.17	
	Top side	3.219	0.518	0.710	3.74	3.93	
	Bottom side				0.00	0.00	

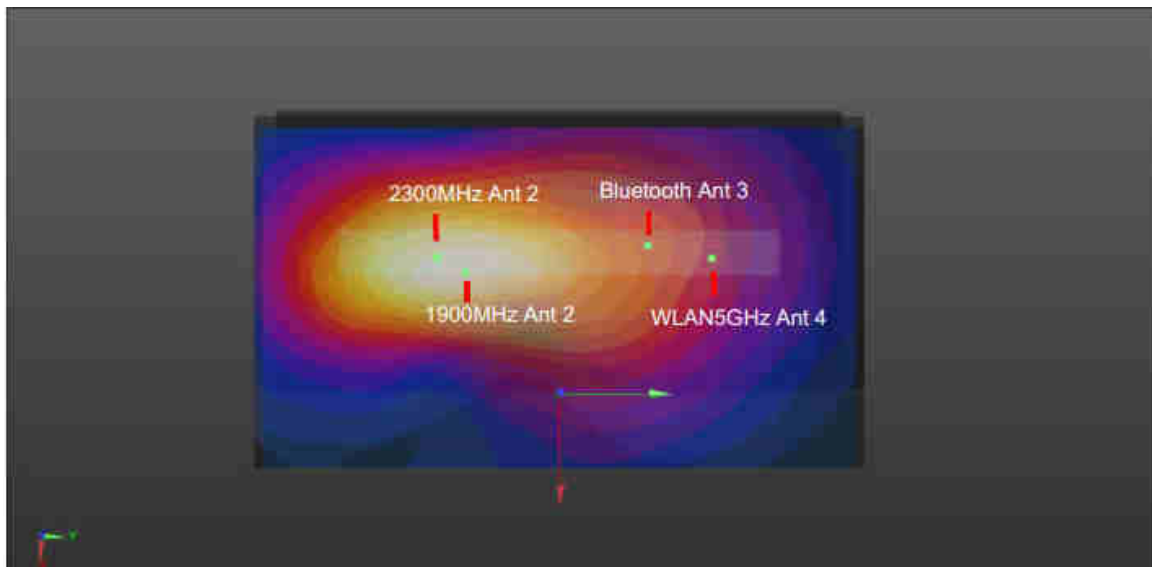
**16.5 SPLSR Evaluation and Analysis**

**General Note:**

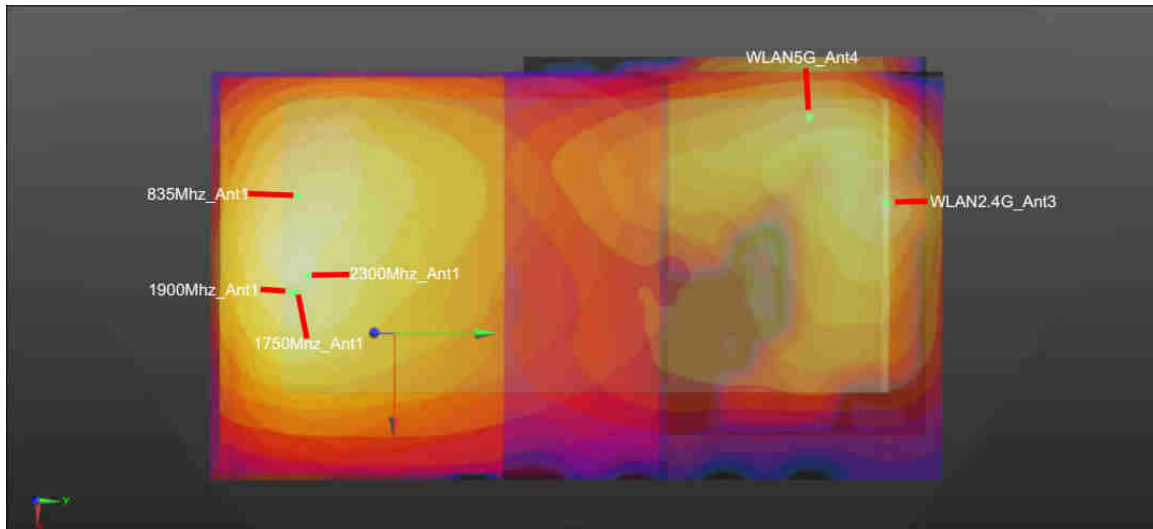
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where  $(x1, y1, z1)$  and  $(x2, y2, z2)$  are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2.  $SPLSR = (SAR1 + SAR2)1.5 / (\text{min. separation distance, mm})$ . If  $SPLSR \leq 0.04$  for 1g SAR and  $SPLSR \leq 0.10$  for 10g SAR, simultaneously transmission SAR measurement is not necessary.



**WWAN+WLAN2.4GHz/ WWAN+WLAN5GHz+Bluetooth\_Back 5mm**



**WWAN+WLAN5GHz+Bluetooth\_Top Side 5mm**



WWAN+WLAN2.4GHz/WWAN+WLAN5GHz\_ Back 0mm

Hotspot/Body Worn ( WWAN+WLAN2.4G )											
Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	LTE Band 12 Ant 1	Back	1.303	5mm	-0.0445	-0.0735	-0.205	152.1	1.63	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 3	LTE Band 13 Ant 1	Back	1.351	5mm	-0.0365	-0.079	-0.204	158.0	1.67	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 5	LTE Band 14 Ant 1	Back	1.425	5mm	-0.035	-0.0775	-0.204	156.6	1.75	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 7	GSM 850 Ant1	Back	1.307	5mm	-0.0445	-0.0795	-0.204	158.1	1.63	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 11	WCDMA V Ant 2	Back	1.34	5mm	0.001	0.079	-0.204	48.6	1.66	0.04	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 16	LTE Band 66 Ant1	Back	1.447	5mm	-0.0095	-0.076	-0.204	159.2	1.77	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 27	LTE Band 30 Ant1	Back	1.414	5mm	-0.0136	-0.0744	-0.204	156.7	1.74	0.01	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				
Case 29	LTE Band 30 Ant2	Back	1.439	5mm	0.009	0.0796	-0.204	56.6	1.76	0.04	Not required
	WLAN2.4GHz		0.322	5mm	-0.0476	0.0786	-0.205				



Hotspot/Body Worn ( WWAN+WLAN5G )											
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 2	LTE Band 12 Ant 1	Back	1.303	5mm	-0.0445	-0.0735	-0.205	136.5	1.68	0.02	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 12 Ant 1	Back	1.303	5mm	-0.0445	-0.0735	-0.205	158.0	1.56	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 4	LTE Band 13 Ant 1	Back	1.351	5mm	-0.0365	-0.079	-0.204	143.1	1.73	0.02	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 13 Ant 1	Back	1.351	5mm	-0.0365	-0.079	-0.204	163.4	1.61	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 6	LTE Band 14 Ant 1	Back	1.425	5mm	-0.035	-0.0775	-0.204	141.9	1.80	0.02	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 14 Ant 1	Back	1.425	5mm	-0.035	-0.0775	-0.204	162.0	1.69	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 8	GSM 850 Ant1	Back	1.307	5mm	-0.0445	-0.0795	-0.204	142.5	1.68	0.02	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	GSM 850 Ant1	Back	1.307	5mm	-0.0445	-0.0795	-0.204	164.0	1.57	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 9	GSM 850 Ant2	Back	1.132	5mm	0.0025	0.077	-0.204	65.3	1.51	0.03	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	GSM 850 Ant2	Back	1.132	5mm	0.0025	0.077	-0.204	43.2	1.39	0.04	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 10	WCDMA V Ant 1	Back	1.151	5mm	-0.04	-0.076	-0.205	139.6	1.53	0.01	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	WCDMA V Ant 1	Back	1.151	5mm	-0.04	-0.076	-0.205	160.4	1.41	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 12	WCDMA V Ant 2	Back	1.34	5mm	0.008	0.079	-0.204	71.1	1.71	0.03	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	WCDMA V Ant 2	Back	1.34	5mm	0.008	0.079	-0.204	48.3	1.60	0.04	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 12	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 13	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5 Ant1	Back	1.254	5mm	-0.035	-0.079	-0.204	143.4	1.63	0.01	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 5 Ant1	Back	1.254	5mm	-0.035	-0.079	-0.204	163.5	1.51	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 14	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5 Ant2	Back	1.271	5mm	0.004	0.0805	-0.204	67.6	1.65	0.03	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 5 Ant2	Back	1.271	5mm	0.004	0.0805	-0.204	44.2	1.53	0.04	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 15	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA IV Ant1	Back	1.044	5mm	-0.014	-0.073	-0.204	143.0	1.42	0.01	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	WCDMA IV Ant1	Back	1.044	5mm	-0.014	-0.073	-0.204	159.5	1.30	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 17	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 66 Ant1	Back	1.447	5mm	-0.0095	-0.076	-0.204	147.3	1.82	0.02	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 66 Ant1	Back	1.447	5mm	-0.0095	-0.076	-0.204	163.3	1.71	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 18	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM 1900 Ant1	Back	1.252	5mm	-0.011	-0.0755	-0.204	146.3	1.63	0.01	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	GSM 1900 Ant1	Back	1.252	5mm	-0.011	-0.0755	-0.204	162.5	1.51	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 19	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM 1900 Ant2	Back	1.202	5mm	0.013	0.0645	-0.204	74.1	1.58	0.03	Not required
	WLAN5GHz		0.374	5mm	-0.061	0.062	-0.207				
	GSM 1900 Ant2	Back	1.202	5mm	0.013	0.0645	-0.204	56.6	1.46	0.03	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 20	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM 1900 Ant2	Top Side	1.416	5mm	-0.0215	-0.0299	-0.205	62.0	1.65	0.03	Not required
	WLAN5GHz		0.235	5mm	-0.024	0.032	-0.206				
	GSM 1900 Ant2	Top Side	1.416	5mm	-0.0215	-0.0299	-0.205	44.7	1.59	0.04	Not required
Bluetooth	0.172		5mm	-0.0245	0.0147	-0.207					





Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	WLAN5GHZ	Top Side	0.235	5mm	-0.024	0.032	-0.206	17.3	0.41	0.01	Not required
	Bluetooth		0.172	5mm	-0.0245	0.0147	-0.207				
Case 21	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II Ant 1	Back	1.243	5mm	-0.011	-0.0795	-0.204	150.1	1.62	0.01	Not required
	WLAN5GHZ		0.374	5mm	-0.061	0.062	-0.207				
	WCDMA II Ant 1	Back	1.243	5mm	-0.011	-0.0795	-0.204	166.5	1.50	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHZ	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 22	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II Ant 2	Back	1.1	5mm	0.004	0.0655	-0.204	65.2	1.47	0.03	Not required
	WLAN5GHZ		0.374	5mm	-0.061	0.062	-0.207				
	WCDMA II Ant 2	Back	1.1	5mm	0.004	0.0655	-0.204	47.9	1.36	0.03	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHZ	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 23	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II Ant 2	Top Side	1.254	5mm	-0.0215	-0.0261	-0.205	58.2	1.49	0.03	Not required
	WLAN5GHZ		0.235	5mm	-0.024	0.032	-0.206				
	WCDMA II Ant 2	Top Side	1.254	5mm	-0.0215	-0.0261	-0.205	41.0	1.43	0.04	Not required
	Bluetooth		0.172	5mm	-0.0245	0.0147	-0.207				
	WLAN5GHZ	Top Side	0.235	5mm	-0.024	0.032	-0.206	17.3	0.41	0.01	Not required
Bluetooth	0.172		5mm	-0.0245	0.0147	-0.207					
Case 24	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2 Ant 1	Back	1.202	5mm	-0.0175	-0.0795	-0.204	148.1	1.58	0.01	Not required
	WLAN5GHZ		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 2 Ant 1	Back	1.202	5mm	-0.0175	-0.0795	-0.204	165.4	1.46	0.01	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHZ	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 25	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2 Ant 2	Back	1.164	5mm	0.0055	0.074	-0.204	67.6	1.54	0.03	Not required
	WLAN5GHZ		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 2 Ant 2	Back	1.164	5mm	0.0055	0.074	-0.204	46.7	1.42	0.04	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
	WLAN5GHZ	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					
Case 26	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2 Ant 2	Top Side	1.219	5mm	-0.023	-0.0255	-0.205	57.5	1.45	0.03	Not required
	WLAN5GHZ		0.235	5mm	-0.024	0.032	-0.206				
	LTE Band 2 Ant 2	Top Side	1.219	5mm	-0.023	-0.0255	-0.205	40.3	1.39	0.04	Not required
	Bluetooth		0.172	5mm	-0.0245	0.0147	-0.207				
	WLAN5GHZ	Top Side	0.235	5mm	-0.024	0.032	-0.206	17.3	0.41	0.01	Not required
Bluetooth	0.172		5mm	-0.0245	0.0147	-0.207					
Case 28	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 30 Ant 1	Back	1.414	5mm	-0.0136	-0.0744	-0.204	144.4	1.79	0.02	Not required
	WLAN5GHZ		0.374	5mm	-0.061	0.062	-0.207				
	LTE Band 30 Ant 1	Back	1.414	5mm	-0.0136	-0.0744	-0.204	161.0	1.67	0.01	Not required
Bluetooth	0.26		5mm	-0.04	0.0844	-0.206					



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Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	30.7	0.63	0.02	Not required
	Bluetooth		0.26	5mm	-0.04	0.0844	-0.206				
Case 30	<b>Band</b>	Back	1.439	5mm	SAR peak location (m)			72.2	1.81	0.03	Not required
	LTE Band 30 Ant 2				X	Y	Z				
	WLAN5GHz	Back	0.374	5mm	-0.061	0.062	-0.207	49.3	1.70	0.04	Not required
	LTE Band 30 Ant 2										
	Bluetooth	Back	0.26	5mm	-0.04	0.0844	-0.206	30.7	0.63	0.02	Not required
	WLAN5GHz										
Bluetooth	Back	0.26	5mm	-0.04	0.0844	-0.206	30.7	0.63	0.02	Not required	
WLAN5GHz											X
Case 31	<b>Band</b>	Top Side	1.196	5mm	SAR peak location (m)			56.6	1.43	0.03	Not required
	LTE Band 30 Ant 2				X	Y	Z				
	WLAN5GHz	Top Side	0.235	5mm	-0.024	0.032	-0.206	39.3	1.37	0.04	Not required
	LTE Band 30 Ant 2										
	Bluetooth	Top Side	0.172	5mm	-0.0245	0.0147	-0.207	17.3	0.41	0.01	Not required
	WLAN5GHz										
Bluetooth	Top Side	0.172	5mm	-0.0245	0.0147	-0.207	17.3	0.41	0.01	Not required	
WLAN5GHz											X



Extremity (WWAN+WLAN2.4G)											
Case 32	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	GSM850 Ant 1	Back	3.375	0mm	-0.046	-0.0765	-0.204	161.2	4.36	0.06	Not required
	WLAN2.4GHz		0.981	0mm	-0.0362	0.0844	-0.204				
Case 34	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 66 Ant 1	Back	3.441	0mm	-0.0095	-0.0755	-0.204	162.1	4.42	0.06	Not required
	WLAN2.4GHz		0.981	0mm	-0.0362	0.0844	-0.204				
Case 36	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 2 Ant 1	Back	3.107	0mm	-0.0205	-0.078	-0.204	163.2	4.09	0.05	Not required
	WLAN2.4GHz		0.981	0mm	-0.0362	0.0844	-0.204				
Case 38	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 30 Ant 1	Back	3.291	0mm	-0.0146	-0.0724	-0.204	158.3	4.27	0.06	Not required
	WLAN2.4GHz		0.981	0mm	-0.0362	0.0844	-0.204				
Extremity (WWAN+WLAN5G)											
Case 33	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	GSM850 Ant 1	Back	3.375	0mm	-0.046	-0.0765	-0.204	141.7	4.45	0.07	Not required
	WLAN5GHz Ant 4		1.07	0mm	-0.064	0.064	-0.207				
Case 35	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 66 Ant 1	Back	3.441	0mm	-0.0095	-0.0755	-0.204	149.8	4.51	0.06	Not required
	WLAN5GHz Ant 4		1.07	0mm	-0.064	0.064	-0.207				
Case 37	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 2 Ant 1	Back	3.107	0mm	-0.0205	-0.078	-0.204	148.5	4.18	0.06	Not required
	WLAN5GHz Ant 4		1.07	0mm	-0.064	0.064	-0.207				
Case 39	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 30 Ant 1	Back	3.291	0mm	-0.0146	-0.0724	-0.204	145.1	4.36	0.06	Not required
	WLAN5GHz Ant 4		1.07	0mm	-0.064	0.064	-0.207				

Test Engineer : Hank Huang, Kevin Xu, David Dai



## **17. 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 and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

## **18. References**

- [1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [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 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.
- [7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015
- [8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.
- [9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.
- [10] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015
- [11] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015
- [12] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015
- [13] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [14] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop and Tablet Computers”, Oct 2015

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