

FCC SAR Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2163-1, XT2163-2, XT2163-6, XT2163-2PP,
XT2163-7
FCC ID : IHDT56ZX1
STANDARD : FCC 47 CFR Part 2 (2.1093)

We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Hank Huang

Reviewed by: Hank Huang / Supervisor

Johnny Chen

Approved by: Johnny Chen / Manager



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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, XT2163-1, XT2163-2, XT2163-6, XT2163-2PP, XT2163-7**, 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	1.31	1.34	1.34	1.59
		GSM1900	1.36	1.39	1.39	
	WCDMA	Band V	1.35	1.40	1.40	
		Band IV	0.33	1.40	1.40	
		Band II	1.38	1.42	1.36	
	LTE	Band 12	1.08	1.38	1.38	
		Band 13	0.48	1.40	1.40	
		Band 14	0.41	1.33	1.33	
		Band 5	1.31	1.32	1.32	
		Band 66/ Band 4	0.34	1.42	1.30	
		Band 2	1.36	1.43	1.39	
	Band 30	1.30	1.35	1.39		
DTS	WLAN	2.4GHz WLAN	1.11	0.28	1.08	1.58
NII		5GHz WLAN	1.14	0.56	1.14	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.14	0.16	0.16	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)
Licensed	GSM	GSM850	3.34	3.99
		GSM1900	3.56	
	WCDMA	Band V	2.46	
		Band IV	3.49	
		Band II	3.41	
	LTE	Band 12	2.19	
		Band 13	2.29	
		Band 14	2.32	
		Band 5	2.81	
		Band 66/ Band 4	3.27	
		Band 2	3.50	
	Band 30	3.33		
DTS	WLAN	2.4GHz WLAN	2.22	3.99
NII		5GHz WLAN	3.03	3.99

Date of Testing: 2021/7/12~2021/7/29

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

Testing Laboratory		
Test Firm	Sporton International (Shenzhen) Inc.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1256	421272

Applicant	
Company Name	Motorola Mobility LLC
Address	222 W, Merchandise Mart Plaza, Chicago, IL60654 USA

Manufacturer	
Company Name	Motorola Mobility LLC
Address	222 W, Merchandise Mart Plaza, Chicago, IL60654 USA

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	XT2163-1, XT2163-2, XT2163-6, XT2163-2PP, XT2163-7
FCC ID	IHDT56ZX1
IMEI Code	358385280005995
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) 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	DVT2
SW Version	RRH31.Q3-36
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

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 2.4GHz WLAN/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).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level, which are provided in the operational description.
6. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
7. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
8. There are two samples. Please refer to the XT2163-1, XT2163-2, XT2163-6, XT2163-2PP, XT2163-7 operation



description exhibit submitted. According to the difference, we chose sample 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	IHDT56ZX1																																																														
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	Downlink Only																																																														
LTE MPR permanently built-in by design	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</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>> 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>≤ 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>> 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>≤ 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>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 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, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 13.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement 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, eCI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.																																																														

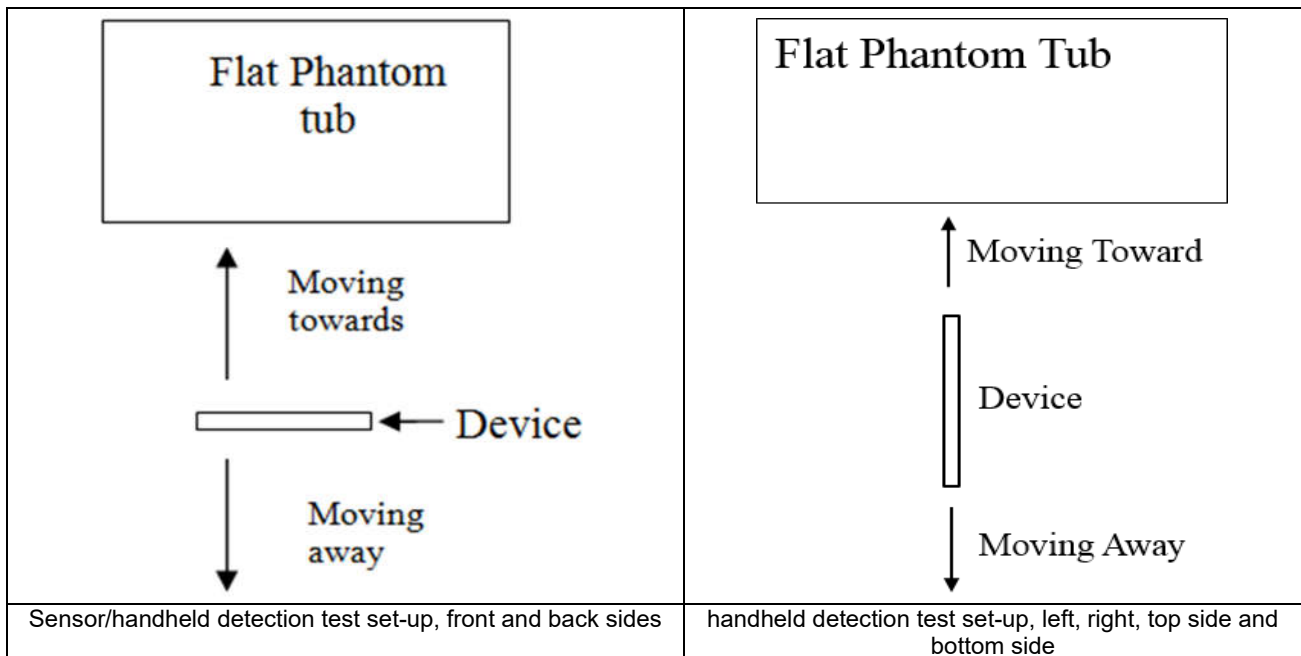


Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	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		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	20407	824.7	20415	825.5	20425	826.5	20450	829	20475	830.5	20500	832
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20575	842.5	20550	840
LTE Band 12												
	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	23017	699.7	23025	700.5	23035	701.5	23060	704	23085	705.5	23110	708
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23105	709.5	23080	706
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782		23255		785	
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23305		790.5		23330		793		23355		796	
M	23330		793									
H	23355		795.5									
LTE Band 30												
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	27685		2307.5		27710		2310		27735		2312.5	
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. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

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 (5750MHz) 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 side of the device. When front/back/top/bottom/left/right side 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	21	25	25	30

<Handheld—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	12	14	24	3	10	13	24

<Handheld—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	18	15	23	4	7	15	17

6. RF Exposure Limits

6.1 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.

6.2 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.

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 (ρ). The equation description is as below:

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

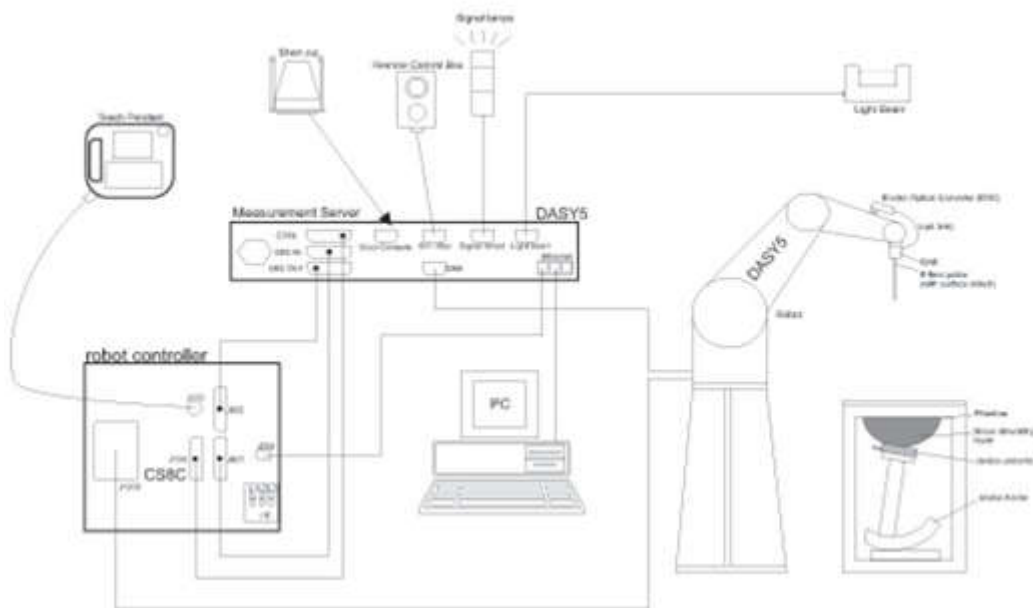
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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




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

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.

<EX3DV4 Probe>

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

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>

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

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

<ELI Phantom>

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

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

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.

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

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

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	2018/12/6	2021/11/24
SPEAG	835MHz System Validation Kit	D835V2	4d162	2018/12/5	2021/11/24
SPEAG	1750MHz System Validation Kit	D1750V2	1137	2018/7/30	2021/7/22
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2018/12/7	2021/11/24
SPEAG	2300MHz System Validation Kit	D2300V2	1056	2018/11/1	2021/10/31
SPEAG	2450MHz System Validation Kit	D2450V2	924	2020/9/2	2021/9/1
SPEAG	5000MHz System Validation Kit	D5GHzV2	1167	2018/8/3	2021/8/2
SPEAG	Data Acquisition Electronics	DAE3	360	2020/11/6	2021/11/5
SPEAG	Data Acquisition Electronics	DAE4	1664	2021/3/1	2022/2/28
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	2020/9/30	2021/9/29
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	2021/3/15	2022/3/14
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1795	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201341952	2020/12/25	2021/12/24
Anritsu	Radio communication analyzer	MT8820C	6201563813	2020/12/25	2021/12/24
Anritsu	Radio communication analyzer	MT8821C	6201588577	2021/4/8	2022/4/7
Agilent	Wireless Communication Test Set	E5515C	MY50267224	2020/7/21	2021/7/20
Agilent	Wireless Communication Test Set	E5515C	MY50267224	2021/7/14	2022/7/13
Agilent	Network Analyzer	E5071C	MY46523671	2020/10/15	2021/10/14
Speag	Dielectric Assessment KIT	DAK-3.5	1071	2020/12/23	2021/12/22
Agilent	Signal Generator	N5181A	MY50145381	2020/12/25	2021/12/24
Anritsu	Power Sensor	MA2411B	1306099	2020/12/25	2021/12/24
Anritsu	Power Meter	ML2495A	1349001	2020/7/21	2021/7/20
Anritsu	Power Sensor	MA2411B	1207253	2020/12/25	2021/12/24
Anritsu	Power Meter	ML2495A	1218010	2020/12/25	2021/12/24
R&S	Power Sensor	NRP50S	101254	2021/4/9	2022/4/8
R&S	Power Sensor	NRP8S	109228	2021/4/9	2022/4/8
R&S	CBT BLUETOOTH TESTER	CBT	100963	2020/12/25	2021/12/24
R&S	Spectrum Analyzer	FSP7	100818	2020/7/21	2021/7/20
R&S	Spectrum Analyzer	FSP7	100818	2021/7/14	2022/7/13
TES	Hygrometer	1310	200505600	2020/7/30	2021/7/29
TES	Hygrometer	1310	200505600	2021/7/17	2022/7/16
Anymetre	Thermo-Hygrometer	JR593	2015030903	2021/1/5	2022/1/4
Anymetre	Thermo-Hygrometer	JR593	2015102801	2021/1/5	2022/1/4
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	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.

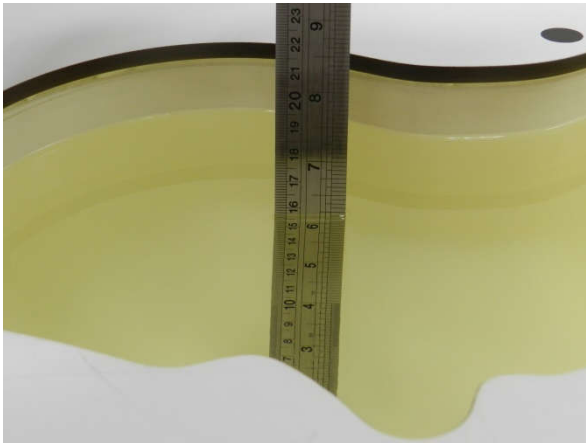


Fig 11.1 Photo of Liquid Height for Head SAR



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 (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
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 _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.6	0.878	40.673	0.89	41.90	-1.35	-2.93	±5	2021/7/12
750	Head	22.4	0.880	40.797	0.89	41.90	-1.12	-2.63	±5	2021/7/16
835	Head	22.5	0.894	40.527	0.90	41.50	-0.67	-2.34	±5	2021/7/14
835	Head	22.5	0.911	42.404	0.90	41.50	1.22	2.18	±5	2021/7/18
1750	Head	22.5	1.377	41.359	1.37	40.10	0.51	3.14	±5	2021/7/20
1750	Head	22.4	1.381	40.830	1.37	40.10	0.80	1.82	±5	2021/7/21
1900	Head	22.6	1.428	41.216	1.40	40.00	2.00	3.04	±5	2021/7/21
1900	Head	22.3	1.448	39.105	1.40	40.00	3.43	-2.24	±5	2021/7/25
2300	Head	22.7	1.736	38.659	1.67	39.50	3.95	-2.13	±5	2021/7/23
2300	Head	22.5	1.727	37.814	1.67	39.50	3.41	-4.27	±5	2021/7/26
2450	Head	22.5	1.861	39.575	1.80	39.20	3.39	0.96	±5	2021/7/19
5250	Head	22.6	4.714	36.412	4.71	35.95	0.08	1.29	±5	2021/7/21
5250	Head	22.5	4.597	36.617	4.71	35.95	-2.40	1.86	±5	2021/7/28
5600	Head	22.6	5.141	35.813	5.07	35.50	1.40	0.88	±5	2021/7/22
5600	Head	22.5	5.006	36.080	5.07	35.50	-1.26	1.63	±5	2021/7/29
5750	Head	22.7	5.315	35.552	5.22	35.35	1.82	0.57	±5	2021/7/23

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 (%)
2021/7/12	750	Head	250	1099	7577	360	2.10	8.52	8.4	-1.41
2021/7/16	750	Head	250	1099	7577	360	2.03	8.52	8.12	-4.69
2021/7/14	835	Head	250	4d162	7577	360	2.39	9.61	9.56	-0.52
2021/7/18	835	Head	250	4d162	7577	360	2.44	9.61	9.76	1.56
2021/7/20	1750	Head	250	1137	7577	360	9.04	36.50	36.16	-0.93
2021/7/21	1750	Head	250	1137	7577	360	9.09	36.50	36.36	-0.38
2021/7/21	1900	Head	250	5d182	7577	360	9.72	39.60	38.88	-1.82
2021/7/25	1900	Head	250	5d182	7577	360	9.85	39.60	39.4	-0.51
2021/7/23	2300	Head	250	1056	7577	360	13.10	49.90	52.4	5.01
2021/7/26	2300	Head	250	1056	7577	360	12.30	49.90	49.2	-1.40
2021/7/19	2450	Head	250	924	7641	1664	12.30	51.40	49.2	-4.28
2021/7/21	5250	Head	100	1167	7641	1664	8.27	77.00	82.7	7.40
2021/7/28	5250	Head	100	1167	7641	1664	7.79	77.00	77.9	1.17
2021/7/22	5600	Head	100	1167	7641	1664	8.46	80.80	84.6	4.70
2021/7/29	5600	Head	100	1167	7641	1664	7.80	80.80	78	-3.47
2021/7/23	5750	Head	100	1167	7641	1664	7.53	76.90	75.3	-2.08

<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 (%)
2021/7/12	750	Head	250	1099	7577	360	1.41	5.64	5.64	0.00
2021/7/16	750	Head	250	1099	7577	360	1.36	5.64	5.44	-3.55
2021/7/14	835	Head	250	4d162	7577	360	1.56	6.35	6.24	-1.73
2021/7/18	835	Head	250	4d162	7577	360	1.59	6.35	6.36	0.16
2021/7/20	1750	Head	250	1137	7577	360	4.85	19.50	19.40	-0.51
2021/7/21	1750	Head	250	1137	7577	360	4.89	19.50	19.56	0.31
2021/7/21	1900	Head	250	5d182	7577	360	4.99	20.70	19.96	-3.57
2021/7/25	1900	Head	250	5d182	7577	360	5.06	20.70	20.24	-2.22
2021/7/23	2300	Head	250	1056	7577	360	6.19	23.80	24.76	4.03
2021/7/26	2300	Head	250	1056	7577	360	5.70	23.80	22.80	-4.20
2021/7/19	2450	Head	250	924	7641	1664	5.53	24.00	22.12	-7.83
2021/7/21	5250	Head	100	1167	7641	1664	2.28	22.00	22.80	3.64
2021/7/28	5250	Head	100	1167	7641	1664	2.17	22.00	21.70	-1.36
2021/7/22	5600	Head	100	1167	7641	1664	2.30	23.20	23.00	-0.86
2021/7/29	5600	Head	100	1167	7641	1664	2.22	23.20	22.2	-4.31
2021/7/23	5750	Head	100	1167	7641	1664	2.09	21.60	20.9	-3.24

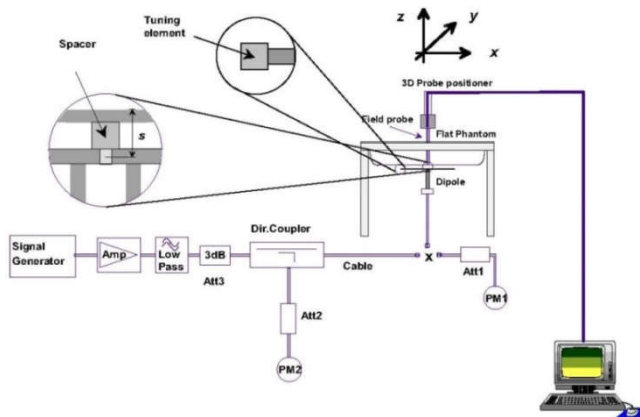


Fig 11.3.1 System Performance Check Setup



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.

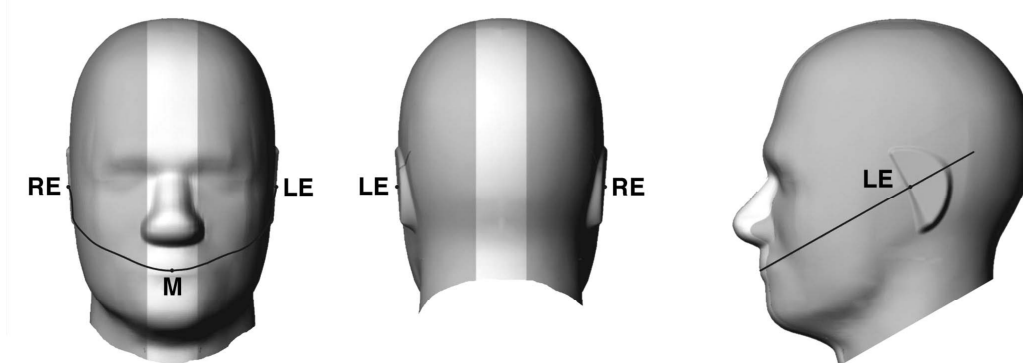


Fig 12.1.1 Front, back, and side views of SAM twin phantom

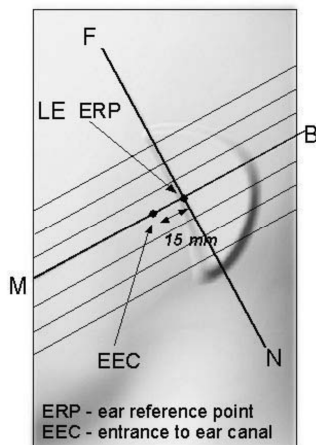


Fig 12.1.2 Close-up side view of phantom showing the ear region.

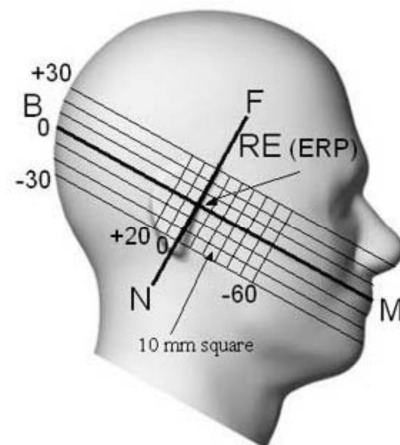


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

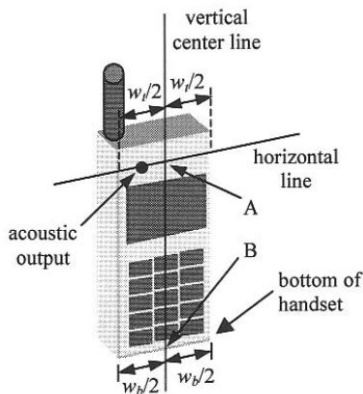


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

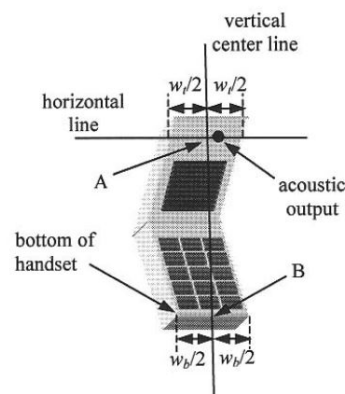


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

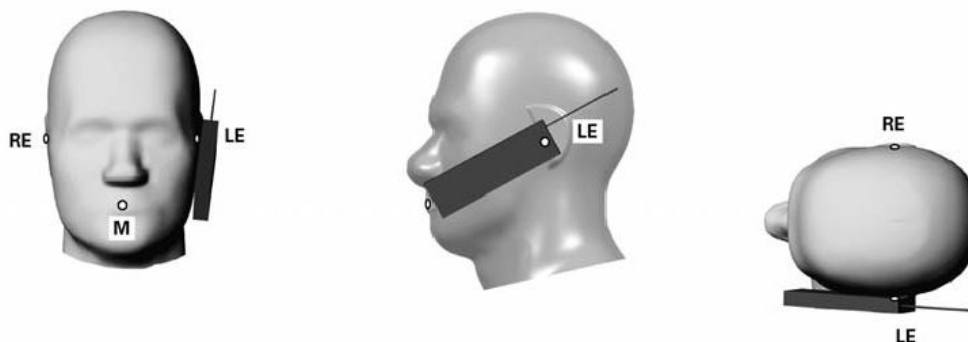


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

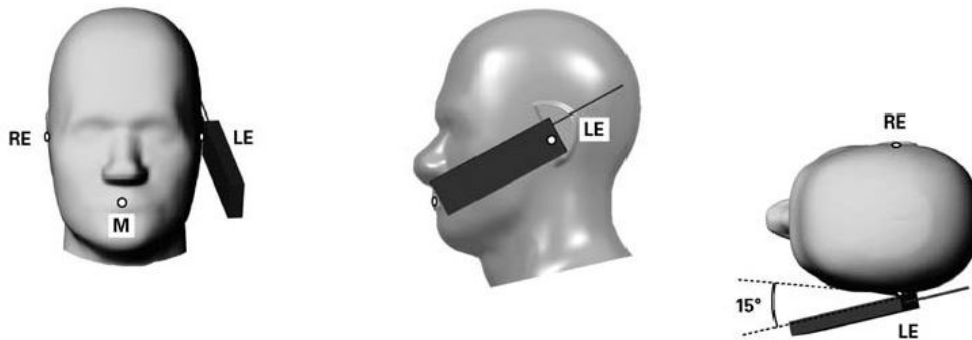


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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

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.

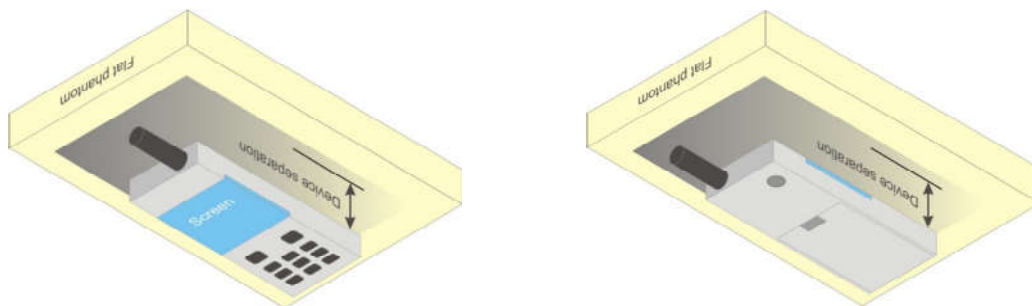


Fig 12.4 Body Worn Position



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 ≤ 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. Therefore, the GPRS 4Tx slots for GSM850/GSM1900 are considered as the primary mode.
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 HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. 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 (β_c and β_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: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{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: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

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

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

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

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 (β_c and β_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: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{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	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

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

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

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

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

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

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

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 (β_c and β_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.		

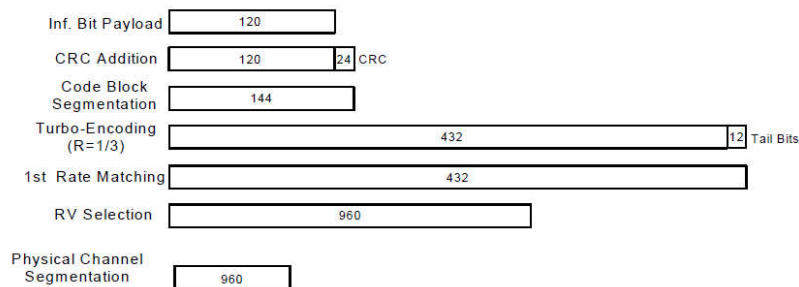


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 (β_c and β_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 Parm
 - 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: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{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	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

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

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

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

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

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is 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 $\leq 1/4$ 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 ≤ 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 $1/4$ 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 MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/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 ≤ 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 ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 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 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
2CC #1	CA_2A-2A
2CC #2	CA_2A-5A
2CC #3	CA_2C
2CC #4	CA_4A-4A
2CC #5	CA_5B
2CC #6	CA_13A-2A
2CC #7	CA_66A-66A
2CC #8	CA_66B
2CC #9	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>

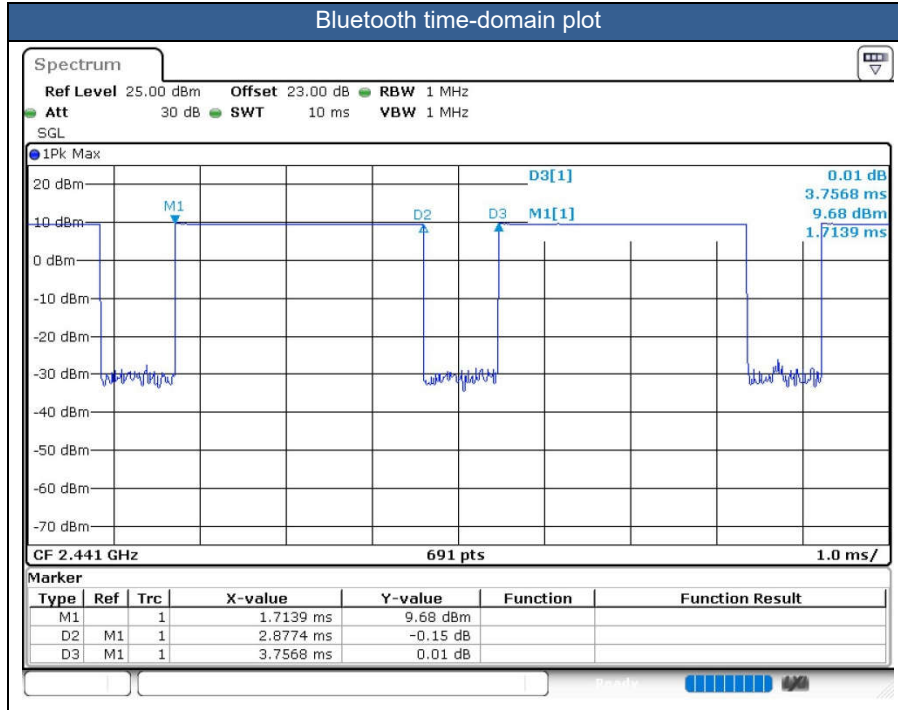
General Note:

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 ≤ 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 ≤ 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 ≤ 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 76.59 % as following figure, according to 2016 Oct. 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 to 100% 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 WLAN/Bluetooth 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:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 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. Per KDB648474 D04v01r03, when the reported SAR for a 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. When headset SAR is less than or equal than without headset SAR, no need to verify the remaining channels for headset SAR.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level, which are provided in the operational description.
6. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
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 1.2 W/kg of GSM850/1900, WCDMA Band II/IV, LTE Band 2/4/5/12/13/14/30/66 and WLAN 2.4/5.2/5.8GHz 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.
9. Antenna 1 and Antenna 2 are set to the MAX transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions. Through NV to fix the operation state and select the antenna so that only one TX antenna is selected and tested at a time. All independent antennas will be completely covered by the appropriate SAR measurements and all simultaneous transmission possibilities will be fully considered to ensure SAR compliance.

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. Therefore, the GPRS 4Tx slots for GSM850/GSM1900 are considered as the primary mode.
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 ≤ 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 ≤ 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 ≤ 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 ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 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 ≤ 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 ≤ 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 ≤ 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 ≤ 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

<GSM SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_Ant1	GPRS (4 Tx slots)	Right Cheek	Ant 1	Full	128	824.2	28.91	30.00	1.285	0.19	0.700	0.900
	GSM850_Ant1	GPRS (4 Tx slots)	Right Tilted	Ant 1	Full	128	824.2	28.91	30.00	1.285	0.01	0.271	0.348
	GSM850_Ant1	GPRS (4 Tx slots)	Left Cheek	Ant 1	Full	128	824.2	28.91	30.00	1.285	0.04	0.557	0.716
	GSM850_Ant1	GPRS (4 Tx slots)	Left Tilted	Ant 1	Full	128	824.2	28.91	30.00	1.285	-0.14	0.247	0.317
	GSM850_Ant1	GPRS (4 Tx slots)	Right Cheek	Ant 1	Full	189	836.4	28.89	30.00	1.291	0.17	0.669	0.864
	GSM850_Ant1	GPRS (4 Tx slots)	Right Cheek	Ant 1	Full	251	848.8	28.73	30.00	1.340	0.16	0.677	0.907
	GSM850_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	128	824.2	24.03	25.00	1.250	0.11	0.921	1.151
	GSM850_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	128	824.2	24.03	25.00	1.250	-0.13	0.773	0.966
	GSM850_Ant2	GPRS (4 Tx slots)	Left Cheek	Ant 2	Reduced	128	824.2	24.03	25.00	1.250	0.09	0.626	0.783
	GSM850_Ant2	GPRS (4 Tx slots)	Left Tilted	Ant 2	Reduced	128	824.2	24.03	25.00	1.250	0.05	0.502	0.628
	GSM850_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	189	836.4	23.86	25.00	1.300	-0.03	0.975	1.268
01	GSM850_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	251	848.8	23.83	25.00	1.309	-0.09	0.998	1.307
	GSM850_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	189	836.4	23.86	25.00	1.300	-0.03	0.830	1.079
	GSM850_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	251	848.8	23.83	25.00	1.309	0.09	0.844	1.105
	GSM1900_Ant1	GPRS (4 Tx slots)	Right Cheek	Ant 1	Full	512	1850.2	26.10	27.50	1.380	0.05	0.487	0.672
	GSM1900_Ant1	GPRS (4 Tx slots)	Right Tilted	Ant 1	Full	512	1850.2	26.10	27.50	1.380	0.06	0.277	0.382
	GSM1900_Ant1	GPRS (4 Tx slots)	Left Cheek	Ant 1	Full	512	1850.2	26.10	27.50	1.380	-0.04	0.388	0.536
	GSM1900_Ant1	GPRS (4 Tx slots)	Left Tilted	Ant 1	Full	512	1850.2	26.10	27.50	1.380	0.19	0.375	0.518
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	512	1850.2	16.79	18.00	1.321	-0.05	0.771	1.019
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	512	1850.2	16.79	18.00	1.321	-0.08	0.965	1.275
	GSM1900_Ant2	GPRS (4 Tx slots)	Left Cheek	Ant 2	Reduced	512	1850.2	16.79	18.00	1.321	0.12	0.486	0.642
	GSM1900_Ant2	GPRS (4 Tx slots)	Left Tilted	Ant 2	Reduced	512	1850.2	16.79	18.00	1.321	0.06	0.560	0.740
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	661	1880	16.70	18.00	1.349	-0.08	0.776	1.047
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Cheek	Ant 2	Reduced	810	1909.8	16.69	18.00	1.352	0.06	0.713	0.964
02	GSM1900_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	661	1880	16.70	18.00	1.349	-0.02	1.010	1.362
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Tilted	Ant 2	Reduced	810	1909.8	16.69	18.00	1.352	0.06	0.947	1.280



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant1	RMC 12.2Kbps	Right Cheek	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.14	0.481	0.615
	WCDMA V_Ant1	RMC 12.2Kbps	Right Tilted	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.16	0.238	0.304
	WCDMA V_Ant1	RMC 12.2Kbps	Left Cheek	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.11	0.201	0.257
	WCDMA V_Ant1	RMC 12.2Kbps	Left Tilted	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.06	0.212	0.271
	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	4233	846.6	20.61	21.50	1.227	-0.17	1.020	1.252
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	4233	846.6	20.61	21.50	1.227	0.05	0.817	1.003
	WCDMA V_Ant2	RMC 12.2Kbps	Left Cheek	Ant 2	Reduced	4233	846.6	20.61	21.50	1.227	0.02	0.725	0.890
	WCDMA V_Ant2	RMC 12.2Kbps	Left Tilted	Ant 2	Reduced	4233	846.6	20.61	21.50	1.227	-0.01	0.568	0.697
	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	4132	826.4	20.56	21.50	1.242	-0.13	1.080	1.341
03	WCDMA V_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	4182	836.4	20.57	21.50	1.239	-0.08	1.090	1.350
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	4132	826.4	20.56	21.50	1.242	0.09	0.831	1.032
	WCDMA V_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	4182	836.4	20.57	21.50	1.239	-0.02	0.824	1.021
	WCDMA V_Ant2	RMC 12.2Kbps	Left Cheek	Ant 2	Reduced	4132	826.4	20.56	21.50	1.242	-0.12	0.728	0.904
	WCDMA V_Ant2	RMC 12.2Kbps	Left Cheek	Ant 2	Reduced	4182	836.4	20.57	21.50	1.239	0.07	0.731	0.906
04	WCDMA IV_Ant1	RMC 12.2Kbps	Right Cheek	Ant 1	Full	1413	1732.6	22.90	24.00	1.288	-0.03	0.256	0.330
	WCDMA IV_Ant1	RMC 12.2Kbps	Right Tilted	Ant 1	Full	1413	1732.6	22.90	24.00	1.288	-0.1	0.176	0.227
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Cheek	Ant 1	Full	1413	1732.6	22.90	24.00	1.288	0.09	0.176	0.227
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Tilted	Ant 1	Full	1413	1732.6	22.90	24.00	1.288	-0.12	0.204	0.263
	WCDMA II_Ant1	RMC 12.2Kbps	Right Cheek	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	-0.14	0.459	0.548
	WCDMA II_Ant1	RMC 12.2Kbps	Right Tilted	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	0.1	0.241	0.288
	WCDMA II_Ant1	RMC 12.2Kbps	Left Cheek	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	0.02	0.342	0.408
	WCDMA II_Ant1	RMC 12.2Kbps	Left Tilted	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	0.17	0.318	0.380
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	9262	1852.4	14.76	16.00	1.330	-0.01	0.780	1.038
	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	9262	1852.4	14.76	16.00	1.330	-0.03	0.827	1.100
	WCDMA II_Ant2	RMC 12.2Kbps	Left Cheek	Ant 2	Reduced	9262	1852.4	14.76	16.00	1.330	0.09	0.415	0.552
	WCDMA II_Ant2	RMC 12.2Kbps	Left Tilted	Ant 2	Reduced	9262	1852.4	14.76	16.00	1.330	0.11	0.537	0.714
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	9400	1880	14.74	16.00	1.337	0.02	0.862	1.152
	WCDMA II_Ant2	RMC 12.2Kbps	Right Cheek	Ant 2	Reduced	9538	1907.6	14.61	16.00	1.377	0.03	0.845	1.164
05	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	9400	1880	14.74	16.00	1.337	0.08	1.030	1.377
	WCDMA II_Ant2	RMC 12.2Kbps	Right Tilted	Ant 2	Reduced	9538	1907.6	14.61	16.00	1.377	-0.12	0.875	1.205



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12_Ant1	10M	QPSK	1	0	Right Cheek	Ant 1	Full	23095	707.5	22.47	24.00	1.422	-0.12	0.207	0.294
	LTE Band 12_Ant1	10M	QPSK	1	0	Right Tilted	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.1	0.111	0.158
	LTE Band 12_Ant1	10M	QPSK	1	0	Left Cheek	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.09	0.197	0.280
	LTE Band 12_Ant1	10M	QPSK	1	0	Left Tilted	Ant 1	Full	23095	707.5	22.47	24.00	1.422	-0.01	0.106	0.151
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Cheek	Ant 1	Full	23095	707.5	21.46	23.00	1.426	-0.07	0.181	0.258
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Tilted	Ant 1	Full	23095	707.5	21.46	23.00	1.426	-0.05	0.093	0.133
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Cheek	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.12	0.168	0.240
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Tilted	Ant 1	Full	23095	707.5	21.46	23.00	1.426	-0.06	0.089	0.127
06	LTE Band 12_Ant2	10M	QPSK	1	0	Right Cheek	Ant 2	Full	23095	707.5	21.98	23.00	1.265	-0.11	0.851	1.076
	LTE Band 12_Ant2	10M	QPSK	1	0	Right Tilted	Ant 2	Full	23095	707.5	21.98	23.00	1.265	-0.1	0.664	0.840
	LTE Band 12_Ant2	10M	QPSK	1	0	Left Cheek	Ant 2	Full	23095	707.5	21.98	23.00	1.265	-0.01	0.442	0.559
	LTE Band 12_Ant2	10M	QPSK	1	0	Left Tilted	Ant 2	Full	23095	707.5	21.98	23.00	1.265	-0.06	0.349	0.441
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Cheek	Ant 2	Full	23095	707.5	20.97	22.00	1.268	0.18	0.671	0.851
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Tilted	Ant 2	Full	23095	707.5	20.97	22.00	1.268	0.15	0.553	0.701
	LTE Band 12_Ant2	10M	QPSK	25	12	Left Cheek	Ant 2	Full	23095	707.5	20.97	22.00	1.268	-0.06	0.345	0.437
	LTE Band 12_Ant2	10M	QPSK	25	12	Left Tilted	Ant 2	Full	23095	707.5	20.97	22.00	1.268	-0.12	0.285	0.361
	LTE Band 12_Ant2	10M	QPSK	50	0	Right Cheek	Ant 2	Full	23095	707.5	20.93	22.00	1.279	-0.01	0.665	0.851
	LTE Band 12_Ant2	10M	QPSK	50	0	Right Tilted	Ant 2	Full	23095	707.5	20.93	22.00	1.279	0.12	0.547	0.700
07	LTE Band 13_Ant1	10M	QPSK	1	0	Right Cheek	Ant 1	Full	23230	782	22.41	24.00	1.442	-0.01	0.334	0.482
	LTE Band 13_Ant1	10M	QPSK	1	0	Right Tilted	Ant 1	Full	23230	782	22.41	24.00	1.442	0.13	0.136	0.196
	LTE Band 13_Ant1	10M	QPSK	1	0	Left Cheek	Ant 1	Full	23230	782	22.41	24.00	1.442	0.18	0.259	0.374
	LTE Band 13_Ant1	10M	QPSK	1	0	Left Tilted	Ant 1	Full	23230	782	22.41	24.00	1.442	0.03	0.133	0.192
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Cheek	Ant 1	Full	23230	782	21.35	23.00	1.462	-0.08	0.253	0.370
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Tilted	Ant 1	Full	23230	782	21.35	23.00	1.462	-0.06	0.114	0.167
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Cheek	Ant 1	Full	23230	782	21.35	23.00	1.462	0.01	0.215	0.314
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Tilted	Ant 1	Full	23230	782	21.35	23.00	1.462	0.17	0.112	0.164
08	LTE Band 14_Ant1	10M	QPSK	1	0	Right Cheek	Ant 1	Full	23330	793	22.46	24.00	1.426	0.11	0.286	0.408
	LTE Band 14_Ant1	10M	QPSK	1	0	Right Tilted	Ant 1	Full	23330	793	22.46	24.00	1.426	-0.08	0.145	0.207
	LTE Band 14_Ant1	10M	QPSK	1	0	Left Cheek	Ant 1	Full	23330	793	22.46	24.00	1.426	-0.14	0.263	0.375
	LTE Band 14_Ant1	10M	QPSK	1	0	Left Tilted	Ant 1	Full	23330	793	22.46	24.00	1.426	-0.01	0.140	0.200
	LTE Band 14_Ant1	10M	QPSK	25	12	Right Cheek	Ant 1	Full	23330	793	21.36	23.00	1.459	0.14	0.242	0.353
	LTE Band 14_Ant1	10M	QPSK	25	12	Right Tilted	Ant 1	Full	23330	793	21.36	23.00	1.459	-0.12	0.129	0.188
	LTE Band 14_Ant1	10M	QPSK	25	12	Left Cheek	Ant 1	Full	23330	793	21.36	23.00	1.459	0.09	0.220	0.321
	LTE Band 14_Ant1	10M	QPSK	25	12	Left Tilted	Ant 1	Full	23330	793	21.36	23.00	1.459	-0.03	0.120	0.175
	LTE Band 5_Ant1	10M	QPSK	1	0	Right Cheek	Ant 1	Full	20525	836.5	22.37	24.00	1.455	0.15	0.412	0.600
	LTE Band 5_Ant1	10M	QPSK	1	0	Right Tilted	Ant 1	Full	20525	836.5	22.37	24.00	1.455	-0.12	0.216	0.314
	LTE Band 5_Ant1	10M	QPSK	1	0	Left Cheek	Ant 1	Full	20525	836.5	22.37	24.00	1.455	-0.06	0.355	0.517
	LTE Band 5_Ant1	10M	QPSK	1	0	Left Tilted	Ant 1	Full	20525	836.5	22.37	24.00	1.455	0.01	0.197	0.287
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Cheek	Ant 1	Full	20525	836.5	21.34	23.00	1.466	0.07	0.346	0.507
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Tilted	Ant 1	Full	20525	836.5	21.34	23.00	1.466	-0.08	0.185	0.271
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Cheek	Ant 1	Full	20525	836.5	21.34	23.00	1.466	-0.07	0.296	0.434
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Tilted	Ant 1	Full	20525	836.5	21.34	23.00	1.466	0.14	0.165	0.242
09	LTE Band 5_Ant2	10M	QPSK	1	0	Right Cheek	Ant 2	Reduced	20525	836.5	19.64	21.00	1.368	-0.13	0.957	1.309
	LTE Band 5_Ant2	10M	QPSK	1	0	Right Tilted	Ant 2	Reduced	20525	836.5	19.64	21.00	1.368	-0.01	0.774	1.059
	LTE Band 5_Ant2	10M	QPSK	1	0	Left Cheek	Ant 2	Reduced	20525	836.5	19.64	21.00	1.368	-0.06	0.669	0.915
	LTE Band 5_Ant2	10M	QPSK	1	0	Left Tilted	Ant 2	Reduced	20525	836.5	19.64	21.00	1.368	0.12	0.529	0.724
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Cheek	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.03	0.762	1.007
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Tilted	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.17	0.626	0.827
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Cheek	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.03	0.531	0.702
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Tilted	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.12	0.444	0.587
	LTE Band 5_Ant2	10M	QPSK	50	0	Right Cheek	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	-0.08	0.755	0.998
	LTE Band 5_Ant2	10M	QPSK	50	0	Right Tilted	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.12	0.626	0.827
	LTE Band 5_Ant2	10M	QPSK	50	0	Left Cheek	Ant 2	Reduced	20525	836.5	18.79	20.00	1.321	0.16	0.522	0.690



10	LTE Band 66_Ant1	20M	QPSK	1	0	Right Cheek	Ant 1	Full	132322	1745	22.41	24.00	1.442	0.06	0.237	0.342
	LTE Band 66_Ant1	20M	QPSK	1	0	Right Tilted	Ant 1	Full	132322	1745	22.41	24.00	1.442	-0.12	0.157	0.226
	LTE Band 66_Ant1	20M	QPSK	1	0	Left Cheek	Ant 1	Full	132322	1745	22.41	24.00	1.442	-0.07	0.145	0.209
	LTE Band 66_Ant1	20M	QPSK	1	0	Left Tilted	Ant 1	Full	132322	1745	22.41	24.00	1.442	-0.07	0.151	0.218
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Cheek	Ant 1	Full	132322	1745	21.36	23.00	1.459	-0.08	0.183	0.267
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Tilted	Ant 1	Full	132322	1745	21.36	23.00	1.459	0.12	0.127	0.185
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Cheek	Ant 1	Full	132322	1745	21.36	23.00	1.459	0.16	0.110	0.160
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Tilted	Ant 1	Full	132322	1745	21.36	23.00	1.459	-0.01	0.118	0.172
	LTE Band 2_Ant1	20M	QPSK	1	0	Right Cheek	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.09	0.345	0.468
	LTE Band 2_Ant1	20M	QPSK	1	0	Right Tilted	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.04	0.218	0.295
	LTE Band 2_Ant1	20M	QPSK	1	0	Left Cheek	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.03	0.305	0.413
	LTE Band 2_Ant1	20M	QPSK	1	0	Left Tilted	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.15	0.277	0.375
	LTE Band 2_Ant1	20M	QPSK	50	24	Right Cheek	Ant 1	Full	18700	1860	21.68	23.00	1.355	0.16	0.273	0.370
	LTE Band 2_Ant1	20M	QPSK	50	24	Right Tilted	Ant 1	Full	18700	1860	21.68	23.00	1.355	0.17	0.180	0.244
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Cheek	Ant 1	Full	18700	1860	21.68	23.00	1.355	-0.01	0.225	0.305
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Tilted	Ant 1	Full	18700	1860	21.68	23.00	1.355	0.11	0.210	0.285
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Cheek	Ant 2	Reduced	18700	1860	14.80	16.00	1.318	0.03	0.768	1.012
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Tilted	Ant 2	Reduced	18700	1860	14.80	16.00	1.318	0.17	0.821	1.082
	LTE Band 2_Ant2	20M	QPSK	1	0	Left Cheek	Ant 2	Reduced	18700	1860	14.80	16.00	1.318	0.03	0.436	0.575
	LTE Band 2_Ant2	20M	QPSK	1	0	Left Tilted	Ant 2	Reduced	18700	1860	14.80	16.00	1.318	0.12	0.477	0.629
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Cheek	Ant 2	Reduced	18900	1880	14.76	16.00	1.330	0.12	0.777	1.034
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Cheek	Ant 2	Reduced	19100	1900	14.70	16.00	1.349	0.16	0.813	1.097
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Tilted	Ant 2	Reduced	18900	1880	14.76	16.00	1.330	-0.01	0.887	1.180
11	LTE Band 2_Ant2	20M	QPSK	1	0	Right Tilted	Ant 2	Reduced	19100	1900	14.70	16.00	1.349	0.01	1.010	1.362
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Cheek	Ant 2	Reduced	18700	1860	13.80	15.00	1.318	-0.03	0.634	0.836
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Tilted	Ant 2	Reduced	18700	1860	13.80	15.00	1.318	0.07	0.687	0.906
	LTE Band 2_Ant2	20M	QPSK	50	24	Left Cheek	Ant 2	Reduced	18700	1860	13.80	15.00	1.318	-0.07	0.336	0.443
	LTE Band 2_Ant2	20M	QPSK	50	24	Left Tilted	Ant 2	Reduced	18700	1860	13.80	15.00	1.318	0.13	0.400	0.527
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Cheek	Ant 2	Reduced	18900	1880	13.78	15.00	1.324	-0.06	0.641	0.849
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Cheek	Ant 2	Reduced	19100	1900	13.75	15.00	1.334	0.06	0.683	0.911
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Tilted	Ant 2	Reduced	18900	1880	13.78	15.00	1.324	0.05	0.736	0.975
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Tilted	Ant 2	Reduced	19100	1900	13.75	15.00	1.334	0.08	0.750	1.000
	LTE Band 2_Ant2	20M	QPSK	100	0	Right Cheek	Ant 2	Reduced	18700	1860	13.90	15.00	1.288	-0.04	0.627	0.808
	LTE Band 2_Ant2	20M	QPSK	100	0	Right Tilted	Ant 2	Reduced	18700	1860	13.90	15.00	1.288	0.08	0.696	0.897
	LTE Band 30_Ant1	10M	QPSK	1	0	Right Cheek	Ant 1	Full	27710	2310	22.51	24.00	1.409	0.13	0.198	0.279
	LTE Band 30_Ant1	10M	QPSK	1	0	Right Tilted	Ant 1	Full	27710	2310	22.51	24.00	1.409	-0.08	0.142	0.200
	LTE Band 30_Ant1	10M	QPSK	1	0	Left Cheek	Ant 1	Full	27710	2310	22.51	24.00	1.409	-0.17	0.312	0.440
	LTE Band 30_Ant1	10M	QPSK	1	0	Left Tilted	Ant 1	Full	27710	2310	22.51	24.00	1.409	-0.08	0.142	0.200
	LTE Band 30_Ant1	10M	QPSK	25	12	Right Cheek	Ant 1	Full	27710	2310	21.39	23.00	1.449	0.03	0.164	0.238
	LTE Band 30_Ant1	10M	QPSK	25	12	Right Tilted	Ant 1	Full	27710	2310	21.39	23.00	1.449	-0.08	0.114	0.165
	LTE Band 30_Ant1	10M	QPSK	25	12	Left Cheek	Ant 1	Full	27710	2310	21.39	23.00	1.449	-0.07	0.234	0.339
	LTE Band 30_Ant1	10M	QPSK	25	12	Left Tilted	Ant 1	Full	27710	2310	21.39	23.00	1.449	-0.09	0.118	0.171
	LTE Band 30_Ant2	10M	QPSK	1	0	Right Cheek	Ant 2	Reduced	27710	2310	18.91	20.50	1.442	-0.18	0.745	1.074
12	LTE Band 30_Ant2	10M	QPSK	1	0	Right Tilted	Ant 2	Reduced	27710	2310	18.91	20.50	1.442	-0.11	0.898	1.295
	LTE Band 30_Ant2	10M	QPSK	1	0	Left Cheek	Ant 2	Reduced	27710	2310	18.91	20.50	1.442	0.15	0.384	0.554
	LTE Band 30_Ant2	10M	QPSK	1	0	Left Tilted	Ant 2	Reduced	27710	2310	18.91	20.50	1.442	-0.1	0.486	0.701
	LTE Band 30_Ant2	10M	QPSK	25	12	Right Cheek	Ant 2	Reduced	27710	2310	17.97	19.50	1.422	0.12	0.599	0.852
	LTE Band 30_Ant2	10M	QPSK	25	12	Right Tilted	Ant 2	Reduced	27710	2310	17.97	19.50	1.422	-0.07	0.714	1.016
	LTE Band 30_Ant2	10M	QPSK	25	12	Left Cheek	Ant 2	Reduced	27710	2310	17.97	19.50	1.422	0.1	0.304	0.432
	LTE Band 30_Ant2	10M	QPSK	25	12	Left Tilted	Ant 2	Reduced	27710	2310	17.97	19.50	1.422	0.06	0.385	0.548
	LTE Band 30_Ant2	10M	QPSK	50	0	Right Cheek	Ant 2	Reduced	27710	2310	17.90	19.50	1.445	0.14	0.583	0.843
	LTE Band 30_Ant2	10M	QPSK	50	0	Right Tilted	Ant 2	Reduced	27710	2310	17.90	19.50	1.445	0.07	0.707	1.022



<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Right Cheek	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.07	0.040	0.082
	Bluetooth	DH5 1Mbps	Right Tilted	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.05	0.039	0.080
13	Bluetooth	DH5 1Mbps	Left Cheek	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	-0.14	0.070	0.144
	Bluetooth	DH5 1Mbps	Left Tilted	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.17	0.058	0.120

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Ant 3	Standalone	1	2412	17.20	19.20	1.585	99.31	1.007	-0.08	0.284	0.453
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Ant 3	Standalone	1	2412	17.20	19.20	1.585	99.31	1.007	0.17	0.256	0.409
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant 3	Standalone	1	2412	17.20	19.20	1.585	99.31	1.007	0.11	0.506	0.808
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant 3	Standalone	1	2412	17.20	19.20	1.585	99.31	1.007	-0.1	0.495	0.790
14	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant 3	Standalone	6	2437	17.10	19.10	1.585	99.31	1.007	-0.19	0.695	1.109
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Ant 3	Simultaneous	1	2412	11.30	13.30	1.585	99.31	1.007	0.12	0.066	0.105
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Ant 3	Simultaneous	1	2412	11.30	13.30	1.585	99.31	1.007	0.11	0.072	0.114
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant 3	Simultaneous	1	2412	11.30	13.30	1.585	99.31	1.007	-0.09	0.160	0.255
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant 3	Simultaneous	1	2412	11.30	13.30	1.585	99.31	1.007	0.15	0.145	0.231

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	Ant 4	Standalone	54	5270	15.80	17.80	1.585	93.31	1.072	0.03	0.223	0.379
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	Ant 4	Standalone	54	5270	15.80	17.80	1.585	93.31	1.072	0.12	0.222	0.377
15	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	Ant 4	Standalone	54	5270	15.80	17.80	1.585	93.31	1.072	-0.1	0.658	1.118
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	Ant 4	Standalone	54	5270	15.80	17.80	1.585	93.31	1.072	0.15	0.446	0.758
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 4	Simultaneous	58	5290	8.54	10.54	1.585	87.84	1.138	0.14	0.060	0.108
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 4	Simultaneous	58	5290	8.54	10.54	1.585	87.84	1.138	0.02	0.057	0.103
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 4	Simultaneous	58	5290	8.54	10.54	1.585	87.84	1.138	-0.09	0.138	0.249
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 4	Simultaneous	58	5290	8.54	10.54	1.585	87.84	1.138	-0.1	0.086	0.155
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Cheek	Ant 4	Standalone	110	5550	13.52	15.52	1.585	93.31	1.072	0.02	0.233	0.396
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Tilted	Ant 4	Standalone	110	5550	13.52	15.52	1.585	93.31	1.072	0.11	0.199	0.338
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Cheek	Ant 4	Standalone	110	5550	13.52	15.52	1.585	93.31	1.072	-0.06	0.636	1.081
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Tilted	Ant 4	Standalone	110	5550	13.52	15.52	1.585	93.31	1.072	-0.11	0.467	0.793
16	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 4	Standalone	134	5670	13.50	15.50	1.585	93.31	1.072	-0.1	0.669	1.137
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 4	Simultaneous	106	5530	7.28	9.28	1.585	87.84	1.138	0.03	0.070	0.126
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 4	Simultaneous	106	5530	7.28	9.28	1.585	87.84	1.138	0.03	0.072	0.130
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 4	Simultaneous	106	5530	7.28	9.28	1.585	87.84	1.138	0.04	0.146	0.263
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 4	Simultaneous	106	5530	7.28	9.28	1.585	87.84	1.138	0.07	0.121	0.218
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 4	Standalone	155	5775	13.60	15.60	1.585	87.84	1.138	-0.05	0.190	0.343
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 4	Standalone	155	5775	13.60	15.60	1.585	87.84	1.138	0.16	0.201	0.363
17	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 4	Standalone	155	5775	13.60	15.60	1.585	87.84	1.138	0.15	0.627	1.131
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 4	Standalone	155	5775	13.60	15.60	1.585	87.84	1.138	0.04	0.430	0.776
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 4	Simultaneous	155	5775	7.08	9.08	1.585	87.84	1.138	0.03	0.067	0.121
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 4	Simultaneous	155	5775	7.08	9.08	1.585	87.84	1.138	0.1	0.071	0.128
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 4	Simultaneous	155	5775	7.08	9.08	1.585	87.84	1.138	0.16	0.143	0.258
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 4	Simultaneous	155	5775	7.08	9.08	1.585	87.84	1.138	-0.04	0.137	0.247



15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_Ant1	GPRS (4 Tx slots)	Front	5mm	Ant 1	Reduced	128	824.2	24.47	25.50	1.268	0.02	0.586	0.743
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	128	824.2	24.47	25.50	1.268	0.07	0.928	1.176
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	189	836.4	24.37	25.50	1.297	0.04	0.981	1.273
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	251	848.8	24.38	25.50	1.294	0.14	1.010	1.307
	GSM850_Ant1	GPRS (4 Tx slots)	Left Side	5mm	Ant 1	Reduced	128	824.2	24.47	25.50	1.268	0.01	0.202	0.256
	GSM850_Ant1	GPRS (4 Tx slots)	Right Side	5mm	Ant 1	Reduced	128	824.2	24.47	25.50	1.268	-0.06	0.466	0.591
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	128	824.2	24.47	25.50	1.268	0.04	0.821	1.041
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	189	836.4	24.37	25.50	1.297	0.15	0.817	1.060
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	251	848.8	24.38	25.50	1.294	-0.08	0.858	1.110
	GSM850_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	Reduced	128	824.2	25.18	26.00	1.208	-0.09	0.494	0.597
	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	128	824.2	25.18	26.00	1.208	0.16	0.987	1.192
	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	189	836.4	25.14	26.00	1.219	-0.12	1.015	1.237
18	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	251	848.8	25.03	26.00	1.250	0.07	1.070	1.338
	GSM850_Ant2	GPRS (4 Tx slots)	Left Side	5mm	Ant 2	Reduced	128	824.2	25.18	26.00	1.208	0.1	0.168	0.203
	GSM850_Ant2	GPRS (4 Tx slots)	Right Side	5mm	Ant 2	Reduced	128	824.2	25.18	26.00	1.208	-0.02	0.128	0.155
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	128	824.2	25.18	26.00	1.208	0.15	0.703	0.849
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	189	836.4	25.14	26.00	1.219	-0.02	0.687	0.837
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	251	848.8	25.03	26.00	1.250	0.04	0.763	0.954
	GSM1900_Ant1	GPRS (4 Tx slots)	Front	5mm	Ant 1	Reduced	512	1850.2	19.57	21.00	1.390	0.07	0.522	0.726
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	512	1850.2	19.57	21.00	1.390	0.11	0.942	1.309
19	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	661	1880	19.49	21.00	1.416	0.12	0.981	1.389
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	810	1909.8	19.55	21.00	1.396	-0.1	0.954	1.332
	GSM1900_Ant1	GPRS (4 Tx slots)	Left Side	5mm	Ant 1	Reduced	512	1850.2	18.47	20.00	1.422	-0.12	0.242	0.344
	GSM1900_Ant1	GPRS (4 Tx slots)	Right Side	5mm	Ant 1	Reduced	512	1850.2	18.47	20.00	1.422	0.07	0.117	0.166
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	512	1850.2	18.47	20.00	1.422	0.09	0.797	1.134
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	661	1880	18.35	20.00	1.462	0.08	0.890	1.301
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	810	1909.8	18.43	20.00	1.435	0.06	0.937	1.345
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	Reduced	512	1850.2	18.47	19.50	1.268	0.15	0.631	0.800
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	Reduced	661	1880	18.43	19.50	1.279	-0.04	0.667	0.853
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	Reduced	810	1909.8	18.34	19.50	1.306	0.05	0.597	0.780
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	512	1850.2	18.47	19.50	1.268	0.13	0.955	1.211
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	661	1880	18.43	19.50	1.279	-0.03	1.040	1.331
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Reduced	810	1909.8	18.34	19.50	1.306	0.11	0.931	1.216
	GSM1900_Ant2	GPRS (4 Tx slots)	Left Side	5mm	Ant 2	Reduced	512	1850.2	16.29	17.50	1.321	-0.12	0.093	0.123
	GSM1900_Ant2	GPRS (4 Tx slots)	Right Side	5mm	Ant 2	Reduced	512	1850.2	16.29	17.50	1.321	-0.09	0.040	0.053
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	512	1850.2	16.29	17.50	1.321	0.13	0.892	1.179
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	661	1880	16.15	17.50	1.365	-0.03	0.935	1.276
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	5mm	Ant 2	Reduced	810	1909.8	16.19	17.50	1.352	-0.07	0.891	1.205



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	4233	846.6	20.39	21.50	1.291	-0.01	0.573	0.740
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4233	846.6	20.39	21.50	1.291	0.16	0.999	1.290
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	20.32	21.50	1.312	-0.02	1.050	1.378
20	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4182	836.4	20.37	21.50	1.297	0.13	1.080	1.401
	WCDMA V_Ant1	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	4233	846.6	20.39	21.50	1.291	-0.06	0.218	0.281
	WCDMA V_Ant1	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	4233	846.6	20.39	21.50	1.291	0.09	0.410	0.529
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4233	846.6	20.39	21.50	1.291	0.08	0.860	1.110
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4132	826.4	20.32	21.50	1.312	-0.12	0.848	1.113
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4182	836.4	20.37	21.50	1.297	-0.11	0.898	1.165
	WCDMA V_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	4233	846.6	21.45	22.50	1.274	0.14	0.604	0.769
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4233	846.6	21.45	22.50	1.274	-0.07	1.020	1.299
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4132	826.4	21.42	22.50	1.282	0.08	1.000	1.282
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4182	836.4	21.40	22.50	1.288	0.08	1.000	1.288
	WCDMA V_Ant2	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	4233	846.6	21.45	22.50	1.274	0.09	0.224	0.285
	WCDMA V_Ant2	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	4233	846.6	21.45	22.50	1.274	-0.07	0.164	0.209
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4233	846.6	21.45	22.50	1.274	0.08	0.839	1.068
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4132	826.4	21.42	22.50	1.282	0.06	0.858	1.100
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4182	836.4	21.40	22.50	1.288	0.03	0.836	1.077
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	1413	1732.6	17.86	19.00	1.300	0.12	0.446	0.580
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1413	1732.6	17.86	19.00	1.300	0.08	1.000	1.300
21	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1312	1712.4	17.72	19.00	1.343	0.16	1.040	1.396
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1513	1752.6	17.84	19.00	1.306	0.05	1.040	1.358
	WCDMA IV_Ant1	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	1413	1732.6	16.81	18.00	1.315	0.01	0.165	0.217
	WCDMA IV_Ant1	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	1413	1732.6	16.81	18.00	1.315	0.13	0.077	0.101
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1413	1732.6	16.81	18.00	1.315	-0.05	0.969	1.274
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1312	1712.4	16.69	18.00	1.352	0.17	1.020	1.379
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	16.78	18.00	1.324	-0.05	0.964	1.277
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	9262	1852.4	17.33	18.00	1.167	0.03	0.601	0.701
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9262	1852.4	17.33	18.00	1.167	-0.03	1.040	1.213
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9400	1880	17.27	18.00	1.183	-0.09	1.090	1.290
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9538	1907.6	17.30	18.00	1.175	0.1	0.999	1.174
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	9262	1852.4	17.33	18.00	1.167	0.15	0.336	0.392
	WCDMA II_Ant1	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	9262	1852.4	17.33	18.00	1.167	0.02	0.150	0.175
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9262	1852.4	17.33	18.00	1.167	0.12	1.180	1.377
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9400	1880	17.27	18.00	1.183	0.03	1.200	1.420
22	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9538	1907.6	17.30	18.00	1.175	0.03	1.210	1.422
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	9262	1852.4	16.35	17.50	1.303	0.17	0.703	0.916
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	9400	1880	16.30	17.50	1.318	0.09	0.743	0.979
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	9538	1907.6	16.20	17.50	1.349	-0.02	0.707	0.954
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9262	1852.4	16.35	17.50	1.303	0.17	0.961	1.252
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9400	1880	16.30	17.50	1.318	-0.04	1.030	1.358
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9538	1907.6	16.20	17.50	1.349	0.06	0.992	1.338
	WCDMA II_Ant2	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	9262	1852.4	14.26	15.50	1.330	0.15	0.094	0.125
	WCDMA II_Ant2	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	9262	1852.4	14.26	15.50	1.330	0.02	0.025	0.033
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9262	1852.4	14.26	15.50	1.330	0.1	0.856	1.139
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9400	1880	14.22	15.50	1.343	0.17	0.912	1.225
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9538	1907.6	14.11	15.50	1.377	0.04	0.883	1.216



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	LTE Band 12_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.17	0.517	0.735
	LTE Band 12_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.09	0.973	1.384
	LTE Band 12_Ant1	10M	QPSK	1	0	Left Side	5mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	-0.1	0.320	0.455
	LTE Band 12_Ant1	10M	QPSK	1	0	Right Side	5mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	-0.01	0.453	0.644
	LTE Band 12_Ant1	10M	QPSK	1	0	Bottom Side	5mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.02	0.718	1.021
	LTE Band 12_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.16	0.397	0.566
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.16	0.755	1.076
	LTE Band 12_Ant1	10M	QPSK	25	12	Left Side	5mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.08	0.263	0.375
	LTE Band 12_Ant1	10M	QPSK	25	12	Right Side	5mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.18	0.426	0.607
	LTE Band 12_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.14	0.507	0.723
24	LTE Band 12_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	Full	23095	707.5	21.44	23.00	1.432	0.17	0.768	1.100
	LTE Band 12_Ant1	10M	QPSK	50	0	Right Side	5mm	Ant 1	Full	23095	707.5	21.44	23.00	1.432	0.01	0.468	0.670
	LTE Band 12_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Full	23095	707.5	21.44	23.00	1.432	0.16	0.508	0.728
	LTE Band 12_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	Full	23095	707.5	21.98	23.00	1.265	0.15	0.296	0.374
	LTE Band 12_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	Full	23095	707.5	21.98	23.00	1.265	0.15	0.636	0.804
	LTE Band 12_Ant2	10M	QPSK	1	0	Left Side	5mm	Ant 2	Full	23095	707.5	21.98	23.00	1.265	0.07	0.259	0.328
	LTE Band 12_Ant2	10M	QPSK	1	0	Right Side	5mm	Ant 2	Full	23095	707.5	21.98	23.00	1.265	0.08	0.149	0.188
	LTE Band 12_Ant2	10M	QPSK	1	0	Top Side	5mm	Ant 2	Full	23095	707.5	21.98	23.00	1.265	-0.04	0.409	0.517
	LTE Band 12_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	Full	23095	707.5	20.97	22.00	1.268	-0.06	0.227	0.288
	LTE Band 12_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	Full	23095	707.5	20.97	22.00	1.268	0.08	0.498	0.631
25	LTE Band 12_Ant2	10M	QPSK	25	12	Left Side	5mm	Ant 2	Full	23095	707.5	20.97	22.00	1.268	-0.06	0.216	0.274
	LTE Band 12_Ant2	10M	QPSK	25	12	Right Side	5mm	Ant 2	Full	23095	707.5	20.97	22.00	1.268	-0.01	0.121	0.153
	LTE Band 12_Ant2	10M	QPSK	25	12	Top Side	5mm	Ant 2	Full	23095	707.5	20.97	22.00	1.268	0.02	0.340	0.431
	LTE Band 12_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	Full	23095	707.5	20.93	22.00	1.279	-0.07	0.491	0.628
	LTE Band 13_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	Reduced	23230	782	21.50	23.00	1.413	0.09	0.511	0.722
	LTE Band 13_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Reduced	23230	782	21.50	23.00	1.413	-0.02	0.989	1.397
	LTE Band 13_Ant1	10M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	23230	782	21.50	23.00	1.413	-0.03	0.204	0.288
	LTE Band 13_Ant1	10M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	23230	782	21.50	23.00	1.413	0.17	0.583	0.824
	LTE Band 13_Ant1	10M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	23230	782	21.50	23.00	1.413	-0.08	0.792	1.119
	LTE Band 13_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	Reduced	23230	782	20.69	22.00	1.352	0.02	0.419	0.567
26	LTE Band 13_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	Reduced	23230	782	20.69	22.00	1.352	-0.07	0.778	1.052
	LTE Band 13_Ant1	10M	QPSK	25	12	Left Side	5mm	Ant 1	Reduced	23230	782	20.69	22.00	1.352	0.16	0.179	0.242
	LTE Band 13_Ant1	10M	QPSK	25	12	Right Side	5mm	Ant 1	Reduced	23230	782	20.69	22.00	1.352	0.17	0.477	0.645
	LTE Band 13_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Reduced	23230	782	20.69	22.00	1.352	0.14	0.644	0.871
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	Reduced	23230	782	20.56	22.00	1.393	0.13	0.777	1.082
	LTE Band 13_Ant1	10M	QPSK	50	0	Right Side	5mm	Ant 1	Reduced	23230	782	20.56	22.00	1.393	0.05	0.465	0.648
	LTE Band 13_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Reduced	23230	782	20.56	22.00	1.393	0.16	0.641	0.893
	LTE Band 14_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	Reduced	23330	793	20.98	22.50	1.419	0.09	0.464	0.658
	LTE Band 14_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Reduced	23330	793	20.98	22.50	1.419	-0.02	0.940	1.334
	LTE Band 14_Ant1	10M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	23330	793	20.98	22.50	1.419	0.16	0.199	0.282
LTE Band 14_Ant1	10M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	23330	793	20.98	22.50	1.419	-0.04	0.418	0.593	
LTE Band 14_Ant1	10M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	23330	793	20.98	22.50	1.419	0.09	0.751	1.066	
LTE Band 14_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	Reduced	23330	793	20.16	21.50	1.361	0.1	0.378	0.515	
LTE Band 14_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	Reduced	23330	793	20.16	21.50	1.361	0.09	0.799	1.088	
LTE Band 14_Ant1	10M	QPSK	25	12	Left Side	5mm	Ant 1	Reduced	23330	793	20.16	21.50	1.361	0.16	0.170	0.231	
LTE Band 14_Ant1	10M	QPSK	25	12	Right Side	5mm	Ant 1	Reduced	23330	793	20.16	21.50	1.361	0.16	0.357	0.486	
LTE Band 14_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Reduced	23330	793	20.16	21.50	1.361	0.12	0.608	0.828	
LTE Band 14_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	Reduced	23330	793	20.09	21.50	1.384	0.14	0.799	1.105	
LTE Band 14_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Reduced	23330	793	20.09	21.50	1.384	0.16	0.592	0.819	
LTE Band 5_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	Reduced	20525	836.5	19.40	21.00	1.445	-0.03	0.488	0.705	
LTE Band 5_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Reduced	20525	836.5	19.40	21.00	1.445	0.16	0.915	1.323	
LTE Band 5_Ant1	10M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	20525	836.5	19.40	21.00	1.445	0.03	0.189	0.273	



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	LTE Band 5_Ant1	10M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	20525	836.5	19.40	21.00	1.445	-0.06	0.373	0.539
	LTE Band 5_Ant1	10M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	19.40	21.00	1.445	0.16	0.731	1.057
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	Reduced	20525	836.5	18.56	20.00	1.393	0.07	0.392	0.546
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	Reduced	20525	836.5	18.56	20.00	1.393	0.16	0.728	1.014
	LTE Band 5_Ant1	10M	QPSK	25	12	Left Side	5mm	Ant 1	Reduced	20525	836.5	18.56	20.00	1.393	-0.11	0.154	0.215
	LTE Band 5_Ant1	10M	QPSK	25	12	Right Side	5mm	Ant 1	Reduced	20525	836.5	18.56	20.00	1.393	0.11	0.299	0.417
	LTE Band 5_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	18.56	20.00	1.393	-0.09	0.593	0.826
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	Reduced	20525	836.5	18.49	20.00	1.416	-0.02	0.717	1.015
	LTE Band 5_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Reduced	20525	836.5	18.49	20.00	1.416	0.08	0.592	0.838
	LTE Band 5_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	Reduced	20525	836.5	20.65	22.00	1.365	0.16	0.517	0.705
	LTE Band 5_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	Reduced	20525	836.5	20.65	22.00	1.365	0.04	0.904	1.234
	LTE Band 5_Ant2	10M	QPSK	1	0	Left Side	5mm	Ant 2	Reduced	20525	836.5	20.65	22.00	1.365	-0.08	0.194	0.265
	LTE Band 5_Ant2	10M	QPSK	1	0	Right Side	5mm	Ant 2	Reduced	20525	836.5	20.65	22.00	1.365	-0.01	0.173	0.236
	LTE Band 5_Ant2	10M	QPSK	1	0	Top Side	5mm	Ant 2	Reduced	20525	836.5	20.65	22.00	1.365	0.15	0.746	1.018
	LTE Band 5_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	Reduced	20525	836.5	19.75	21.00	1.334	0.13	0.428	0.571
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	Reduced	20525	836.5	19.75	21.00	1.334	-0.12	0.756	1.008
	LTE Band 5_Ant2	10M	QPSK	25	12	Left Side	5mm	Ant 2	Reduced	20525	836.5	19.75	21.00	1.334	-0.04	0.161	0.215
	LTE Band 5_Ant2	10M	QPSK	25	12	Right Side	5mm	Ant 2	Reduced	20525	836.5	19.75	21.00	1.334	0.14	0.141	0.188
	LTE Band 5_Ant2	10M	QPSK	25	12	Top Side	5mm	Ant 2	Reduced	20525	836.5	19.75	21.00	1.334	0.02	0.597	0.796
	LTE Band 5_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	Reduced	20525	836.5	19.74	21.00	1.337	-0.03	0.755	1.009
	LTE Band 5_Ant2	10M	QPSK	50	0	Top Side	5mm	Ant 2	Reduced	20525	836.5	19.74	21.00	1.337	-0.05	0.595	0.795
	LTE Band 66_Ant1	20M	QPSK	1	0	Front	5mm	Ant 1	Reduced	132322	1745	17.37	19.00	1.455	-0.04	0.353	0.514
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	132322	1745	17.37	19.00	1.455	-0.1	0.810	1.179
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	132072	1720	17.22	19.00	1.507	-0.01	0.863	1.300
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	132572	1770	17.29	19.00	1.483	0.18	0.804	1.192
	LTE Band 66_Ant1	20M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	132322	1745	16.83	18.50	1.469	0.04	0.188	0.276
	LTE Band 66_Ant1	20M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	132322	1745	16.83	18.50	1.469	0.18	0.160	0.235
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	132322	1745	16.83	18.50	1.469	0.07	0.897	1.318
27	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	132072	1720	16.77	18.50	1.489	0.12	0.952	1.418
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	132572	1770	16.80	18.50	1.479	0.04	0.884	1.308
	LTE Band 66_Ant1	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	132322	1745	16.55	18.00	1.396	-0.05	0.303	0.423
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132322	1745	16.55	18.00	1.396	0.02	0.672	0.938
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132072	1720	16.50	18.00	1.413	-0.07	0.684	0.966
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132572	1770	16.47	18.00	1.422	0.16	0.678	0.964
	LTE Band 66_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	132322	1745	16.11	17.50	1.377	0.08	0.163	0.224
	LTE Band 66_Ant1	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	132322	1745	16.11	17.50	1.377	-0.12	0.138	0.190
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132322	1745	16.11	17.50	1.377	-0.01	0.747	1.029
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132072	1720	15.92	17.50	1.439	-0.09	0.804	1.157
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132572	1770	15.99	17.50	1.416	0.1	0.761	1.077
	LTE Band 66_Ant1	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	132322	1720	16.48	18.00	1.419	-0.08	0.672	0.954
	LTE Band 66_Ant1	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	132322	1745	16.05	17.50	1.396	0.03	0.751	1.049
	LTE Band 2_Ant1	20M	QPSK	1	0	Front	5mm	Ant 1	Reduced	18700	1860	17.34	18.50	1.306	0.14	0.568	0.742
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	18700	1860	17.34	18.50	1.306	0.05	0.979	1.279
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	18900	1880	17.28	18.50	1.324	0.1	0.995	1.318
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Reduced	19100	1900	17.25	18.50	1.334	0.11	1.000	1.334
	LTE Band 2_Ant1	20M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	18700	1860	16.70	18.00	1.349	-0.06	0.341	0.460
	LTE Band 2_Ant1	20M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	18700	1860	16.70	18.00	1.349	-0.02	0.137	0.185
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	18700	1860	16.70	18.00	1.349	-0.01	0.962	1.298
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	18900	1880	16.68	18.00	1.355	0.01	0.987	1.338
28	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	19100	1900	16.65	18.00	1.365	0.16	1.050	1.433
	LTE Band 2_Ant1	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	18700	1860	16.21	17.50	1.346	-0.09	0.446	0.600
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	18700	1860	16.21	17.50	1.346	0.04	0.744	1.001
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	18900	1880	16.18	17.50	1.355	0.08	0.751	1.018
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	19100	1900	16.14	17.50	1.368	0.07	0.875	1.197
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	18700	1860	15.98	17.00	1.265	0.09	0.294	0.372
	LTE Band 2_Ant1	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	18700	1860	15.98	17.00	1.265	0.12	0.112	0.142



	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	18700	1860	15.98	17.00	1.265	-0.01	0.797	1.008
	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	18900	1880	15.88	17.00	1.294	-0.1	0.835	1.081
	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	19100	1900	15.94	17.00	1.276	0.09	0.925	1.181
	LTE Band 2_Ant1	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	18700	1860	16.19	17.50	1.352	0.03	0.738	0.998
	LTE Band 2_Ant1	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	18700	1860	15.90	17.00	1.288	-0.06	0.794	1.023
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	Reduced	18700	1860	16.28	17.50	1.324	0.12	0.675	0.894
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	Reduced	18900	1880	16.25	17.50	1.334	-0.08	0.695	0.927
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	Reduced	19100	1900	16.17	17.50	1.358	0.01	0.680	0.924
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	Reduced	18700	1860	16.28	17.50	1.324	0.04	0.944	1.250
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	Reduced	18900	1880	16.25	17.50	1.334	-0.09	1.040	1.387
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	Reduced	19100	1900	16.17	17.50	1.358	0.17	1.000	1.358
	LTE Band 2_Ant2	20M	QPSK	1	0	Left Side	5mm	Ant 2	Reduced	18700	1860	14.30	15.50	1.318	0.16	0.086	0.113
	LTE Band 2_Ant2	20M	QPSK	1	0	Right Side	5mm	Ant 2	Reduced	18700	1860	14.30	15.50	1.318	-0.03	0.029	0.038
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	5mm	Ant 2	Reduced	18700	1860	14.30	15.50	1.318	0.03	0.897	1.182
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	5mm	Ant 2	Reduced	18900	1880	14.26	15.50	1.330	-0.11	0.912	1.213
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	5mm	Ant 2	Reduced	19100	1900	14.20	15.50	1.349	0.1	0.951	1.283
	LTE Band 2_Ant2	20M	QPSK	50	24	Front	5mm	Ant 2	Reduced	18700	1860	15.33	16.50	1.309	0.15	0.559	0.732
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	18700	1860	15.33	16.50	1.309	0.02	0.791	1.036
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	18900	1880	15.31	16.50	1.315	0.15	0.833	1.096
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	19100	1900	15.31	16.50	1.315	0.07	0.869	1.143
	LTE Band 2_Ant2	20M	QPSK	50	24	Left Side	5mm	Ant 2	Reduced	18700	1860	13.35	14.50	1.303	-0.11	0.078	0.102
	LTE Band 2_Ant2	20M	QPSK	50	24	Right Side	5mm	Ant 2	Reduced	18700	1860	13.35	14.50	1.303	0.03	0.022	0.029
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	18700	1860	13.35	14.50	1.303	0.14	0.792	1.032
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	18900	1880	13.32	14.50	1.312	0.1	0.826	1.084
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	19100	1900	13.30	14.50	1.318	-0.02	0.847	1.117
	LTE Band 2_Ant2	20M	QPSK	100	0	Front	5mm	Ant 2	Reduced	18700	1860	15.30	16.50	1.318	-0.06	0.550	0.725
	LTE Band 2_Ant2	20M	QPSK	100	0	Back	5mm	Ant 2	Reduced	18700	1860	15.30	16.50	1.318	0.03	0.776	1.023
	LTE Band 2_Ant2	20M	QPSK	100	0	Top Side	5mm	Ant 2	Reduced	18700	1860	13.40	14.50	1.288	0.02	0.785	1.011
	LTE Band 30_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	-0.12	0.940	1.343
	LTE Band 30_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	-0.09	0.943	1.347
	LTE Band 30_Ant1	10M	QPSK	1	0	Left Side	5mm	Ant 1	Reduced	27710	2310	18.53	20.00	1.403	-0.12	0.335	0.470
	LTE Band 30_Ant1	10M	QPSK	1	0	Right Side	5mm	Ant 1	Reduced	27710	2310	18.53	20.00	1.403	-0.05	0.128	0.180
29	LTE Band 30_Ant1	10M	QPSK	1	0	Bottom Side	5mm	Ant 1	Reduced	27710	2310	18.53	20.00	1.403	0.14	0.961	1.348
	LTE Band 30_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	Reduced	27710	2310	18.57	20.00	1.390	0.13	0.724	1.006
	LTE Band 30_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	Reduced	27710	2310	18.57	20.00	1.390	-0.08	0.727	1.010
	LTE Band 30_Ant1	10M	QPSK	25	12	Left Side	5mm	Ant 1	Reduced	27710	2310	17.56	19.00	1.393	0.11	0.257	0.358
	LTE Band 30_Ant1	10M	QPSK	25	12	Right Side	5mm	Ant 1	Reduced	27710	2310	17.56	19.00	1.393	0.01	0.097	0.135
	LTE Band 30_Ant1	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Reduced	27710	2310	17.56	19.00	1.393	0.17	0.757	1.055
	LTE Band 30_Ant1	10M	QPSK	50	0	Front	5mm	Ant 1	Reduced	27710	2310	18.50	20.00	1.413	0.08	0.719	1.016
	LTE Band 30_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	Reduced	27710	2310	18.50	20.00	1.413	-0.11	0.725	1.024
	LTE Band 30_Ant1	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Reduced	27710	2310	17.53	19.00	1.403	0.07	0.755	1.059
	LTE Band 30_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	Reduced	27710	2310	16.90	18.50	1.445	0.14	0.265	0.383
	LTE Band 30_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	Reduced	27710	2310	16.90	18.50	1.445	0.13	0.874	1.263
	LTE Band 30_Ant2	10M	QPSK	1	0	Left Side	5mm	Ant 2	Reduced	27710	2310	16.90	18.50	1.445	0.14	0.064	0.092
	LTE Band 30_Ant2	10M	QPSK	1	0	Right Side	5mm	Ant 2	Reduced	27710	2310	16.90	18.50	1.445	0.03	0.029	0.042
	LTE Band 30_Ant2	10M	QPSK	1	0	Top Side	5mm	Ant 2	Reduced	27710	2310	16.90	18.50	1.445	0.16	0.614	0.888
	LTE Band 30_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	Reduced	27710	2310	15.91	17.50	1.442	0.18	0.214	0.309
	LTE Band 30_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	Reduced	27710	2310	15.91	17.50	1.442	0.09	0.697	1.005
	LTE Band 30_Ant2	10M	QPSK	25	12	Left Side	5mm	Ant 2	Reduced	27710	2310	15.91	17.50	1.442	0.03	0.049	0.071
	LTE Band 30_Ant2	10M	QPSK	25	12	Right Side	5mm	Ant 2	Reduced	27710	2310	15.91	17.50	1.442	0.07	0.023	0.033
	LTE Band 30_Ant2	10M	QPSK	25	12	Top Side	5mm	Ant 2	Reduced	27710	2310	15.91	17.50	1.442	0.08	0.495	0.714
	LTE Band 30_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	Reduced	27710	2310	15.88	17.50	1.452	-0.1	0.704	1.022
	LTE Band 30_Ant2	10M	QPSK	50	0	Top Side	5mm	Ant 2	Reduced	27710	2310	15.88	17.50	1.452	-0.05	0.500	0.726



<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.16	0.039	0.080
30	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.17	0.077	0.159
	Bluetooth	DH5 1Mbps	Left Side	5mm	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.11	0.012	0.025
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	-0.04	0.029	0.060
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 3	Full	39	2441	9.40	11.40	1.585	76.59	1.306	-0.02	0.031	0.064

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	Reduced	1	2412	10.40	12.40	1.585	99.31	1.007	-0.02	0.062	0.099
31	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	1	2412	10.40	12.40	1.585	99.31	1.007	0.11	0.172	0.275
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 3	Reduced	1	2412	10.40	12.40	1.585	99.31	1.007	0.02	0.014	0.022
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 3	Reduced	1	2412	10.40	12.40	1.585	99.31	1.007	0.15	0.043	0.069
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 3	Reduced	1	2412	10.40	12.40	1.585	99.31	1.007	0.04	0.083	0.133

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	42	5210	12.32	14.32	1.585	87.84	1.138	0.03	0.202	0.364
32	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	42	5210	12.32	14.32	1.585	87.84	1.138	0.11	0.309	0.557
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	42	5210	12.32	14.32	1.585	87.84	1.138	0.05	0.031	0.056
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	42	5210	12.32	14.32	1.585	87.84	1.138	-0.07	0.103	0.186
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	42	5210	12.32	14.32	1.585	87.84	1.138	0.08	0.126	0.227
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	0.16	0.153	0.276
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	-0.11	0.222	0.400
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	-0.05	0.031	0.056
33	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	-0.09	0.268	0.483
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	155	5775	9.60	11.60	1.585	87.84	1.138	-0.1	0.184	0.332



15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_Ant1	GPRS (4 Tx slots)	Front	5mm	Ant 1	-	Reduced	128	824.2	24.47	25.50	1.268	0.02	0.586	0.743
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	128	824.2	24.47	25.50	1.268	0.07	0.928	1.176
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	189	836.4	24.37	25.50	1.297	0.04	0.981	1.273
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	251	848.8	24.38	25.50	1.294	0.14	1.010	1.307
	GSM850_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Headset	Reduced	251	848.8	24.38	25.50	1.294	0.15	0.998	1.292
	GSM850_Ant1	GPRS (4 Tx slots)	Front	20mm	Ant 1	-	Full	128	824.2	28.91	30.00	1.285	0.12	0.440	0.566
	GSM850_Ant1	GPRS (4 Tx slots)	Back	24mm	Ant 1	-	Full	251	848.8	28.73	30.00	1.340	0.04	0.401	0.537
	GSM850_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	-	Reduced	128	824.2	25.18	26.00	1.208	-0.09	0.494	0.597
	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	128	824.2	25.18	26.00	1.208	0.16	0.987	1.192
	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	189	836.4	25.14	26.00	1.219	-0.12	1.015	1.237
34	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	251	848.8	25.03	26.00	1.250	0.07	1.070	1.338
	GSM850_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Headset	Reduced	251	848.8	25.03	26.00	1.250	0.11	0.991	1.239
	GSM850_Ant2	GPRS (4 Tx slots)	Front	20mm	Ant 2	-	Full	128	824.2	28.01	29.00	1.256	0.03	0.153	0.192
	GSM850_Ant2	GPRS (4 Tx slots)	Back	24mm	Ant 2	-	Full	251	848.8	27.82	29.00	1.312	0.05	0.230	0.302
	GSM1900_Ant1	GPRS (4 Tx slots)	Front	5mm	Ant 1	-	Reduced	512	1850.2	19.57	21.00	1.390	0.07	0.522	0.726
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	512	1850.2	19.57	21.00	1.390	0.11	0.942	1.309
35	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	661	1880	19.49	21.00	1.416	0.12	0.981	1.389
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	810	1909.8	19.55	21.00	1.396	-0.1	0.954	1.332
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	5mm	Ant 1	Headset	Reduced	661	1880	19.49	21.00	1.416	-0.04	0.968	1.370
	GSM1900_Ant1	GPRS (4 Tx slots)	Front	20mm	Ant 1	-	Full	512	1850.2	26.10	27.50	1.380	0.03	0.512	0.707
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	24mm	Ant 1	-	Full	661	1880	26.05	27.50	1.396	0.11	0.490	0.684
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	-	Reduced	512	1850.2	18.47	19.50	1.268	0.15	0.631	0.800
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	-	Reduced	661	1880	18.43	19.50	1.279	-0.04	0.667	0.853
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	5mm	Ant 2	-	Reduced	810	1909.8	18.34	19.50	1.306	0.05	0.597	0.780
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	512	1850.2	18.47	19.50	1.268	0.13	0.955	1.211
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	661	1880	18.43	19.50	1.279	-0.03	1.040	1.331
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	-	Reduced	810	1909.8	18.34	19.50	1.306	0.11	0.931	1.216
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	5mm	Ant 2	Headset	Reduced	661	1880	18.43	19.50	1.279	-0.02	1.010	1.292
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	20mm	Ant 2	-	Full	661	1880	24.15	25.50	1.365	0.05	0.272	0.371
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	24mm	Ant 2	-	Full	661	1880	24.15	25.50	1.365	-0.06	0.264	0.360



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	4233	846.6	20.39	21.50	1.291	-0.01	0.573	0.740
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4233	846.6	20.39	21.50	1.291	0.16	0.999	1.290
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4132	826.4	20.32	21.50	1.312	-0.02	1.050	1.378
36	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4182	836.4	20.37	21.50	1.297	0.13	1.080	1.401
	WCDMA V_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	4182	836.4	20.37	21.50	1.297	0.18	1.010	1.310
	WCDMA V_Ant1	RMC 12.2Kbps	Front	20mm	Ant 1	-	Full	4233	846.6	22.93	24.00	1.279	-0.07	0.355	0.454
	WCDMA V_Ant1	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	4182	836.4	22.92	24.00	1.282	0.08	0.372	0.477
	WCDMA V_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	4233	846.6	21.45	22.50	1.274	0.14	0.604	0.769
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4233	846.6	21.45	22.50	1.274	-0.07	1.020	1.299
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4132	826.4	21.42	22.50	1.282	0.08	1.000	1.282
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4182	836.4	21.40	22.50	1.288	0.08	1.000	1.288
	WCDMA V_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Headset	Reduced	4233	846.6	21.45	22.50	1.274	0.09	1.010	1.286
	WCDMA V_Ant2	RMC 12.2Kbps	Front	20mm	Ant 2	-	Full	4233	846.6	22.14	23.00	1.219	0.05	0.134	0.163
	WCDMA V_Ant2	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full	4233	846.6	22.14	23.00	1.219	0.11	0.131	0.160
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	1413	1732.6	17.86	19.00	1.300	0.12	0.446	0.580
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1413	1732.6	17.86	19.00	1.300	0.08	1.000	1.300
37	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1312	1712.4	17.72	19.00	1.343	0.16	1.040	1.396
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1513	1752.6	17.84	19.00	1.306	0.05	1.040	1.358
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	1312	1712.4	17.72	19.00	1.343	-0.02	1.030	1.383
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	20mm	Ant 1	-	Full	1413	1732.6	22.90	24.00	1.288	-0.06	0.241	0.310
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	1312	1712.4	22.74	24.00	1.337	0.15	0.526	0.703
	WCDMA II_Ant1	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	9262	1852.4	17.33	18.00	1.167	0.03	0.601	0.701
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9262	1852.4	17.33	18.00	1.167	-0.03	1.040	1.213
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9400	1880	17.27	18.00	1.183	-0.09	1.090	1.290
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9538	1907.6	17.30	18.00	1.175	0.1	0.999	1.174
	WCDMA II_Ant1	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	9400	1880	17.27	18.00	1.183	0.17	1.080	1.278
	WCDMA II_Ant1	RMC 12.2Kbps	Front	20mm	Ant 1	-	Full	9262	1852.4	23.23	24.00	1.194	-0.1	0.364	0.435
	WCDMA II_Ant1	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	9400	1880	23.22	24.00	1.197	0.18	0.397	0.475
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	9262	1852.4	16.35	17.50	1.303	0.17	0.703	0.916
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	9400	1880	16.30	17.50	1.318	0.09	0.743	0.979
	WCDMA II_Ant2	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	9538	1907.6	16.20	17.50	1.349	-0.02	0.707	0.954
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9262	1852.4	16.35	17.50	1.303	0.17	0.961	1.252
38	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9400	1880	16.30	17.50	1.318	-0.04	1.030	1.358
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9538	1907.6	16.20	17.50	1.349	0.06	0.992	1.338
	WCDMA II_Ant2	RMC 12.2Kbps	Back	5mm	Ant 2	Headset	Reduced	9400	1880	16.30	17.50	1.318	-0.04	1.000	1.318
	WCDMA II_Ant2	RMC 12.2Kbps	Front	20mm	Ant 2	-	Full	9400	1880	21.65	23.00	1.365	0.06	0.307	0.419
	WCDMA II_Ant2	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full	9400	1880	21.65	23.00	1.365	-0.08	0.309	0.422



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	-	Full	23095	707.5	22.47	24.00	1.422	0.17	0.517	0.735
39	LTE Band 12_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	-	Full	23095	707.5	22.47	24.00	1.422	0.09	0.973	1.384
	LTE Band 12_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Headset	Full	23095	707.5	22.47	24.00	1.422	-0.07	0.942	1.340
	LTE Band 12_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	-	Full	23095	707.5	21.46	23.00	1.426	0.16	0.397	0.566
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	-	Full	23095	707.5	21.46	23.00	1.426	0.16	0.755	1.076
	LTE Band 12_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	-	Full	23095	707.5	21.44	23.00	1.432	0.17	0.768	1.100
	LTE Band 12_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	-	Full	23095	707.5	21.98	23.00	1.265	0.15	0.296	0.374
	LTE Band 12_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	-	Full	23095	707.5	21.98	23.00	1.265	0.15	0.636	0.804
	LTE Band 12_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	-	Full	23095	707.5	20.97	22.00	1.268	-0.06	0.227	0.288
	LTE Band 12_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	-	Full	23095	707.5	20.97	22.00	1.268	0.08	0.498	0.631
	LTE Band 12_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	-	Full	23095	707.5	20.93	22.00	1.279	-0.07	0.491	0.628
	LTE Band 13_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	23230	782	21.50	23.00	1.413	0.09	0.511	0.722
40	LTE Band 13_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	23230	782	21.50	23.00	1.413	-0.02	0.989	1.397
	LTE Band 13_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	23230	782	21.50	23.00	1.413	0.02	0.960	1.356
	LTE Band 13_Ant1	10M	QPSK	1	0	Front	20mm	Ant 1	-	Full	23230	782	22.41	24.00	1.442	0.12	0.287	0.414
	LTE Band 13_Ant1	10M	QPSK	1	0	Back	24mm	Ant 1	-	Full	23230	782	22.41	24.00	1.442	0.06	0.275	0.397
	LTE Band 13_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	-	Reduced	23230	782	20.69	22.00	1.352	0.02	0.419	0.567
	LTE Band 13_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	-	Reduced	23230	782	20.69	22.00	1.352	-0.07	0.778	1.052
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	-	Reduced	23230	782	20.56	22.00	1.393	0.13	0.777	1.082
	LTE Band 14_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	23330	793	20.98	22.50	1.419	0.09	0.464	0.658
41	LTE Band 14_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	23330	793	20.98	22.50	1.419	-0.02	0.940	1.334
	LTE Band 14_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	23330	793	20.98	22.50	1.419	-0.01	0.886	1.257
	LTE Band 14_Ant1	10M	QPSK	1	0	Front	20mm	Ant 1	-	Full	23330	793	22.46	24.00	1.426	0.03	0.314	0.448
	LTE Band 14_Ant1	10M	QPSK	1	0	Back	24mm	Ant 1	-	Full	23330	793	22.46	24.00	1.426	0.11	0.308	0.439
	LTE Band 14_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	-	Reduced	23330	793	20.16	21.50	1.361	0.1	0.378	0.515
	LTE Band 14_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	-	Reduced	23330	793	20.16	21.50	1.361	0.09	0.799	1.088
	LTE Band 14_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	-	Reduced	23330	793	20.09	21.50	1.384	0.14	0.799	1.105
	LTE Band 5_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	20525	836.5	19.40	21.00	1.445	-0.03	0.488	0.705
42	LTE Band 5_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	20525	836.5	19.40	21.00	1.445	0.16	0.915	1.323
	LTE Band 5_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	20525	836.5	19.40	21.00	1.445	0.08	0.897	1.297
	LTE Band 5_Ant1	10M	QPSK	1	0	Front	20mm	Ant 1	-	Full	20525	836.5	22.37	24.00	1.455	0.06	0.320	0.466
	LTE Band 5_Ant1	10M	QPSK	1	0	Back	24mm	Ant 1	-	Full	20525	836.5	22.37	24.00	1.455	0.11	0.295	0.429
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	-	Reduced	20525	836.5	18.56	20.00	1.393	0.07	0.392	0.546
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	-	Reduced	20525	836.5	18.56	20.00	1.393	0.16	0.728	1.014
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	-	Reduced	20525	836.5	18.49	20.00	1.416	-0.02	0.717	1.015
	LTE Band 5_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	-	Reduced	20525	836.5	20.65	22.00	1.365	0.16	0.517	0.705
	LTE Band 5_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	20525	836.5	20.65	22.00	1.365	0.04	0.904	1.234
	LTE Band 5_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	Headset	Reduced	20525	836.5	20.65	22.00	1.365	0.14	0.949	1.295
	LTE Band 5_Ant2	10M	QPSK	1	0	Front	20mm	Ant 2	-	Full	20525	836.5	21.59	23.00	1.384	0.07	0.194	0.268
	LTE Band 5_Ant2	10M	QPSK	1	0	Back	24mm	Ant 2	-	Full	20525	836.5	21.59	23.00	1.384	0.17	0.237	0.328
	LTE Band 5_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	-	Reduced	20525	836.5	19.75	21.00	1.334	0.13	0.428	0.571
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	-	Reduced	20525	836.5	19.75	21.00	1.334	-0.12	0.756	1.008
	LTE Band 5_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	-	Reduced	20525	836.5	19.74	21.00	1.337	-0.03	0.755	1.009
	LTE Band 66_Ant1	20M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	132322	1745	17.37	19.00	1.455	-0.04	0.353	0.514
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	132322	1745	17.37	19.00	1.455	-0.1	0.810	1.179
43	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	132072	1720	17.22	19.00	1.507	-0.01	0.863	1.300
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	132572	1770	17.29	19.00	1.483	0.18	0.804	1.192
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	132072	1720	17.22	19.00	1.507	0.04	0.833	1.255
	LTE Band 66_Ant1	20M	QPSK	1	0	Front	20mm	Ant 1	-	Full	132322	1745	22.41	24.00	1.442	-0.12	0.210	0.303
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	24mm	Ant 1	-	Full	132072	1720	22.18	24.00	1.521	-0.04	0.258	0.392
	LTE Band 66_Ant1	20M	QPSK	50	24	Front	5mm	Ant 1	-	Reduced	132322	1745	16.55	18.00	1.396	-0.05	0.303	0.423
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132322	1745	16.55	18.00	1.396	0.02	0.672	0.938



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	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132072	1720	16.50	18.00	1.413	-0.07	0.684	0.966
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132572	1770	16.47	18.00	1.422	0.16	0.678	0.964
	LTE Band 66_Ant1	20M	QPSK	100	0	Back	5mm	Ant 1	-	Reduced	132322	1720	16.48	18.00	1.419	-0.08	0.672	0.954
	LTE Band 2_Ant1	20M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	18700	1860	17.34	18.50	1.306	0.14	0.568	0.742
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	18700	1860	17.34	18.50	1.306	0.05	0.979	1.279
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	18900	1880	17.28	18.50	1.324	0.1	0.995	1.318
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	19100	1900	17.25	18.50	1.334	0.11	1.000	1.334
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	19100	1900	17.25	18.50	1.334	0.1	0.960	1.280
	LTE Band 2_Ant1	20M	QPSK	1	0	Front	20mm	Ant 1	-	Full	18700	1860	22.68	24.00	1.355	0.12	0.381	0.516
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	24mm	Ant 1	-	Full	19100	1900	22.66	24.00	1.361	-0.01	0.399	0.543
	LTE Band 2_Ant1	20M	QPSK	50	24	Front	5mm	Ant 1	-	Reduced	18700	1860	16.21	17.50	1.346	-0.09	0.446	0.600
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	18700	1860	16.21	17.50	1.346	0.04	0.744	1.001
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	18900	1880	16.18	17.50	1.355	0.08	0.751	1.018
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	19100	1900	16.14	17.50	1.368	0.07	0.875	1.197
	LTE Band 2_Ant1	20M	QPSK	100	0	Back	5mm	Ant 1	-	Reduced	18700	1860	16.19	17.50	1.352	0.03	0.738	0.998
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	-	Reduced	18700	1860	16.28	17.50	1.324	0.12	0.675	0.894
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	-	Reduced	18900	1880	16.25	17.50	1.334	-0.08	0.695	0.927
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	5mm	Ant 2	-	Reduced	19100	1900	16.17	17.50	1.358	0.01	0.680	0.924
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	18700	1860	16.28	17.50	1.324	0.04	0.944	1.250
44	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	18900	1880	16.25	17.50	1.334	-0.09	1.040	1.387
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	19100	1900	16.17	17.50	1.358	0.17	1.000	1.358
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	5mm	Ant 2	Headset	Reduced	18900	1880	16.25	17.50	1.334	0.12	1.010	1.347
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	20mm	Ant 2	-	Full	18900	1880	21.16	22.50	1.361	-0.09	0.168	0.229
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	24mm	Ant 2	-	Full	18900	1880	21.16	22.50	1.361	0.03	0.296	0.403
	LTE Band 2_Ant2	20M	QPSK	50	24	Front	5mm	Ant 2	-	Reduced	18700	1860	15.33	16.50	1.309	0.15	0.559	0.732
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	18700	1860	15.33	16.50	1.309	0.02	0.791	1.036
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	18900	1880	15.31	16.50	1.315	0.15	0.833	1.096
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	19100	1900	15.31	16.50	1.315	0.07	0.869	1.143
	LTE Band 2_Ant2	20M	QPSK	100	0	Front	5mm	Ant 2	-	Reduced	18700	1860	15.30	16.50	1.318	-0.06	0.550	0.725
	LTE Band 2_Ant2	20M	QPSK	100	0	Back	5mm	Ant 2	-	Reduced	18700	1860	15.30	16.50	1.318	0.03	0.776	1.023
	LTE Band 30_Ant1	10M	QPSK	1	0	Front	5mm	Ant 1	-	Reduced	27710	2310	19.45	21.00	1.429	-0.12	0.940	1.343
	LTE Band 30_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	-	Reduced	27710	2310	19.45	21.00	1.429	-0.09	0.943	1.347
	LTE Band 30_Ant1	10M	QPSK	1	0	Back	5mm	Ant 1	Headset	Reduced	27710	2310	19.45	21.00	1.429	-0.12	0.938	1.340
	LTE Band 30_Ant1	10M	QPSK	1	0	Front	20mm	Ant 1	-	Full	27710	2310	22.51	24.00	1.409	-0.1	0.254	0.358
	LTE Band 30_Ant1	10M	QPSK	1	0	Back	24mm	Ant 1	-	Full	27710	2310	22.51	24.00	1.409	-0.05	0.198	0.279
	LTE Band 30_Ant1	10M	QPSK	25	12	Front	5mm	Ant 1	-	Reduced	27710	2310	18.57	20.00	1.390	0.13	0.724	1.006
	LTE Band 30_Ant1	10M	QPSK	25	12	Back	5mm	Ant 1	-	Reduced	27710	2310	18.57	20.00	1.390	-0.08	0.727	1.010
	LTE Band 30_Ant1	10M	QPSK	50	0	Front	5mm	Ant 1	-	Reduced	27710	2310	18.50	20.00	1.413	0.08	0.719	1.016
	LTE Band 30_Ant1	10M	QPSK	50	0	Back	5mm	Ant 1	-	Reduced	27710	2310	18.50	20.00	1.413	-0.11	0.725	1.024
	LTE Band 30_Ant2	10M	QPSK	1	0	Front	5mm	Ant 2	-	Reduced	27710	2310	16.90	18.50	1.445	0.14	0.265	0.383
	LTE Band 30_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	27710	2310	16.90	18.50	1.445	0.13	0.874	1.263
45	LTE Band 30_Ant2	10M	QPSK	1	0	Back	5mm	Ant 2	Headset	Reduced	27710	2310	16.90	18.50	1.445	0.16	0.962	1.391
	LTE Band 30_Ant2	10M	QPSK	1	0	Front	20mm	Ant 2	-	Full	27710	2310	21.38	23.00	1.452	0.06	0.101	0.147
	LTE Band 30_Ant2	10M	QPSK	1	0	Back	24mm	Ant 2	-	Full	27710	2310	21.38	23.00	1.452	-0.1	0.161	0.234
	LTE Band 30_Ant2	10M	QPSK	25	12	Front	5mm	Ant 2	-	Reduced	27710	2310	15.91	17.50	1.442	0.18	0.214	0.309
	LTE Band 30_Ant2	10M	QPSK	25	12	Back	5mm	Ant 2	-	Reduced	27710	2310	15.91	17.50	1.442	0.09	0.697	1.005
	LTE Band 30_Ant2	10M	QPSK	50	0	Back	5mm	Ant 2	-	Reduced	27710	2310	15.88	17.50	1.452	-0.1	0.704	1.022



<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	-	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.16	0.039	0.080
46	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	-	Full	39	2441	9.40	11.40	1.585	76.59	1.306	0.17	0.077	0.159

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Reduced	1	2412	15.80	17.80	1.585	99.31	1.007	0.14	0.230	0.367
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	1	2412	15.80	17.80	1.585	99.31	1.007	0.1	0.604	0.964
47	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Reduced	6	2437	15.70	17.70	1.585	99.31	1.007	-0.12	0.674	1.076
	WLAN2.4GHz	802.11b 1Mbps	Front	20mm	Ant 3	-	Full	1	2412	19.30	21.30	1.585	99.31	1.007	-0.08	0.071	0.113
	WLAN2.4GHz	802.11b 1Mbps	Back	24mm	Ant 3	-	Full	6	2437	19.20	21.20	1.585	99.31	1.007	-0.05	0.077	0.123
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Simultaneous	1	2412	10.40	12.40	1.585	99.31	1.007	-0.02	0.062	0.099
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Simultaneous	1	2412	10.40	12.40	1.585	99.31	1.007	0.11	0.172	0.275

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5mm	Ant 4	-	Reduced	54	5270	16.85	18.85	1.585	93.31	1.072	0.03	0.399	0.678
48	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 4	-	Reduced	54	5270	16.85	18.85	1.585	93.31	1.072	-0.06	0.670	1.138
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 4	-	Reduced	62	5310	13.95	15.95	1.585	93.31	1.072	0.03	0.393	0.668
	WLAN5.3GHz	802.11n-HT20 MCS0	Front	20mm	Ant 4	-	Full	52	5260	17.86	19.86	1.585	96.98	1.031	-0.08	0.122	0.199
	WLAN5.3GHz	802.11n-HT20 MCS0	Back	24mm	Ant 4	-	Full	52	5260	17.86	19.86	1.585	96.98	1.031	0.05	0.180	0.294
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	58	5290	12.45	14.45	1.585	87.84	1.138	0.18	0.188	0.339
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	58	5290	12.45	14.45	1.585	87.84	1.138	-0.06	0.304	0.548
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Reduced	106	5530	12.40	14.40	1.585	87.84	1.138	0.02	0.301	0.543
49	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Reduced	106	5530	12.40	14.40	1.585	87.84	1.138	-0.05	0.634	1.143
	WLAN5.5GHz	802.11a 6Mbps	Front	20mm	Ant 4	-	Full	116	5580	17.98	19.98	1.585	96.77	1.033	-0.01	0.249	0.408
	WLAN5.5GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full	116	5580	17.98	19.98	1.585	96.77	1.033	0.14	0.321	0.526
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	106	5530	10.78	12.78	1.585	87.84	1.138	-0.07	0.183	0.330
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	106	5530	10.78	12.78	1.585	87.84	1.138	-0.02	0.289	0.521
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Reduced	155	5775	13.60	15.60	1.585	87.84	1.138	0.17	0.331	0.597
50	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Reduced	155	5775	13.60	15.60	1.585	87.84	1.138	0.13	0.561	1.012
	WLAN5.8GHz	802.11a 6Mbps	Front	20mm	Ant 4	-	Full	165	5825	17.74	19.74	1.585	96.77	1.033	0.07	0.224	0.367
	WLAN5.8GHz	802.11a 6Mbps	Back	24mm	Ant 4	-	Full	165	5825	17.74	19.74	1.585	96.77	1.033	0.06	0.266	0.435
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	-	Simultaneous	155	5775	9.60	11.60	1.585	87.84	1.138	0.16	0.153	0.276
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	-	Simultaneous	155	5775	9.60	11.60	1.585	87.84	1.138	-0.11	0.222	0.400



15.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM850_Ant1	GPRS (4 Tx slots)	Front	0mm	Ant 1	Reduced	128	824.2	28.39	29.50	1.291	0.04	1.710	2.208
	GSM850_Ant1	GPRS (4 Tx slots)	Front	0mm	Ant 1	Reduced	189	836.4	28.33	29.50	1.309	0.02	1.580	2.069
	GSM850_Ant1	GPRS (4 Tx slots)	Front	0mm	Ant 1	Reduced	251	848.8	28.24	29.50	1.337	0.02	1.560	2.085
	GSM850_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	128	824.2	28.39	29.50	1.291	0.08	2.000	2.582
	GSM850_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	189	836.4	28.33	29.50	1.309	-0.09	1.980	2.592
	GSM850_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	251	848.8	28.24	29.50	1.337	0.08	2.330	3.114
	GSM850_Ant1	GPRS (4 Tx slots)	Right Side	0mm	Ant 1	Reduced	128	824.2	28.39	29.50	1.291	0.04	0.848	1.095
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	128	824.2	28.39	29.50	1.291	-0.09	2.050	2.647
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	189	836.4	28.33	29.50	1.309	0.11	2.200	2.880
51	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	251	848.8	28.24	29.50	1.337	-0.1	2.500	3.341
	GSM850_Ant1	GPRS (4 Tx slots)	Front	8mm	Ant 1	Full	128	824.2	28.91	30.00	1.285	0.15	0.419	0.539
	GSM850_Ant1	GPRS (4 Tx slots)	Back	13mm	Ant 1	Full	251	848.8	28.73	30.00	1.340	0.01	0.461	0.618
	GSM850_Ant1	GPRS (4 Tx slots)	Right Side	2mm	Ant 1	Full	128	824.2	28.91	30.00	1.285	0.12	0.845	1.086
	GSM850_Ant1	GPRS (4 Tx slots)	Bottom Side	12mm	Ant 1	Full	251	848.8	28.73	30.00	1.340	0.07	0.369	0.494
	GSM850_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	128	824.2	26.67	27.50	1.211	0.18	2.520	3.051
	GSM850_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	189	836.4	26.55	27.50	1.245	-0.1	2.410	2.999
	GSM850_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	251	848.8	26.48	27.50	1.265	0.05	2.420	3.061
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	128	824.2	26.67	27.50	1.211	0.03	1.800	2.179
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	189	836.4	26.55	27.50	1.245	0.05	1.720	2.141
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	251	848.8	26.48	27.50	1.265	0.11	1.630	2.062
	GSM850_Ant2	GPRS (4 Tx slots)	Back	14mm	Ant 2	Full	128	824.2	28.01	29.00	1.256	-0.06	0.329	0.413
	GSM850_Ant2	GPRS (4 Tx slots)	Top Side	14mm	Ant 2	Full	128	824.2	28.01	29.00	1.256	0.03	0.148	0.186
	GSM1900_Ant1	GPRS (4 Tx slots)	Front	0mm	Ant 1	Reduced	512	1850.2	21.52	23.00	1.406	0.13	1.420	1.997
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	512	1850.2	21.52	23.00	1.406	0.12	2.060	2.896
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	661	1880	21.43	23.00	1.435	-0.03	2.170	3.115
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	0mm	Ant 1	Reduced	810	1909.8	21.49	23.00	1.416	0.15	2.320	3.285
	GSM1900_Ant1	GPRS (4 Tx slots)	Left Side	0mm	Ant 1	Full	512	1850.2	26.10	27.50	1.380	0.17	2.460	3.396
52	GSM1900_Ant1	GPRS (4 Tx slots)	Left Side	0mm	Ant 1	Full	661	1880	26.05	27.50	1.396	0.03	2.550	3.561
	GSM1900_Ant1	GPRS (4 Tx slots)	Left Side	0mm	Ant 1	Full	810	1909.8	26.09	27.50	1.384	0.12	2.440	3.376
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	512	1850.2	21.52	23.00	1.406	0.08	1.620	2.278
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	661	1880	21.43	23.00	1.435	0.03	1.860	2.670
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	810	1909.8	21.49	23.00	1.416	0.06	1.970	2.789
	GSM1900_Ant1	GPRS (4 Tx slots)	Front	8mm	Ant 1	Full	512	1850.2	26.10	27.50	1.380	0.11	0.924	1.275
	GSM1900_Ant1	GPRS (4 Tx slots)	Back	13mm	Ant 1	Full	810	1909.8	26.09	27.50	1.384	-0.02	0.591	0.818
	GSM1900_Ant1	GPRS (4 Tx slots)	Bottom Side	12mm	Ant 1	Full	810	1909.8	26.09	27.50	1.384	-0.12	1.060	1.467
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	0mm	Ant 2	Reduced	512	1850.2	20.33	21.50	1.309	0.17	1.430	1.872
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	512	1850.2	20.33	21.50	1.309	0.07	1.850	2.422
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	661	1880	20.20	21.50	1.349	-0.06	1.860	2.509
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	810	1909.8	20.21	21.50	1.346	0.09	1.800	2.423
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	512	1850.2	20.33	21.50	1.309	0.12	2.360	3.090
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	661	1880	20.20	21.50	1.349	0.07	2.460	3.318
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	0mm	Ant 2	Reduced	810	1909.8	20.21	21.50	1.346	0.12	2.390	3.217
	GSM1900_Ant2	GPRS (4 Tx slots)	Front	7mm	Ant 2	Full	512	1850.2	24.26	25.50	1.330	0.13	0.775	1.031
	GSM1900_Ant2	GPRS (4 Tx slots)	Back	14mm	Ant 2	Full	661	1880	24.15	25.50	1.365	-0.03	0.410	0.559
	GSM1900_Ant2	GPRS (4 Tx slots)	Top Side	14mm	Ant 2	Full	661	1880	24.15	25.50	1.365	-0.07	0.563	0.768



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA V_Ant1	RMC 12.2Kbps	Front	0mm	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.13	1.340	1.714
	WCDMA V_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.1	1.520	1.945
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full	4233	846.6	22.93	24.00	1.279	0.01	1.670	2.137
53	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full	4132	826.4	22.88	24.00	1.294	-0.04	1.900	2.459
	WCDMA V_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Full	4182	836.4	22.92	24.00	1.282	0.08	1.820	2.334
	WCDMA V_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Full	4233	846.6	22.14	23.00	1.219	0.03	1.760	2.145
	WCDMA V_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Full	4132	826.4	22.09	23.00	1.233	-0.04	1.680	2.072
	WCDMA V_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Full	4182	836.4	22.12	23.00	1.225	0.1	1.590	1.947
	WCDMA V_Ant2	RMC 12.2Kbps	Top Side	0mm	Ant 2	Full	4233	846.6	22.14	23.00	1.219	0.11	1.100	1.341
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	1413	1732.6	20.34	21.50	1.306	-0.03	1.670	2.181
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	1312	1712.4	20.26	21.50	1.330	0.15	1.550	2.062
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	1513	1752.6	20.31	21.50	1.315	-0.06	1.700	2.236
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1413	1732.6	20.34	21.50	1.306	-0.05	2.520	3.292
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1312	1712.4	20.26	21.50	1.330	0.05	2.430	3.233
54	WCDMA IV_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	20.31	21.50	1.315	0.01	2.650	3.485
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1413	1732.6	20.34	21.50	1.306	0.09	2.360	3.083
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1312	1712.4	20.26	21.50	1.330	0.02	2.520	3.353
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1513	1752.6	20.31	21.50	1.315	0.04	2.460	3.235
	WCDMA IV_Ant1	RMC 12.2Kbps	Front	8mm	Ant 1	Full	1513	1752.6	22.88	24.00	1.294	-0.15	0.456	0.590
	WCDMA IV_Ant1	RMC 12.2Kbps	Back	13mm	Ant 1	Full	1513	1752.6	22.88	24.00	1.294	-0.03	0.501	0.648
	WCDMA IV_Ant1	RMC 12.2Kbps	Bottom Side	12mm	Ant 1	Full	1312	1712.4	22.74	24.00	1.337	0.12	0.607	0.811
	WCDMA II_Ant1	RMC 12.2Kbps	Front	0mm	Ant 1	Reduced	9262	1852.4	19.75	20.50	1.189	-0.05	1.650	1.961
	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9262	1852.4	19.75	20.50	1.189	-0.1	2.590	3.078
	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9400	1880	19.70	20.50	1.202	0.18	2.740	3.294
	WCDMA II_Ant1	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9538	1907.6	19.73	20.50	1.194	0.04	2.620	3.128
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	0.05	2.570	3.069
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full	9400	1880	23.22	24.00	1.197	0.02	2.670	3.195
	WCDMA II_Ant1	RMC 12.2Kbps	Left Side	0mm	Ant 1	Full	9538	1907.6	23.21	24.00	1.199	0.03	2.430	2.915
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9262	1852.4	19.75	20.50	1.189	-0.09	2.220	2.638
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9400	1880	19.70	20.50	1.202	-0.07	2.330	2.801
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9538	1907.6	19.73	20.50	1.194	-0.03	2.260	2.698
	WCDMA II_Ant1	RMC 12.2Kbps	Front	8mm	Ant 1	Full	9262	1852.4	23.23	24.00	1.194	-0.06	0.669	0.799
	WCDMA II_Ant1	RMC 12.2Kbps	Back	13mm	Ant 1	Full	9400	1880	23.22	24.00	1.197	0.01	0.696	0.833
	WCDMA II_Ant1	RMC 12.2Kbps	Bottom Side	12mm	Ant 1	Full	9400	1880	23.22	24.00	1.197	0.03	0.746	0.893
	WCDMA II_Ant2	RMC 12.2Kbps	Front	0mm	Ant 2	Reduced	9262	1852.4	17.78	19.00	1.324	0.12	1.180	1.563
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9262	1852.4	17.78	19.00	1.324	0.05	1.700	2.251
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9400	1880	17.74	19.00	1.337	-0.03	1.720	2.299
	WCDMA II_Ant2	RMC 12.2Kbps	Back	0mm	Ant 2	Reduced	9538	1907.6	17.65	19.00	1.365	-0.06	1.680	2.292
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9262	1852.4	17.78	19.00	1.324	-0.06	2.410	3.192
55	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9400	1880	17.74	19.00	1.337	0.02	2.550	3.408
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	0mm	Ant 2	Reduced	9538	1907.6	17.65	19.00	1.365	-0.04	2.450	3.343
	WCDMA II_Ant2	RMC 12.2Kbps	Front	7mm	Ant 2	Full	9262	1852.4	21.71	23.00	1.346	0.03	0.629	0.847
	WCDMA II_Ant2	RMC 12.2Kbps	Back	14mm	Ant 2	Full	9400	1880	21.65	23.00	1.365	0.11	0.390	0.532
	WCDMA II_Ant2	RMC 12.2Kbps	Top Side	14mm	Ant 2	Full	9400	1880	21.65	23.00	1.365	-0.06	0.476	0.650



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
56	LTE Band 12_Ant1	10M	QPSK	1	0	Back	0mm	Ant 1	Full	23095	707.5	22.47	24.00	1.422	0.14	1.540	2.190
	LTE Band 12_Ant1	10M	QPSK	25	12	Back	0mm	Ant 1	Full	23095	707.5	21.46	23.00	1.426	0.08	1.190	1.696
	LTE Band 12_Ant1	10M	QPSK	50	0	Back	0mm	Ant 1	Full	23095	707.5	21.44	23.00	1.432	0.1	1.110	1.590
57	LTE Band 13_Ant1	10M	QPSK	1	0	Back	0mm	Ant 1	Full	23230	782	22.41	24.00	1.442	0.13	1.590	2.293
	LTE Band 13_Ant1	10M	QPSK	1	0	Bottom Side	0mm	Ant 1	Full	23230	782	22.41	24.00	1.442	-0.07	1.550	2.235
	LTE Band 13_Ant1	10M	QPSK	25	12	Back	0mm	Ant 1	Full	23230	782	21.35	23.00	1.462	0.09	1.230	1.798
	LTE Band 13_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Ant 1	Full	23230	782	21.35	23.00	1.462	0.03	1.200	1.755
	LTE Band 13_Ant1	10M	QPSK	50	0	Back	0mm	Ant 1	Full	23230	782	21.28	23.00	1.486	0.02	1.200	1.783
	LTE Band 13_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Ant 1	Full	23230	782	21.28	23.00	1.486	0.11	1.170	1.739
58	LTE Band 14_Ant1	10M	QPSK	1	0	Back	0mm	Ant 1	Full	23330	793	22.46	24.00	1.426	0.05	1.630	2.324
	LTE Band 14_Ant1	10M	QPSK	1	0	Bottom Side	0mm	Ant 1	Full	23330	793	22.46	24.00	1.426	-0.09	1.560	2.224
	LTE Band 14_Ant1	10M	QPSK	25	12	Back	0mm	Ant 1	Full	23330	793	21.36	23.00	1.459	0.06	1.260	1.838
	LTE Band 14_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Ant 1	Full	23330	793	21.36	23.00	1.459	-0.1	1.200	1.751
	LTE Band 14_Ant1	10M	QPSK	50	0	Back	0mm	Ant 1	Full	23330	793	21.29	23.00	1.483	0.1	1.220	1.809
	LTE Band 14_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Ant 1	Full	23330	793	21.29	23.00	1.483	-0.07	1.150	1.705
	LTE Band 5_Ant1	10M	QPSK	1	0	Front	0mm	Ant 1	Full	20525	836.5	22.37	24.00	1.455	-0.03	1.600	2.329
	LTE Band 5_Ant1	10M	QPSK	1	0	Back	0mm	Ant 1	Full	20525	836.5	22.37	24.00	1.455	0.04	1.750	2.547
59	LTE Band 5_Ant1	10M	QPSK	1	0	Bottom Side	0mm	Ant 1	Full	20525	836.5	22.37	24.00	1.455	0.08	1.930	2.809
	LTE Band 5_Ant1	10M	QPSK	25	12	Front	0mm	Ant 1	Full	20525	836.5	21.34	23.00	1.466	-0.07	1.010	1.480
	LTE Band 5_Ant1	10M	QPSK	25	12	Back	0mm	Ant 1	Full	20525	836.5	21.34	23.00	1.466	-0.06	1.410	2.066
	LTE Band 5_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Ant 1	Full	20525	836.5	21.34	23.00	1.466	0.03	1.520	2.228
	LTE Band 5_Ant1	10M	QPSK	50	0	Front	0mm	Ant 1	Full	20525	836.5	21.32	23.00	1.472	-0.02	1.000	1.472
	LTE Band 5_Ant1	10M	QPSK	50	0	Back	0mm	Ant 1	Full	20525	836.5	21.32	23.00	1.472	0.03	1.380	2.032
	LTE Band 5_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Ant 1	Full	20525	836.5	21.32	23.00	1.472	0.06	1.480	2.179
	LTE Band 5_Ant2	10M	QPSK	1	0	Back	0mm	Ant 2	Full	20525	836.5	21.59	23.00	1.384	0.03	1.810	2.504
	LTE Band 5_Ant2	10M	QPSK	1	0	Top Side	0mm	Ant 2	Full	20525	836.5	21.59	23.00	1.384	0.08	0.761	1.053
	LTE Band 5_Ant2	10M	QPSK	25	12	Back	0mm	Ant 2	Full	20525	836.5	20.85	22.00	1.303	0.07	1.520	1.981
	LTE Band 5_Ant2	10M	QPSK	25	12	Top Side	0mm	Ant 2	Full	20525	836.5	20.85	22.00	1.303	0.17	0.650	0.847
	LTE Band 5_Ant2	10M	QPSK	50	0	Back	0mm	Ant 2	Full	20525	836.5	20.83	22.00	1.309	0.04	1.500	1.964
	LTE Band 66_Ant1	20M	QPSK	1	0	Front	0mm	Ant 1	Reduced	132322	1745	19.91	21.50	1.442	0.15	1.320	1.904
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	132322	1745	19.91	21.50	1.442	-0.01	2.150	3.101
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	132072	1720	19.77	21.50	1.489	-0.07	2.100	3.128
60	LTE Band 66_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	132572	1770	19.82	21.50	1.472	0.08	2.220	3.269
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	132322	1745	19.91	21.50	1.442	0.11	1.920	2.769
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	132072	1720	19.77	21.50	1.489	0.13	2.030	3.023
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	132572	1770	19.82	21.50	1.472	-0.11	1.910	2.812
	LTE Band 66_Ant1	20M	QPSK	1	0	Front	8mm	Ant 1	Full	132322	1745	22.41	24.00	1.442	0.08	0.411	0.593
	LTE Band 66_Ant1	20M	QPSK	1	0	Back	13mm	Ant 1	Full	132572	1770	22.23	24.00	1.503	-0.12	0.415	0.624
	LTE Band 66_Ant1	20M	QPSK	1	0	Bottom Side	12mm	Ant 1	Full	132072	1720	22.18	24.00	1.521	0.08	0.591	0.899
	LTE Band 66_Ant1	20M	QPSK	50	24	Front	0mm	Ant 1	Reduced	132322	1745	19.07	20.50	1.390	0.13	1.100	1.529
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	132322	1745	19.07	20.50	1.390	0.13	1.820	2.530
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	132072	1720	18.95	20.50	1.429	-0.1	1.760	2.515
	LTE Band 66_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	132572	1770	19.00	20.50	1.413	0.13	2.000	2.825
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	132322	1745	19.07	20.50	1.390	0.16	1.540	2.141
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	132072	1720	18.95	20.50	1.429	0.17	1.540	2.200
	LTE Band 66_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	132572	1770	19.00	20.50	1.413	0.11	1.730	2.444
	LTE Band 66_Ant1	20M	QPSK	100	0	Front	0mm	Ant 1	Reduced	132322	1745	19.06	20.50	1.393	-0.06	1.060	1.477
	LTE Band 66_Ant1	20M	QPSK	100	0	Back	0mm	Ant 1	Reduced	132322	1745	19.06	20.50	1.393	0.18	1.630	2.271
	LTE Band 66_Ant1	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	Reduced	132322	1745	19.06	20.50	1.393	0.04	1.420	1.978
	LTE Band 2_Ant1	20M	QPSK	1	0	Front	0mm	Ant 1	Reduced	18700	1860	19.83	21.00	1.309	0.16	1.520	1.990
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	18700	1860	19.83	21.00	1.309	0.13	2.560	3.352
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	18900	1880	19.77	21.00	1.327	-0.06	2.590	3.438
61	LTE Band 2_Ant1	20M	QPSK	1	0	Back	0mm	Ant 1	Reduced	19100	1900	19.74	21.00	1.337	0.11	2.620	3.502
	LTE Band 2_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.03	2.040	2.765
	LTE Band 2_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant 1	Full	18900	1880	22.65	24.00	1.365	0.11	2.140	2.920



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	LTE Band 2_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant 1	Full	19100	1900	22.66	24.00	1.361	0.05	2.050	2.791
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	18700	1860	19.83	21.00	1.309	0.02	2.030	2.658
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	18900	1880	19.77	21.00	1.327	-0.01	2.070	2.748
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	19100	1900	19.74	21.00	1.337	0.17	2.160	2.887
	LTE Band 2_Ant1	20M	QPSK	1	0	Front	8mm	Ant 1	Full	18700	1860	22.68	24.00	1.355	0.08	0.676	0.916
	LTE Band 2_Ant1	20M	QPSK	1	0	Back	13mm	Ant 1	Full	19100	1900	22.66	24.00	1.361	-0.01	0.514	0.700
	LTE Band 2_Ant1	20M	QPSK	1	0	Bottom Side	12mm	Ant 1	Full	19100	1900	22.66	24.00	1.361	0.13	0.794	1.081
	LTE Band 2_Ant1	20M	QPSK	50	24	Front	0mm	Ant 1	Reduced	18700	1860	18.70	20.00	1.349	0.07	1.210	1.632
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	18700	1860	18.70	20.00	1.349	0.06	2.020	2.725
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	18900	1880	18.67	20.00	1.358	0.01	2.100	2.852
	LTE Band 2_Ant1	20M	QPSK	50	24	Back	0mm	Ant 1	Reduced	19100	1900	18.63	20.00	1.371	0.03	1.980	2.714
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant 1	Full	18700	1860	21.68	23.00	1.355	0.08	1.580	2.141
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant 1	Full	18900	1880	21.61	23.00	1.377	-0.06	1.680	2.314
	LTE Band 2_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant 1	Full	19100	1900	21.64	23.00	1.368	-0.01	1.620	2.216
	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	18700	1860	18.70	20.00	1.349	0.11	1.600	2.158
	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	18900	1880	18.67	20.00	1.358	0.06	1.680	2.282
	LTE Band 2_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	Reduced	19100	1900	18.63	20.00	1.371	0.05	1.720	2.358
	LTE Band 2_Ant1	20M	QPSK	100	0	Back	0mm	Ant 1	Reduced	18700	1860	18.68	20.00	1.355	0.05	1.970	2.670
	LTE Band 2_Ant1	20M	QPSK	100	0	Left Side	0mm	Ant 1	Full	18700	1860	21.57	23.00	1.390	0.05	1.550	2.154
	LTE Band 2_Ant1	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	Reduced	18700	1860	18.68	20.00	1.355	0.11	1.570	2.128
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	0mm	Ant 2	Reduced	18700	1860	17.67	19.00	1.358	0.15	1.140	1.548
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	0mm	Ant 2	Reduced	18700	1860	17.67	19.00	1.358	-0.06	1.680	2.282
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	0mm	Ant 2	Reduced	18900	1880	17.65	19.00	1.365	0.15	1.700	2.320
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	0mm	Ant 2	Reduced	19100	1900	17.66	19.00	1.361	0.11	1.760	2.396
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	0mm	Ant 2	Reduced	18700	1860	17.67	19.00	1.358	0.12	2.270	3.083
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	0mm	Ant 2	Reduced	18900	1880	17.65	19.00	1.365	-0.07	2.320	3.166
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	0mm	Ant 2	Reduced	19100	1900	17.66	19.00	1.361	0.08	2.400	3.267
	LTE Band 2_Ant2	20M	QPSK	1	0	Front	7mm	Ant 2	Full	18700	1860	21.22	22.50	1.343	0.15	0.737	0.990
	LTE Band 2_Ant2	20M	QPSK	1	0	Back	14mm	Ant 2	Full	19100	1900	21.18	22.50	1.355	0.03	0.450	0.610
	LTE Band 2_Ant2	20M	QPSK	1	0	Top Side	14mm	Ant 2	Full	19100	1900	21.18	22.50	1.355	-0.07	0.456	0.618
	LTE Band 2_Ant2	20M	QPSK	50	24	Front	0mm	Ant 2	Reduced	18700	1860	16.83	18.00	1.309	-0.04	0.969	1.269
	LTE Band 2_Ant2	20M	QPSK	50	24	Back	0mm	Ant 2	Reduced	18700	1860	16.83	18.00	1.309	-0.12	1.450	1.898
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	0mm	Ant 2	Reduced	18700	1860	16.83	18.00	1.309	0.17	1.930	2.527
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	0mm	Ant 2	Reduced	18900	1880	16.79	18.00	1.321	0.18	1.980	2.616
	LTE Band 2_Ant2	20M	QPSK	50	24	Top Side	0mm	Ant 2	Reduced	19100	1900	16.78	18.00	1.324	-0.07	2.030	2.688
	LTE Band 2_Ant2	20M	QPSK	100	0	Back	0mm	Ant 2	Reduced	18700	1860	16.77	18.00	1.327	-0.01	1.470	1.951
	LTE Band 2_Ant2	20M	QPSK	100	0	Top Side	0mm	Ant 2	Reduced	18700	1860	16.77	18.00	1.327	-0.12	1.900	2.522
	LTE Band 30_Ant1	10M	QPSK	1	0	Front	0mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	-0.07	1.330	1.900
62	LTE Band 30_Ant1	10M	QPSK	1	0	Back	0mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	0.18	2.330	3.329
	LTE Band 30_Ant1	10M	QPSK	1	0	Bottom Side	0mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	-0.03	1.790	2.558
	LTE Band 30_Ant1	10M	QPSK	1	0	Front	8mm	Ant 1	Full	27710	2310	22.51	24.00	1.409	-0.12	0.453	0.638
	LTE Band 30_Ant1	10M	QPSK	1	0	Back	13mm	Ant 1	Full	27710	2310	22.51	24.00	1.409	0.07	0.271	0.382
	LTE Band 30_Ant1	10M	QPSK	1	0	Bottom Side	12mm	Ant 1	Full	27710	2310	22.51	24.00	1.409	-0.04	0.400	0.564
	LTE Band 30_Ant1	10M	QPSK	25	12	Front	0mm	Ant 1	Reduced	27710	2310	18.57	20.00	1.390	-0.11	1.070	1.487
	LTE Band 30_Ant1	10M	QPSK	25	12	Back	0mm	Ant 1	Reduced	27710	2310	18.57	20.00	1.390	-0.06	1.870	2.599
	LTE Band 30_Ant1	10M	QPSK	25	12	Bottom Side	0mm	Ant 1	Reduced	27710	2310	18.57	20.00	1.390	0.14	1.410	1.960
	LTE Band 30_Ant1	10M	QPSK	50	0	Back	0mm	Ant 1	Reduced	27710	2310	18.50	20.00	1.413	-0.07	1.840	2.599
	LTE Band 30_Ant1	10M	QPSK	50	0	Bottom Side	0mm	Ant 1	Reduced	27710	2310	18.50	20.00	1.413	-0.12	1.370	1.935
	LTE Band 30_Ant2	10M	QPSK	1	0	Back	0mm	Ant 2	Reduced	27710	2310	20.55	22.00	1.396	0.06	2.170	3.030
	LTE Band 30_Ant2	10M	QPSK	1	0	Top Side	0mm	Ant 2	Reduced	27710	2310	20.55	22.00	1.396	0.14	1.360	1.899
	LTE Band 30_Ant2	10M	QPSK	1	0	Back	14mm	Ant 2	Full	27710	2310	21.38	23.00	1.452	-0.01	0.230	0.334
	LTE Band 30_Ant2	10M	QPSK	1	0	Top Side	14mm	Ant 2	Full	27710	2310	21.38	23.00	1.452	0.07	0.210	0.305
	LTE Band 30_Ant2	10M	QPSK	25	12	Back	0mm	Ant 2	Reduced	27710	2310	19.36	21.00	1.459	0.13	1.710	2.495
	LTE Band 30_Ant2	10M	QPSK	25	12	Top Side	0mm	Ant 2	Reduced	27710	2310	19.36	21.00	1.459	0.12	1.030	1.503
	LTE Band 30_Ant2	10M	QPSK	50	0	Back	0mm	Ant 2	Reduced	27710	2310	19.29	21.00	1.483	0.01	1.680	2.491
	LTE Band 30_Ant2	10M	QPSK	50	0	Top Side	0mm	Ant 2	Reduced	27710	2310	19.29	21.00	1.483	-0.11	1.010	1.497



<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Full	1	2412	19.30	21.30	1.585	99.31	1.007	-0.08	1.310	2.091
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Full	6	2437	19.20	21.20	1.585	99.31	1.007	-0.01	1.300	2.075
63	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Full	11	2462	19.10	21.10	1.585	99.31	1.007	0.13	1.390	2.218
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 3	Simultaneous	1	2412	14.80	16.80	1.585	99.31	1.007	-0.12	0.550	0.878

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
64	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full	40	5200	17.64	19.64	1.585	96.77	1.033	-0.14	0.636	1.041
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 4	Simultaneous	46	5230	16.05	18.05	1.585	93.31	1.072	0.03	0.481	0.817
	WLAN5.3GHz	802.11n-HT20 MCS0	Front	0mm	Ant 4	Full	52	5260	17.86	19.86	1.585	96.98	1.031	-0.08	0.896	1.464
	WLAN5.3GHz	802.11n-HT20 MCS0	Back	0mm	Ant 4	Full	52	5260	17.86	19.86	1.585	96.98	1.031	-0.1	0.692	1.131
	WLAN5.3GHz	802.11n-HT20 MCS0	Left Side	0mm	Ant 4	Full	52	5260	17.86	19.86	1.585	96.98	1.031	-0.04	0.037	0.060
65	WLAN5.3GHz	802.11n-HT20 MCS0	Right Side	0mm	Ant 4	Full	52	5260	17.86	19.86	1.585	96.98	1.031	0.13	1.100	1.797
	WLAN5.3GHz	802.11n-HT20 MCS0	Top Side	0mm	Ant 4	Full	52	5260	17.86	19.86	1.585	96.98	1.031	0.14	0.416	0.680
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 4	Simultaneous	54	5270	16.25	18.25	1.585	93.31	1.072	0.12	0.639	1.086
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 4	Simultaneous	54	5270	16.25	18.25	1.585	93.31	1.072	0.06	0.534	0.907
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 4	Simultaneous	54	5270	16.25	18.25	1.585	93.31	1.072	0.13	0.032	0.054
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 4	Simultaneous	54	5270	16.25	18.25	1.585	93.31	1.072	-0.05	0.718	1.220
	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 4	Simultaneous	54	5270	16.25	18.25	1.585	93.31	1.072	-0.1	0.294	0.500
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 4	Full	116	5580	17.98	19.98	1.585	96.77	1.033	0.07	1.440	2.358
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full	116	5580	17.98	19.98	1.585	96.77	1.033	0.1	1.140	1.866
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	Ant 4	Full	116	5580	17.98	19.98	1.585	96.77	1.033	0.14	0.067	0.110
66	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full	116	5580	17.98	19.98	1.585	96.77	1.033	-0.02	1.850	3.029
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 4	Full	116	5580	17.98	19.98	1.585	96.77	1.033	0.17	0.868	1.421
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full	132	5660	17.86	19.86	1.585	96.77	1.033	-0.08	1.400	2.292
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 4	Simultaneous	110	5550	14.52	16.52	1.585	93.31	1.072	0.11	0.603	1.025
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 4	Simultaneous	110	5550	14.52	16.52	1.585	93.31	1.072	-0.06	0.512	0.870
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 4	Simultaneous	110	5550	14.52	16.52	1.585	93.31	1.072	-0.18	0.041	0.070
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 4	Simultaneous	110	5550	14.52	16.52	1.585	93.31	1.072	0.15	0.663	1.126
	WLAN5.5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 4	Simultaneous	110	5550	14.52	16.52	1.585	93.31	1.072	0.07	0.345	0.586
	WLAN5.8GHz	802.11a 6Mbps	Front	0mm	Ant 4	Full	165	5825	17.74	19.74	1.585	96.77	1.033	-0.03	1.040	1.703
	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant 4	Full	165	5825	17.74	19.74	1.585	96.77	1.033	0.14	0.811	1.328
	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full	165	5825	17.74	19.74	1.585	96.77	1.033	0.07	1.230	2.014
	WLAN5.8GHz	802.11a 6Mbps	Top Side	0mm	Ant 4	Full	165	5825	17.74	19.74	1.585	96.77	1.033	0.01	0.796	1.303
67	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 4	Full	157	5785	17.60	19.60	1.585	96.77	1.033	-0.15	1.510	2.472
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 4	Simultaneous	155	5775	13.60	15.60	1.585	87.84	1.138	0.04	0.422	0.761
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 4	Simultaneous	155	5775	13.60	15.60	1.585	87.84	1.138	-0.09	0.402	0.725
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 4	Simultaneous	155	5775	13.60	15.60	1.585	87.84	1.138	0.05	0.535	0.965
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 4	Simultaneous	155	5775	13.60	15.60	1.585	87.84	1.138	-0.01	0.322	0.581



15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA V_Ant2	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	-	Reduced	4182	836.4	20.57	21.50	1.239	-0.08	1.090	1	1.350
2nd	WCDMA V_Ant2	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	-	Reduced	4182	836.4	20.57	21.50	1.239	0.11	1.040	1.048	1.288
1st	WCDMA II_Ant1	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	-	Reduced	9538	1907.6	17.30	18.00	1.175	0.03	1.210	1	1.422
2nd	WCDMA II_Ant1	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	-	Reduced	9538	1907.6	17.30	18.00	1.175	0.01	1.200	1.008	1.410
1st	WCDMA IV_Ant1	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1312	1712.4	17.72	19.00	1.343	0.16	1.040	1	1.396
2nd	WCDMA IV_Ant1	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1312	1712.4	17.72	19.00	1.343	0.11	1.020	1.020	1.370
1st	LTE Band 13_Ant1	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	23230	782	21.50	23.00	1.413	-0.02	0.989	1	1.397
2nd	LTE Band 13_Ant1	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	23230	782	21.50	23.00	1.413	0.13	0.987	1.002	1.394
1st	LTE Band 30_Ant2	10M	QPSK	1	0	-	Back	5mm	Ant 2	Headset	Reduced	27710	2310	16.90	18.50	1.445	0.16	0.962	1	1.391
2nd	LTE Band 30_Ant2	10M	QPSK	1	0	-	Back	5mm	Ant 2	Headset	Reduced	27710	2310	16.90	18.50	1.445	0.06	0.939	1.024	1.357

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	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	GSM850_Ant2	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	128	824.2	26.67	27.50	1.211	0.18	2.520	1	3.051
2nd	GSM850_Ant2	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 2	Reduced	128	824.2	26.67	27.50	1.211	0.13	2.460	1.024	2.978
1st	WCDMA IV_Ant1	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	20.31	21.50	1.315	0.01	2.650	1	3.485
2nd	WCDMA IV_Ant1	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	20.31	21.50	1.315	0.03	2.640	1.004	3.472
1st	WCDMA II_Ant1	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9400	1880	19.70	20.50	1.202	0.18	2.740	1	3.294
2nd	WCDMA II_Ant1	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	9400	1880	19.70	20.50	1.202	0.12	2.710	1.011	3.258
1st	LTE Band 30_Ant1	10M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	0.18	2.330	1	3.329
2nd	LTE Band 30_Ant1	10M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	27710	2310	19.45	21.00	1.429	0.09	2.310	1.009	3.301

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8W/kg$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45W/kg$, only one repeated measurement is required.
3. 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 ratio is the difference in percentage between original and repeated *measured* SAR.
5. 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.	Bluetooth + WLAN5GHz	Yes	Yes	Yes	Yes
5.	WWAN + Bluetooth + WLAN5GHz	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 2.4GHz WLAN/ 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. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment though they have independent antenna.
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. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
9. The reported SAR summation is calculated based on the same configuration and test position.
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	3	6	9	1+3	1+6+9
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 4	Bluetooth Ant 3	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)
GSM850_Ant2	Right Cheek	1.307	0.105	0.126	0.082	1.41	1.52
	Right Tilted	1.105	0.114	0.130	0.080	1.22	1.32
	Left Cheek	0.783	0.255	0.263	0.144	1.04	1.19
	Left Tilted	0.628	0.231	0.247	0.120	0.86	1.00
GSM1900_Ant2	Right Cheek	1.047	0.105	0.126	0.082	1.15	1.26
	Right Tilted	1.362	0.114	0.130	0.080	1.48	1.57
	Left Cheek	0.642	0.255	0.263	0.144	0.90	1.05
	Left Tilted	0.740	0.231	0.247	0.120	0.97	1.11
WCDMA V_Ant2	Right Cheek	1.350	0.105	0.126	0.082	1.46	1.56
	Right Tilted	1.032	0.114	0.130	0.080	1.15	1.24
	Left Cheek	0.906	0.255	0.263	0.144	1.16	1.31
	Left Tilted	0.697	0.231	0.247	0.120	0.93	1.06
WCDMA II_Ant2	Right Cheek	1.164	0.105	0.126	0.082	1.27	1.37
	Right Tilted	1.377	0.114	0.130	0.080	1.49	1.59
	Left Cheek	0.552	0.255	0.263	0.144	0.81	0.96
	Left Tilted	0.714	0.231	0.247	0.120	0.95	1.08
LTE Band 12_Ant2	Right Cheek	1.076	0.105	0.126	0.082	1.18	1.28
	Right Tilted	0.840	0.114	0.130	0.080	0.95	1.05
	Left Cheek	0.559	0.255	0.263	0.144	0.81	0.97
	Left Tilted	0.441	0.231	0.247	0.120	0.67	0.81
LTE Band 5_Ant2	Right Cheek	1.309	0.105	0.126	0.082	1.41	1.52
	Right Tilted	1.059	0.114	0.130	0.080	1.17	1.27
	Left Cheek	0.915	0.255	0.263	0.144	1.17	1.32
	Left Tilted	0.724	0.231	0.247	0.120	0.96	1.09
LTE Band 2_Ant2	Right Cheek	1.097	0.105	0.126	0.082	1.20	1.31
	Right Tilted	1.362	0.114	0.130	0.080	1.48	1.57
	Left Cheek	0.575	0.255	0.263	0.144	0.83	0.98
	Left Tilted	0.629	0.231	0.247	0.120	0.86	1.00
LTE Band 30_Ant2	Right Cheek	1.074	0.105	0.126	0.082	1.18	1.28
	Right Tilted	1.295	0.114	0.130	0.080	1.41	1.51
	Left Cheek	0.554	0.255	0.263	0.144	0.81	0.96
	Left Tilted	0.701	0.231	0.247	0.120	0.93	1.07
GSM850_Ant1	Right Cheek	0.907	0.105	0.126	0.082	1.01	1.12
	Right Tilted	0.348	0.114	0.130	0.080	0.46	0.56
	Left Cheek	0.716	0.255	0.263	0.144	0.97	1.12
	Left Tilted	0.317	0.231	0.247	0.120	0.55	0.68
GSM1900_Ant1	Right Cheek	0.672	0.105	0.126	0.082	0.78	0.88
	Right Tilted	0.382	0.114	0.130	0.080	0.50	0.59
	Left Cheek	0.536	0.255	0.263	0.144	0.79	0.94
	Left Tilted	0.518	0.231	0.247	0.120	0.75	0.89
WCDMA V_Ant1	Right Cheek	0.615	0.105	0.126	0.082	0.72	0.82
	Right Tilted	0.304	0.114	0.130	0.080	0.42	0.51
	Left Cheek	0.257	0.255	0.263	0.144	0.51	0.66
	Left Tilted	0.271	0.231	0.247	0.120	0.50	0.64
WCDMA IV_Ant1	Right Cheek	0.330	0.105	0.126	0.082	0.44	0.54
	Right Tilted	0.227	0.114	0.130	0.080	0.34	0.44
	Left Cheek	0.227	0.255	0.263	0.144	0.48	0.63
	Left Tilted	0.263	0.231	0.247	0.120	0.49	0.63
WCDMA II_Ant1	Right Cheek	0.548	0.105	0.126	0.082	0.65	0.76
	Right Tilted	0.288	0.114	0.130	0.080	0.40	0.50



	Left Cheek	0.408	0.255	0.263	0.144	0.66	0.82
	Left Tilted	0.380	0.231	0.247	0.120	0.61	0.75
LTE Band 12_Ant1	Right Cheek	0.294	0.105	0.126	0.082	0.40	0.50
	Right Tilted	0.158	0.114	0.130	0.080	0.27	0.37
	Left Cheek	0.280	0.255	0.263	0.144	0.54	0.69
	Left Tilted	0.151	0.231	0.247	0.120	0.38	0.52
LTE Band 13_Ant1	Right Cheek	0.482	0.105	0.126	0.082	0.59	0.69
	Right Tilted	0.196	0.114	0.130	0.080	0.31	0.41
	Left Cheek	0.374	0.255	0.263	0.144	0.63	0.78
	Left Tilted	0.192	0.231	0.247	0.120	0.42	0.56
LTE Band 14_Ant1	Right Cheek	0.408	0.105	0.126	0.082	0.51	0.62
	Right Tilted	0.207	0.114	0.130	0.080	0.32	0.42
	Left Cheek	0.375	0.255	0.263	0.144	0.63	0.78
	Left Tilted	0.200	0.231	0.247	0.120	0.43	0.57
LTE Band 5_Ant1	Right Cheek	0.600	0.105	0.126	0.082	0.71	0.81
	Right Tilted	0.314	0.114	0.130	0.080	0.43	0.52
	Left Cheek	0.517	0.255	0.263	0.144	0.77	0.92
	Left Tilted	0.287	0.231	0.247	0.120	0.52	0.65
LTE Band 66_Ant1	Right Cheek	0.342	0.105	0.126	0.082	0.45	0.55
	Right Tilted	0.226	0.114	0.130	0.080	0.34	0.44
	Left Cheek	0.209	0.255	0.263	0.144	0.46	0.62
	Left Tilted	0.218	0.231	0.247	0.120	0.45	0.59
LTE Band 2_Ant1	Right Cheek	0.468	0.105	0.126	0.082	0.57	0.68
	Right Tilted	0.295	0.114	0.130	0.080	0.41	0.51
	Left Cheek	0.413	0.255	0.263	0.144	0.67	0.82
	Left Tilted	0.375	0.231	0.247	0.120	0.61	0.74
LTE Band 30_Ant1	Right Cheek	0.279	0.105	0.126	0.082	0.38	0.49
	Right Tilted	0.200	0.114	0.130	0.080	0.31	0.41
	Left Cheek	0.440	0.255	0.263	0.144	0.70	0.85
	Left Tilted	0.200	0.231	0.247	0.120	0.43	0.57



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	3	6	9	1+3	1+6+9	SPLSR
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 4	Bluetooth Ant 3	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)	
GSM850_Ant2	Front	0.597	0.099	0.364	0.080	0.70	1.04	
	Back	1.338	0.275	0.557	0.159	1.61	2.05	Case74/1
	Left side	0.203	0.022	0.056	0.025	0.23	0.28	
	Right side	0.155	0.069	0.483	0.060	0.22	0.70	
	Top side	0.954	0.133	0.332	0.064	1.09	1.35	
	Bottom side					0.00	0.00	
GSM1900_Ant2	Front	0.853	0.099	0.364	0.080	0.95	1.30	
	Back	1.331	0.275	0.557	0.159	1.61	2.05	Case2/3
	Left side	0.123	0.022	0.056	0.025	0.15	0.20	
	Right side	0.053	0.069	0.483	0.060	0.12	0.60	
	Top side	1.276	0.133	0.332	0.064	1.41	1.67	Case75
	Bottom side					0.00	0.00	
WCDMA V_Ant2	Front	0.769	0.099	0.364	0.080	0.87	1.21	
	Back	1.299	0.275	0.557	0.159	1.57	2.02	Case4
	Left side	0.285	0.022	0.056	0.025	0.31	0.37	
	Right side	0.209	0.069	0.483	0.060	0.28	0.75	
	Top side	1.100	0.133	0.332	0.064	1.23	1.50	
	Bottom side					0.00	0.00	
WCDMA II_Ant2	Front	0.979	0.099	0.364	0.080	1.08	1.42	
	Back	1.358	0.275	0.557	0.159	1.63	2.07	Case5/6
	Left side	0.125	0.022	0.056	0.025	0.15	0.21	
	Right side	0.033	0.069	0.483	0.060	0.10	0.58	
	Top side	1.225	0.133	0.332	0.064	1.36	1.62	Case7
	Bottom side					0.00	0.00	
LTE Band 12_Ant2	Front	0.374	0.099	0.364	0.080	0.47	0.82	
	Back	0.804	0.275	0.557	0.159	1.08	1.52	
	Left side	0.328	0.022	0.056	0.025	0.35	0.41	
	Right side	0.188	0.069	0.483	0.060	0.26	0.73	
	Top side	0.517	0.133	0.332	0.064	0.65	0.91	
	Bottom side					0.00	0.00	
LTE Band 5_Ant2	Front	0.705	0.099	0.364	0.080	0.80	1.15	
	Back	1.234	0.275	0.557	0.159	1.51	1.95	Case9
	Left side	0.265	0.022	0.056	0.025	0.29	0.35	
	Right side	0.236	0.069	0.483	0.060	0.31	0.78	
	Top side	1.018	0.133	0.332	0.064	1.15	1.41	
	Bottom side					0.00	0.00	
LTE Band 2_Ant2	Front	0.927	0.099	0.364	0.080	1.03	1.37	
	Back	1.387	0.275	0.557	0.159	1.66	2.10	Case10/11
	Left side	0.113	0.022	0.056	0.025	0.14	0.19	
	Right side	0.038	0.069	0.483	0.060	0.11	0.58	
	Top side	1.283	0.133	0.332	0.064	1.42	1.68	Case12
	Bottom side					0.00	0.00	
LTE Band 30_Ant2	Front	0.383	0.099	0.364	0.080	0.48	0.83	
	Back	1.263	0.275	0.557	0.159	1.54	1.98	Case13
	Left side	0.092	0.022	0.056	0.025	0.11	0.17	
	Right side	0.042	0.069	0.483	0.060	0.11	0.59	
	Top side	0.888	0.133	0.332	0.064	1.02	1.28	
	Bottom side					0.00	0.00	
GSM850_Ant1	Front	0.743	0.099	0.364	0.080	0.84	1.19	
	Back	1.307	0.275	0.557	0.159	1.58	2.02	Case14



	Left side	0.256	0.022	0.056	0.025	0.28	0.34	
	Right side	0.591	0.069	0.483	0.060	0.66	1.13	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.110				1.11	1.11	
GSM1900_Ant1	Front	0.726	0.099	0.364	0.080	0.83	1.17	
	Back	1.389	0.275	0.557	0.159	1.66	2.11	Case15/16
	Left side	0.344	0.022	0.056	0.025	0.37	0.43	
	Right side	0.166	0.069	0.483	0.060	0.24	0.71	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.345				1.35	1.35	
WCDMA V_Ant1	Front	0.740	0.099	0.364	0.080	0.84	1.18	
	Back	1.401	0.275	0.557	0.159	1.68	2.12	Case17/18
	Left side	0.281	0.022	0.056	0.025	0.30	0.36	
	Right side	0.529	0.069	0.483	0.060	0.60	1.07	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.165				1.17	1.17	
WCDMA IV_Ant1	Front	0.580	0.099	0.364	0.080	0.68	1.02	
	Back	1.396	0.275	0.557	0.159	1.67	2.11	Case19/20
	Left side	0.217	0.022	0.056	0.025	0.24	0.30	
	Right side	0.101	0.069	0.483	0.060	0.17	0.64	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.379				1.38	1.38	
WCDMA II_Ant1	Front	0.701	0.099	0.364	0.080	0.80	1.15	
	Back	1.290	0.275	0.557	0.159	1.57	2.01	Case21
	Left side	0.392	0.022	0.056	0.025	0.41	0.47	
	Right side	0.175	0.069	0.483	0.060	0.24	0.72	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.422				1.42	1.42	
LTE Band 12_Ant1	Front	0.735	0.099	0.364	0.080	0.83	1.18	
	Back	1.384	0.275	0.557	0.159	1.66	2.10	Case22/23
	Left side	0.455	0.022	0.056	0.025	0.48	0.54	
	Right side	0.670	0.069	0.483	0.060	0.74	1.21	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.021				1.02	1.02	
LTE Band 13_Ant1	Front	0.722	0.099	0.364	0.080	0.82	1.17	
	Back	1.397	0.275	0.557	0.159	1.67	2.11	Case72/73
	Left side	0.288	0.022	0.056	0.025	0.31	0.37	
	Right side	0.824	0.069	0.483	0.060	0.89	1.37	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.119				1.12	1.12	
LTE Band 14_Ant1	Front	0.658	0.099	0.364	0.080	0.76	1.10	
	Back	1.334	0.275	0.557	0.159	1.61	2.05	Case76/24
	Left side	0.282	0.022	0.056	0.025	0.30	0.36	
	Right side	0.593	0.069	0.483	0.060	0.66	1.14	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.066				1.07	1.07	
LTE Band 5_Ant1	Front	0.705	0.099	0.364	0.080	0.80	1.15	
	Back	1.323	0.275	0.557	0.159	1.60	2.04	Case80/25
	Left side	0.273	0.022	0.056	0.025	0.30	0.35	
	Right side	0.539	0.069	0.483	0.060	0.61	1.08	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.057				1.06	1.06	
LTE Band 66_Ant1	Front	0.514	0.099	0.364	0.080	0.61	0.96	
	Back	1.300	0.275	0.557	0.159	1.58	2.02	Case26
	Left side	0.276	0.022	0.056	0.025	0.30	0.36	
	Right side	0.235	0.069	0.483	0.060	0.30	0.78	



	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.418				1.42	1.42	
LTE Band 2_Ant1	Front	0.742	0.099	0.364	0.080	0.84	1.19	
	Back	1.334	0.275	0.557	0.159	1.61	2.05	Case77/27
	Left side	0.460	0.022	0.056	0.025	0.48	0.54	
	Right side	0.185	0.069	0.483	0.060	0.25	0.73	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.433				1.43	1.43	
LTE Band 30_Ant1	Front	1.343	0.099	0.364	0.080	1.44	1.79	Case78
	Back	1.347	0.275	0.557	0.159	1.62	2.06	Case28/29
	Left side	0.470	0.022	0.056	0.025	0.49	0.55	
	Right side	0.180	0.069	0.483	0.060	0.25	0.72	
	Top side		0.133	0.332	0.064	0.13	0.40	
	Bottom side	1.348				1.35	1.35	



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	3	6	9	1+3	1+6+9	SPLSR
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 3 1g SAR (W/kg)	5GHz WLAN Ant 4 1g SAR (W/kg)	Bluetooth Ant 3 1g SAR (W/kg)	Summed 1g SAR (W/kg)	Summed 1g SAR (W/kg)	
GSM850_Ant2	Front	0.597	0.099	0.339	0.080	0.70	1.02	
	Back	1.338	0.275	0.548	0.159	1.61	2.05	Case74/30
	Front with Headset					0.00	0.00	
	Back with Headset	1.239				1.24	1.24	
GSM1900_Ant2	Front	0.853	0.099	0.339	0.080	0.95	1.27	
	Back	1.331	0.275	0.548	0.159	1.61	2.04	Case2/32
	Front with Headset					0.00	0.00	
	Back with Headset	1.292				1.29	1.29	
WCDMA V_Ant2	Front	0.769	0.099	0.339	0.080	0.87	1.19	
	Back	1.299	0.275	0.548	0.159	1.57	2.01	Case33
	Front with Headset					0.00	0.00	
	Back with Headset	1.286				1.29	1.29	
WCDMA II_Ant2	Front	0.979	0.099	0.339	0.080	1.08	1.40	
	Back	1.358	0.275	0.548	0.159	1.63	2.07	Case5/35
	Front with Headset					0.00	0.00	
	Back with Headset	1.318				1.32	1.32	
LTE Band 12_Ant2	Front	0.374	0.099	0.339	0.080	0.47	0.79	
	Back	0.804	0.275	0.548	0.159	1.08	1.51	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 5_Ant2	Front	0.705	0.099	0.339	0.080	0.80	1.12	
	Back	1.234	0.275	0.548	0.159	1.51	1.94	Case37
	Front with Headset					0.00	0.00	
	Back with Headset	1.295				1.30	1.30	
LTE Band 2_Ant2	Front	0.927	0.099	0.339	0.080	1.03	1.35	
	Back	1.387	0.275	0.548	0.159	1.66	2.09	Case10/39
	Front with Headset					0.00	0.00	
	Back with Headset	1.347				1.35	1.35	
LTE Band 30_Ant2	Front	0.383	0.099	0.339	0.080	0.48	0.80	
	Back	1.263	0.275	0.548	0.159	1.54	1.97	Case40
	Front with Headset					0.00	0.00	
	Back with Headset	1.391				1.39	1.39	
GSM850_Ant1	Front	0.743	0.099	0.339	0.080	0.84	1.16	
	Back	1.307	0.275	0.548	0.159	1.58	2.01	Case41
	Front with Headset					0.00	0.00	
	Back with Headset	1.292				1.29	1.29	
GSM1900_Ant1	Front	0.726	0.099	0.339	0.080	0.83	1.15	
	Back	1.389	0.275	0.548	0.159	1.66	2.10	Case15/43
	Front with Headset					0.00	0.00	
	Back with Headset	1.370				1.37	1.37	
WCDMA V_Ant1	Front	0.740	0.099	0.339	0.080	0.84	1.16	
	Back	1.401	0.275	0.548	0.159	1.68	2.11	Case17/45
	Front with Headset					0.00	0.00	
	Back with Headset	1.310				1.31	1.31	
WCDMA IV_Ant1	Front	0.580	0.099	0.339	0.080	0.68	1.00	
	Back	1.396	0.275	0.548	0.159	1.67	2.10	Case19/47
	Front with Headset					0.00	0.00	
	Back with Headset	1.383				1.38	1.38	
WCDMA II_Ant1	Front	0.701	0.099	0.339	0.080	0.80	1.12	
	Back	1.290	0.275	0.548	0.159	1.57	2.00	Case48



	Front with Headset					0.00	0.00	
	Back with Headset	1.278				1.28	1.28	
LTE Band 12_Ant1	Front	0.735	0.099	0.339	0.080	0.83	1.15	
	Back	1.384	0.275	0.548	0.159	1.66	2.09	Case22/50
	Front with Headset					0.00	0.00	
	Back with Headset	1.340				1.34	1.34	
LTE Band 13_Ant1	Front	0.722	0.099	0.339	0.080	0.82	1.14	
	Back	1.397	0.275	0.548	0.159	1.67	2.10	Case72/52
	Front with Headset					0.00	0.00	
	Back with Headset	1.356				1.36	1.36	
LTE Band 14_Ant1	Front	0.658	0.099	0.339	0.080	0.76	1.08	
	Back	1.334	0.275	0.548	0.159	1.61	2.04	Case76/53
	Front with Headset					0.00	0.00	
	Back with Headset	1.257				1.26	1.26	
LTE Band 5_Ant1	Front	0.705	0.099	0.339	0.080	0.80	1.12	
	Back	1.323	0.275	0.548	0.159	1.60	2.03	Case54
	Front with Headset					0.00	0.00	
	Back with Headset	1.297				1.30	1.30	
LTE Band 66_Ant1	Front	0.514	0.099	0.339	0.080	0.61	0.93	
	Back	1.300	0.275	0.548	0.159	1.58	2.01	Case55
	Front with Headset					0.00	0.00	
	Back with Headset	1.255				1.26	1.26	
LTE Band 2_Ant1	Front	0.742	0.099	0.339	0.080	0.84	1.16	
	Back	1.334	0.275	0.548	0.159	1.61	2.04	Case77/56
	Front with Headset					0.00	0.00	
	Back with Headset	1.280				1.28	1.28	
LTE Band 30_Ant1	Front	1.343	0.099	0.339	0.080	1.44	1.76	Case79
	Back	1.347	0.275	0.548	0.159	1.62	2.05	Case28/58
	Front with Headset					0.00	0.00	
	Back with Headset	1.340				1.34	1.34	



16.4 Product specific 10g SAR Exposure Conditions

WWAN Band	Exposure Position	1	2	5	1+2	1+5	SPLSR
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 4	Summed	Summed	
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	
GSM850_Ant2	Front			1.086	0.00	1.09	
	Back	3.061	0.878	0.907	3.94	3.97	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	2.179		0.586	2.18	2.77	
	Bottom side				0.00	0.00	
GSM1900_Ant2	Front	1.872		1.086	1.87	2.96	
	Back	2.509	0.878	0.907	3.39	3.42	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	3.318		0.586	3.32	3.90	
	Bottom side				0.00	0.00	
WCDMA V_Ant2	Front			1.086	0.00	1.09	
	Back	2.145	0.878	0.907	3.02	3.05	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	1.341		0.586	1.34	1.93	
	Bottom side				0.00	0.00	
WCDMA II_Ant2	Front	1.563		1.086	1.56	2.65	
	Back	2.299	0.878	0.907	3.18	3.21	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	3.408		0.586	3.41	3.99	
	Bottom side				0.00	0.00	
LTE Band 5_Ant2	Front			1.086	0.00	1.09	
	Back	2.504	0.878	0.907	3.38	3.41	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	1.053		0.586	1.05	1.64	
	Bottom side				0.00	0.00	
LTE Band 2_Ant2	Front	1.548		1.086	1.55	2.63	
	Back	2.396	0.878	0.907	3.27	3.30	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	3.267		0.586	3.27	3.85	
	Bottom side				0.00	0.00	
LTE Band 30_Ant2	Front			1.086	0.00	1.09	
	Back	3.030	0.878	0.907	3.91	3.94	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side	1.899		0.586	1.90	2.49	
	Bottom side				0.00	0.00	
GSM850_Ant1	Front	2.208		1.086	2.21	3.29	
	Back	3.114	0.878	0.907	3.99	4.02	Case59
	Left side			0.070	0.00	0.07	
	Right side	1.095		1.220	1.10	2.32	
	Top side			0.586	0.00	0.59	
	Bottom side	3.341			3.34	3.34	
GSM1900_Ant1	Front	1.997		1.086	2.00	3.08	
	Back	3.285	0.878	0.907	4.16	4.19	Case60/61



	Left side	3.561		0.070	3.56	3.63	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.789			2.79	2.79	
WCDMA V_Ant1	Front	1.714		1.086	1.71	2.80	
	Back	1.945	0.878	0.907	2.82	2.85	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.459			2.46	2.46	
WCDMA IV_Ant1	Front	2.236		1.086	2.24	3.32	
	Back	3.485	0.878	0.907	4.36	4.39	Case62/63
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	3.353			3.35	3.35	
WCDMA II_Ant1	Front	1.961		1.086	1.96	3.05	
	Back	3.294	0.878	0.907	4.17	4.20	Case64/65
	Left side	3.195		0.070	3.20	3.27	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.801			2.80	2.80	
LTE Band 12_Ant1	Front			1.086	0.00	1.09	
	Back	2.190	0.878	0.907	3.07	3.10	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side				0.00	0.00	
LTE Band 13_Ant1	Front			1.086	0.00	1.09	
	Back	2.293	0.878	0.907	3.17	3.20	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.235			2.24	2.24	
LTE Band 14_Ant1	Front			1.086	0.00	1.09	
	Back	2.324	0.878	0.907	3.20	3.23	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.224			2.22	2.22	
LTE Band 5_Ant1	Front	2.329		1.086	2.33	3.42	
	Back	2.547	0.878	0.907	3.43	3.45	
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.809			2.81	2.81	
LTE Band 66_Ant1	Front	1.904		1.086	1.90	2.99	
	Back	3.269	0.878	0.907	4.15	4.18	Case66/67
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	3.023			3.02	3.02	
LTE Band 2_Ant1	Front	1.990		1.086	1.99	3.08	
	Back	3.502	0.878	0.907	4.38	4.41	Case68/69
	Left side	2.920		0.070	2.92	2.99	
	Right side			1.220	0.00	1.22	



	Top side			0.586	0.00	0.59	
	Bottom side	2.887			2.89	2.89	
LTE Band 30_Ant1	Front	1.900		1.086	1.90	2.99	
	Back	3.329	0.878	0.907	4.21	4.24	Case70/71
	Left side			0.070	0.00	0.07	
	Right side			1.220	0.00	1.22	
	Top side			0.586	0.00	0.59	
	Bottom side	2.558				2.56	2.56

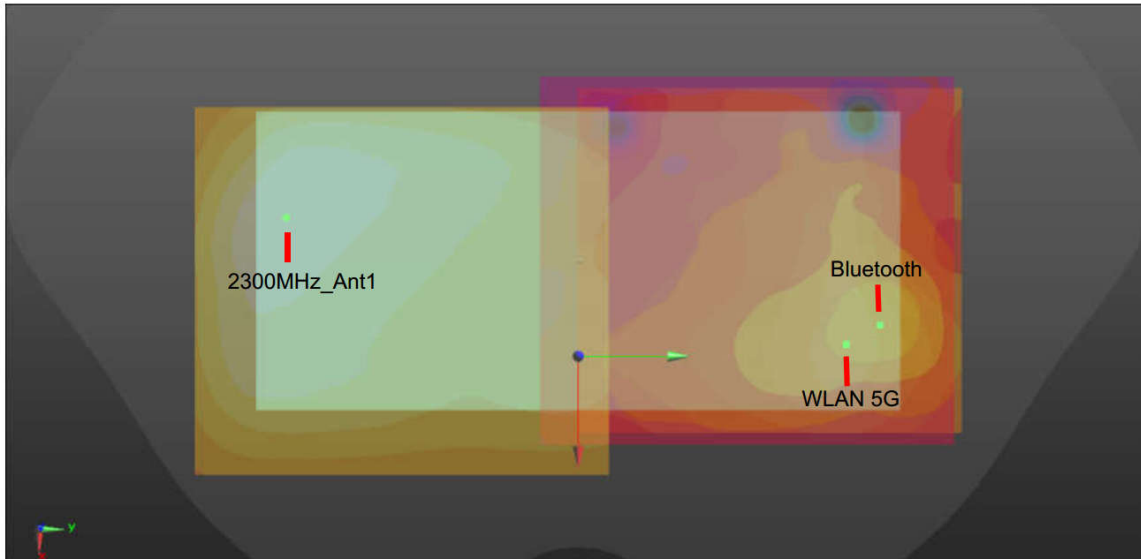
Remark:

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.
2. If SPLSR ≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is not necessary.

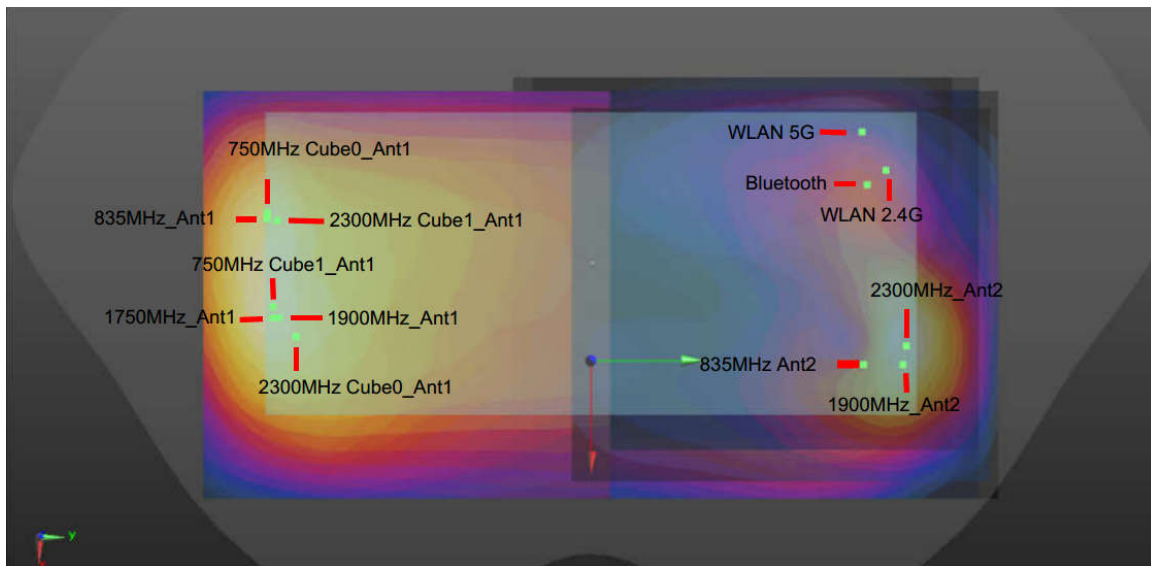
16.5 SPLSR Evaluation and Analysis

General Note:

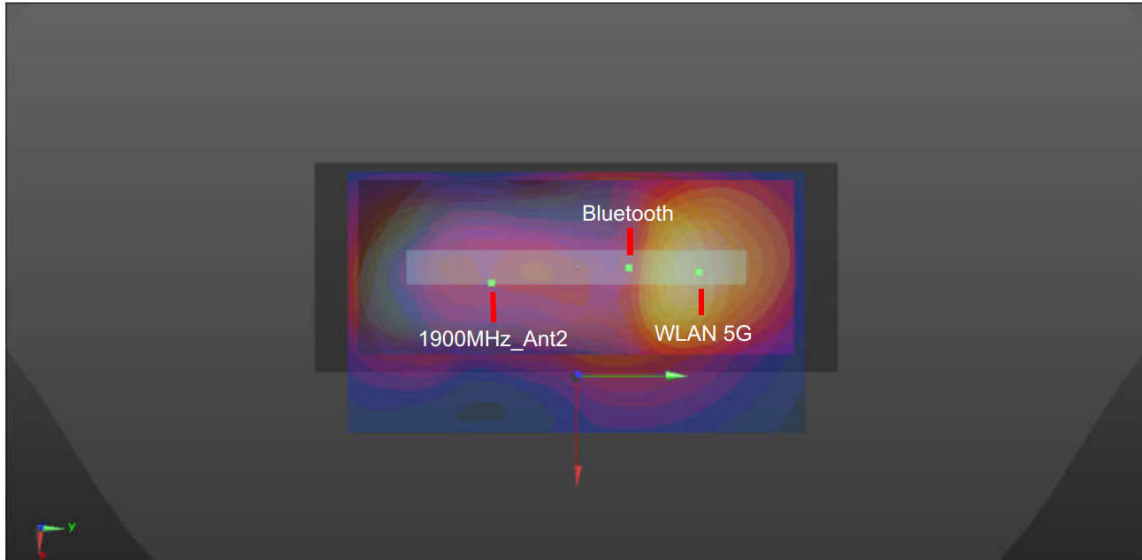
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where $(x1, y1, z1)$ and $(x2, y2, z2)$ are the coordinates in the area scans or extrapolated peak SAR locations in the zoom 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.



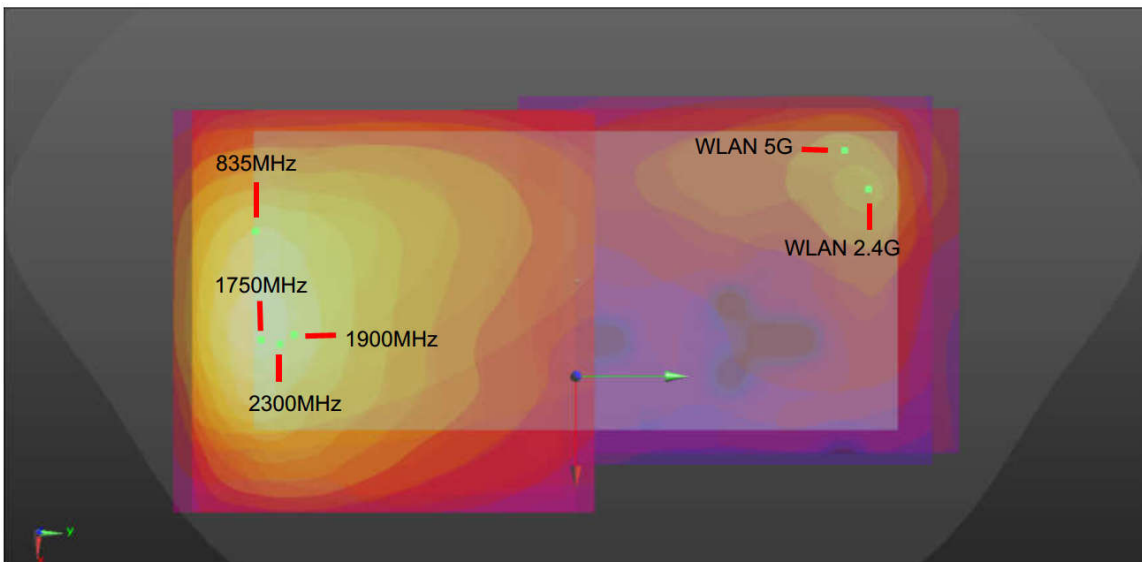
WWAN+WLAN5GHz+Bluetooth_Front 5mm



WWAN+WLAN2.4GHz/WWAN+WLAN5GHz+Bluetooth_Back 5mm



WWAN+WLAN5GHz+Bluetooth_Top Side 5mm



WWAN+WLAN2.4GHz/WWAN+WLAN5GHz_Back 0mm



Hotspot on_Ant2											
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 74	GSM850	Back	1.338	5mm	0.0025	0.0705	-0.206	51.5	1.61	0.04	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 1	GSM850	Back	1.338	5mm	0.0025	0.0705	-0.206	62.5	1.90	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	GSM850	Back	1.338	5mm	0.0025	0.0705	-0.206	47.9	1.50	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 2	GSM1900	Back	1.331	5mm	0.001	0.0745	-0.206	50.1	1.61	0.04	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 3	GSM1900	Back	1.331	5mm	0.001	0.0745	-0.206	61.1	1.89	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	GSM1900	Back	1.331	5mm	0.001	0.0745	-0.206	46.5	1.49	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 75	GSM1900	Top Side	1.276	5mm	-0.0215	-0.0195	-0.206	48.6	1.61	0.04	Not required
	WLAN5GHz		0.332	5mm	-0.025	0.029	-0.207				
	GSM1900	Top Side	1.276	5mm	-0.0215	-0.0195	-0.206	36.7	1.34	0.04	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
	WLAN5GHz	Top Side	0.332	5mm	-0.025	0.029	-0.207	12.0	0.40	0.02	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
Case 4	WCDMA V	Back	1.299	5mm	0.0025	0.0765	-0.206	62.7	1.86	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	WCDMA V	Back	1.299	5mm	0.0025	0.0765	-0.206	48.2	1.46	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 5	WCDMA II	Back	1.358	5mm	0.001	0.0805	-0.206	50.9	1.63	0.04	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 6	WCDMA II	Back	1.358	5mm	0.001	0.0805	-0.206	61.7	1.92	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	WCDMA II	Back	1.358	5mm	0.001	0.0805	-0.206	47.3	1.52	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				



	Top Side	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 7	WCDMA II	Top Side	1.225	5mm	-0.0215	-0.0195	-0.206	48.6	1.56	0.04	Not required
	WLAN5GHz		0.332	5mm	-0.025	0.029	-0.207				
	WCDMA II	Top Side	1.225	5mm	-0.0215	-0.0195	-0.206	36.7	1.29	0.04	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
	WLAN5GHz	Top Side	0.332	5mm	-0.025	0.029	-0.207	12.0	0.40	0.02	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
Case 9	LTE Band 5	Back	1.234	5mm	0.0025	0.0765	-0.206	62.7	1.79	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 5	Back	1.234	5mm	0.0025	0.0765	-0.206	48.2	1.39	0.03	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 10	LTE Band 2	Back	1.387	5mm	-0.0005	0.0805	-0.206	49.4	1.66	0.04	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 11	LTE Band 2	Back	1.387	5mm	-0.0005	0.0805	-0.206	60.3	1.94	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 2	Back	1.393	5mm	-0.0005	0.0805	-0.206	45.9	1.55	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 12	LTE Band 2	Top Side	1.283	5mm	-0.026	-0.0195	-0.206	48.5	1.62	0.04	Not required
	WLAN5GHz		0.332	5mm	-0.025	0.029	-0.207				
	LTE Band 2	Top Side	1.283	5mm	-0.026	-0.0195	-0.206	36.5	1.35	0.04	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
	WLAN5GHz	Top Side	0.332	5mm	-0.025	0.029	-0.207	12.0	0.40	0.02	Not required
	Bluetooth		0.064	5mm	-0.025	0.017	-0.207				
Case 13	LTE Band 30	Back	1.263	5mm	-0.005	0.0816	-0.206	56.0	1.82	0.04	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 30	Back	1.263	5mm	-0.005	0.0816	-0.206	41.7	1.42	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				

Hotspot on_Ant1											
	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 14	GSM850	Back	1.307	5mm	-0.0335	-0.0885	-0.206	161.7	1.86	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	GSM850	Back	1.307	5mm	-0.0335	-0.0885	-0.206	160.1	1.47	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required	



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				
					(mm)	(mm)	(mm)				
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 15	GSM1900	Back	1.389	5mm	-0.0095	-0.0855	-0.206	161.6	1.66	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 16	GSM1900	Back	1.389	5mm	-0.0095	-0.0855	-0.206	164.4	1.95	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	GSM1900	Back	1.389	5mm	-0.0095	-0.0855	-0.206	160.8	1.55	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 17	WCDMA V	Back	1.401	5mm	-0.04	-0.088	-0.206	159.5	1.68	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 18	WCDMA V	Back	1.401	5mm	-0.04	-0.088	-0.206	160.3	1.96	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	WCDMA V	Back	1.401	5mm	-0.04	-0.088	-0.206	159.3	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 19	WCDMA IV	Back	1.396	5mm	-0.019	-0.082	-0.206	156.1	1.67	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 20	WCDMA IV	Back	1.396	5mm	-0.019	-0.082	-0.206	158.4	1.95	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	WCDMA IV	Back	1.396	5mm	-0.019	-0.082	-0.206	155.5	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 21	WCDMA II	Back	1.290	5mm	-0.011	-0.0805	-0.206	159.2	1.85	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	WCDMA II	Back	1.290	5mm	-0.011	-0.0805	-0.206	155.6	1.45	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 22	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	155.2	1.66	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	162.3	1.65	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 23	Top Side	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 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	156.3	1.94	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	155.0	1.54	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	163.8	1.93	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	161.9	1.53	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
Bluetooth	0.159		5mm	-0.0454	0.0712	-0.207					
Case 72	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X Y Z			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	157.4	1.67	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 73	Top Side	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X Y Z			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	158.6	1.95	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	157.1	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 76	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X Y Z			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	159.1	1.61	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 24	Top Side	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X Y Z			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	160.4	1.89	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	158.7	1.49	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 80	Top Side	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m) X Y Z			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	155.8	1.60	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				



Case	Top Side	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 25	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	156.9	1.88	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	155.5	1.48	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 26	LTE Band 66	Back	1.300	5mm	-0.019	-0.082	-0.206	158.4	1.86	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 66	Back	1.300	5mm	-0.019	-0.082	-0.206	155.5	1.46	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 77	LTE Band 2	Back	1.334	5mm	-0.0175	-0.082	-0.206	156.4	1.61	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
	Band	Position	SAR (W/kg)	Gap (mm)	X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 27	LTE Band 2	Back	1.334	5mm	-0.0175	-0.082	-0.206	158.8	1.89	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 2	Back	1.334	5mm	-0.0175	-0.082	-0.206	155.7	1.49	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 78	LTE Band 30	Front	1.343	5mm	-0.0312	-0.081	-0.206	154.4	1.71	0.01	Not required
	WLAN5GHz		0.364	5mm	-0.004	0.071	-0.207				
	LTE Band 30	Front	1.343	5mm	-0.0312	-0.081	-0.206	161.4	1.42	0.01	Not required
	Bluetooth		0.080	5mm	-0.0082	0.0788	-0.207				
	WLAN5GHz	Front	0.364	5mm	-0.004	0.071	-0.207	8.9	0.44	0.03	Not required
	Bluetooth		0.080	5mm	-0.0082	0.0788	-0.207				
Case 28	LTE Band 30	Back	1.347	5mm	-0.0062	-0.081	-0.206	158.1	1.62	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
	LTE Band 30	Back	1.090	5mm	-0.0362	-0.0808	-0.206	152.5	1.37	0.01	Not required
	WLAN2.4GHz		0.275	5mm	-0.049	0.0712	-0.207				
Case 29	LTE Band 30	Back	1.347	5mm	-0.0062	-0.081	-0.206	161.2	1.90	0.02	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 30	Back	1.347	5mm	-0.0062	-0.081	-0.206	157.2	1.51	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	LTE Band 30	Back	1.090	5mm	-0.0362	-0.0808	-0.206	153.7	1.65	0.01	Not required
	WLAN5GHz		0.557	5mm	-0.06	0.071	-0.207				
	LTE Band 30	Back	1.090	5mm	-0.0362	-0.0808	-0.206	152.3	1.25	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.557	5mm	-0.06	0.071	-0.207	14.6	0.72	0.04	Not required
Bluetooth	0.159		5mm	-0.0454	0.0712	-0.207					

Body-worn_Ant2											
	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 30	GSM850	Back	1.338	5mm	0.0025	0.0705	-0.206	62.6	1.89	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	GSM850	Back	1.338	5mm	0.0025	0.0705	-0.206	47.9	1.50	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 32	GSM1900	Back	1.331	5mm	0.001	0.0745	-0.206	61.4	1.88	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	GSM1900	Back	1.331	5mm	0.001	0.0745	-0.206	46.5	1.49	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 33	WCDMA V	Back	1.299	5mm	0.0025	0.0765	-0.206	63.1	1.85	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	WCDMA V	Back	1.299	5mm	0.0025	0.0765	-0.206	48.2	1.46	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 35	WCDMA II	Back	1.358	5mm	0.001	0.0805	-0.206	62.3	1.91	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	WCDMA II	Back	1.358	5mm	0.001	0.0805	-0.206	47.3	1.52	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				

Case 37	Top Side	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 37	LTE Band 5	Back	1.234	5mm	0.0025	0.0765	-0.206	63.1	1.78	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
Case 37	LTE Band 5	Back	1.234	5mm	0.0025	0.0765	-0.206	48.2	1.39	0.03	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 37	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 39	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 39	LTE Band 2	Back	1.387	5mm	-0.0005	0.0805	-0.206	60.8	1.94	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
Case 39	LTE Band 2	Back	1.387	5mm	-0.0005	0.0805	-0.206	45.9	1.55	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 39	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 40	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 40	LTE Band 30	Back	1.263	5mm	-0.005	0.0816	-0.206	56.7	1.81	0.04	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
Case 40	LTE Band 30	Back	1.263	5mm	-0.005	0.0816	-0.206	41.7	1.42	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 40	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				

Body-worn_Ant1											
Case 41	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 41	GSM850	Back	1.307	5mm	-0.0335	-0.0885	-0.206	158.7	1.86	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
Case 41	GSM850	Back	1.307	5mm	-0.0335	-0.0885	-0.206	160.1	1.47	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 41	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 43	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 43	GSM1900	Back	1.389	5mm	-0.0095	-0.0855	-0.206	161.6	1.94	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
Case 43	GSM1900	Back	1.389	5mm	-0.0095	-0.0855	-0.206	160.8	1.55	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 43	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 45	Band	Position	SAR (W/kg)	Gap	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 45	WCDMA V	Back	1.401	5mm	-0.04	-0.088	-0.206	157.3	1.95	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-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				
Case 47	WCDMA V	Back	1.401	5mm	-0.04	-0.088	-0.206	159.3	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 48	WCDMA IV	Back	1.396	5mm	-0.019	-0.082	-0.206	155.5	1.94	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	WCDMA IV	Back	1.396	5mm	-0.019	-0.082	-0.206	155.5	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 49	WCDMA II	Back	1.290	5mm	-0.011	-0.0805	-0.206	156.4	1.84	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	WCDMA II	Back	1.290	5mm	-0.011	-0.0805	-0.206	155.6	1.45	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 50	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	153.3	1.93	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	155.0	1.54	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	160.8	1.92	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	161.9	1.53	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required	
Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207					
Case 52	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	155.7	1.95	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	157.1	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 53	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	157.4	1.88	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	158.7	1.49	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 54	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	154.0	1.87	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-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				
Case 51	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	153.3	1.93	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 12	Back	1.384	5mm	-0.0365	-0.0835	-0.206	155.0	1.54	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	160.8	1.92	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
LTE Band 12	Back	1.370	5mm	-0.03	-0.09	-0.206	161.9	1.53	0.01	Not required	
Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207					
Case 52	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	155.7	1.95	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 13	Back	1.397	5mm	-0.034	-0.0855	-0.206	157.1	1.56	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 53	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	157.4	1.88	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 14	Back	1.334	5mm	-0.0325	-0.087	-0.206	158.7	1.49	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 54	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	154.0	1.87	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-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				
Case 55	LTE Band 5	Back	1.323	5mm	-0.0355	-0.084	-0.206	155.5	1.48	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 56	LTE Band 66	Back	1.300	5mm	-0.019	-0.082	-0.206	155.5	1.85	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 66	Back	1.300	5mm	-0.019	-0.082	-0.206	155.5	1.46	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 79	LTE Band 2	Back	1.334	5mm	-0.0175	-0.082	-0.206	155.9	1.88	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 2	Back	1.334	5mm	-0.0175	-0.082	-0.206	155.7	1.49	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
Case 58	LTE Band 30	Front	1.343	5mm	-0.0312	-0.081	-0.206	161.3	161.3	1.68	Not required
	WLAN5GHz		0.339	5mm	0.001	0.077	-0.207				
	LTE Band 30	Front	1.343	5mm	-0.0312	-0.081	-0.206	161.4	161.4	1.42	Not required
	Bluetooth		0.080	5mm	-0.0082	0.0788	-0.207				
	WLAN5GHz	Front	0.339	5mm	0.001	0.077	-0.207	9.4	9.4	0.42	Not required
	Bluetooth		0.080	5mm	-0.0082	0.0788	-0.207				
Case 58	LTE Band 30	Back	1.347	5mm	-0.0062	-0.081	-0.206	158.4	1.90	0.02	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 30	Back	1.347	5mm	-0.0062	-0.081	-0.206	157.2	1.51	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	LTE Band 30	Back	1.090	5mm	-0.0362	-0.0808	-0.206	150.7	1.64	0.01	Not required
	WLAN5GHz		0.548	5mm	-0.06	0.068	-0.207				
	LTE Band 30	Back	1.090	5mm	-0.0362	-0.0808	-0.206	152.3	1.25	0.01	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				
	WLAN5GHz	Back	0.548	5mm	-0.06	0.068	-0.207	14.9	0.71	0.04	Not required
	Bluetooth		0.159	5mm	-0.0454	0.0712	-0.207				

Product Specific 10g SAR_Ant1											
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 59	GSM850	Back	3.114	0mm	-0.046	-0.0835	-0.206	150.1	4.02	0.05	Not required
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				
Case 60	GSM1900	Back	3.285	0mm	-0.0125	-0.081	-0.206	158.1	4.16	0.05	Not required
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 61	GSM1900	Back	3.285	0mm	-0.0125	-0.081	-0.206	154.2	4.19	0.06	Not required



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 62	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	159.9	4.36	0.06	Not required
	WCDMA IV		3.485	0mm	-0.0095	-0.082	-0.206				
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 63	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	156.1	4.39	0.06	Not required
	WCDMA IV		3.485	0mm	-0.0095	-0.082	-0.206				
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				
Case 64	WLAN2.4GHz	Back	0.878	0mm	-0.054	0.0716	-0.207	161.4	4.17	0.05	Not required
	WCDMA II		3.294	0mm	-0.011	-0.084	-0.206				
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 65	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	157.5	4.20	0.05	Not required
	WCDMA II		3.294	0mm	-0.011	-0.084	-0.206				
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				
Case 66	WLAN2.4GHz	Back	0.878	0mm	-0.054	0.0716	-0.207	170.9	4.15	0.05	Not required
	LTE Band 66		3.269	0mm	-0.003	-0.0915	-0.206				
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 67	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	167.2	4.18	0.05	Not required
	LTE Band 66		3.269	0mm	-0.003	-0.0915	-0.206				
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				
Case 68	WLAN2.4GHz	Back	0.878	0mm	-0.054	0.0716	-0.207	159.5	4.38	0.06	Not required
	LTE Band 2		3.502	0mm	-0.011	-0.082	-0.206				
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 69	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	155.6	4.41	0.06	Not required
	LTE Band 2		3.502	0mm	-0.011	-0.082	-0.206				
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				
Case 70	WLAN2.4GHz	Back	0.878	0mm	-0.054	0.0716	-0.207	158.7	4.21	0.05	Not required
	LTE Band 30		3.329	0mm	-0.0098	-0.0808	-0.206				
	WLAN2.4GHz		0.878	0mm	-0.054	0.0716	-0.207				
Case 71	WLAN5GHz	Back	0.907	0mm	-0.059	0.066	-0.207	154.8	4.24	0.06	Not required
	LTE Band 30		3.329	0mm	-0.0098	-0.0808	-0.206				
	WLAN5GHz		0.907	0mm	-0.059	0.066	-0.207				

Test Engineer : Hank Huang, Bin He, 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 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015
- [11] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015
- [12] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015
- [13] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015
- [14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

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