

# FCC SAR Test Report

**APPLICANT** : Motorola Mobility LLC  
**EQUIPMENT** : Mobile Cellular Phone  
**BRAND NAME** : Motorola  
**MODEL NAME** : XT2413-2, XT2413V  
**FCC ID** : IHDT56AN4  
**STANDARD** : FCC 47 CFR Part 2 (2.1093)

We, Sporton International Inc. (Shenzhen), would like to declare that the tested sample has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been in compliance with the applicable technical standards.

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



Approved by: Si Zhang

**Sporton International Inc. (Shenzhen)**

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055  
People's Republic of China**



Table of Contents

1. Statement of Compliance ..... 4
2. Administration Data ..... 6
3. Guidance Applied..... 6
4. Equipment Under Test (EUT) Information..... 7
4.1 General Information ..... 7
4.2 General LTE SAR Test and Reporting Considerations ..... 8
5. Proximity Sensor Triggering Test.....12
6. RF Exposure Limits.....14
6.1 Uncontrolled Environment.....14
6.2 Controlled Environment.....14
7. Specific Absorption Rate (SAR).....15
7.1 Introduction .....15
7.2 SAR Definition.....15
8. System Description and Setup .....16
8.1 E-Field Probe .....17
8.2 Data Acquisition Electronics (DAE) .....17
8.3 Phantom.....18
8.4 Device Holder.....19
9. Measurement Procedures .....20
9.1 Spatial Peak SAR Evaluation .....20
9.2 Power Reference Measurement.....21
9.3 Area Scan .....21
9.4 Zoom Scan.....22
9.5 Volume Scan Procedures.....22
9.6 Power Drift Monitoring.....22
10. Test Equipment List.....23
11. System Verification .....24
11.1 Tissue Simulating Liquids .....24
11.2 Tissue Verification .....25
11.3 System Performance Check Results .....26
12. RF Exposure Positions .....28
12.1 Ear and handset reference point.....28
12.2 Definition of the cheek position .....29
12.3 Definition of the tilt position .....30
12.4 Body Worn Accessory .....31
12.5 Product Specific 10g SAR Exposure.....32
12.6 Wireless Router.....32
13. Conducted RF Output Power (Unit: dBm).....33
14. Antenna Location .....46
15. SAR Test Results .....47
15.1 Head SAR .....50
15.2 Hotspot SAR .....57
15.3 Body Worn Accessory SAR.....64
15.4 Product specific 10g SAR .....70
15.5 Repeated SAR Measurement .....75
16. Simultaneous Transmission Analysis .....76
16.1 Head Exposure Conditions .....77
16.2 Hotspot Exposure Conditions.....79
16.3 Body-Worn Accessory Exposure Conditions .....82
16.4 Product specific 10g SAR Exposure Conditions.....85
16.5 SPLSR Evaluation and Analysis.....88
17. Uncertainty Assessment .....96
18. References .....97
Appendix A. Plots of System Performance Check
Appendix B. Plots of High SAR Measurement
Appendix C. DASy Calibration Certificate
Appendix D. Test Setup Photos
Appendix E. Conducted RF Output Power Table



### Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA391515	Rev. 01	Initial issue of report	Nov. 03, 2023
FA391515	Rev. 02	Revised the typo of location unit for section 16.5	Nov. 08, 2023



### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2413-2, XT2413V**, 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	0.36	0.95	0.95	1.57
		GSM1900	0.23	1.44	1.33	
	WCDMA	WCDMA II	0.49	1.29	1.41	
		WCDMA IV	0.21	1.35	1.30	
		WCDMA V	0.46	1.27	1.27	
	LTE	LTE Band 7	0.14	1.38	1.43	
		LTE Band 12/17	0.83	0.80	1.05	
		LTE Band 13	0.56	0.84	0.84	
		LTE Band 25/2	1.00	1.33	1.42	
		LTE Band 26/5	1.02	1.13	1.17	
		LTE Band 66/4	0.96	1.29	1.40	
		LTE Band 71	0.51	0.99	0.99	
LTE Band 41/38	1.05	1.35	1.35			
DTS	WLAN	WLAN2.4GHz	1.29	0.70	1.27	1.56
NII		WLAN5GHz	0.89	0.68	1.14	1.57
DSS	Bluetooth	Bluetooth	0.12	0.12	0.12	1.57

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	GSM1900	2.34	3.86
		WCDMA	WCDMA II	
	WCDMA IV		3.30	
	WCDMA V		2.59	
	LTE	LTE Band 7	2.38	
		LTE Band 12/17	2.55	
		LTE Band 25/2	3.26	
		LTE Band 26/5	2.76	
		LTE Band 66/4	3.17	
	LTE Band 41/38	2.65		
DTS	WLAN	WLAN2.4GHz	1.34	3.85
NII		WLAN5GHz	2.56	3.86
Date of Testing:			2023/9/26~2023/10/22	

**Remark:** This device supports LTE B2 / B4 / B5 / B17 / B38 and B25 / B66 / B26 / B12 / B41. Since the supported frequency span for LTE B2 / B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE B25 / B66 / B26 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B66 / B26 / B12 / B41.



**Declaration of Conformity:**

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

**Comments and Explanations:**

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

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.



### 2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
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.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR04-SZ	CN1256	421272

Applicant	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

Manufacturer	
Company Name	Motorola Mobility LLC
Address	222 W,Merchandise Mart Plaza, Chicago IL 60654 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 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
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02

## 4. Equipment Under Test (EUT) Information

### 4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2413-2, XT2413V
FCC ID	IHDT56AN4
IMEI Code	Sample 1:352036360013856 Sample 2:352036360018558
Frequency Band	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 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 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 ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS AMR / RMC 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz : 802.11b/g/n HT20/ HT40 WLAN 5GHz : 802.11a/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	DVT2
SW Version	T3TF33.55
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.</li> <li>This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.</li> <li>This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).</li> <li>This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.</li> <li>The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.</li> <li>For WLAN transmitter, while the device WLAN is transmitting simultaneously with the WWAN/BT antenna, the device power will be reduced power at head exposure conditions. For WLAN transmitter, while the device WLAN is</li> </ol>	

- transmitting simultaneously with the WWAN/BT antenna and Proximity sensors trigger, the device power will be reduced power at body-worn and extremity exposure conditions.
7. This device supports HPUE for LTE Band 41 with class 2 level, HPUE power has been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verified the worst case of power class 3 SAR.
  8. There are two samples, the different between them refer to the XT2413-2, XT2413V\_Operational Description of Product Equality Declaration which is exhibit separately. According to the differences, sample 1 was chosen to perform full SAR testing and sample 2 verified the worst case of sample 1.
  9. The device has two batteries. For battery 1/2 only suppliers are different, so only battery 1 was chosen 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	IHDT56AN4																																																																						
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 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz																																																																						
Uplink Modulations used	QPSK / 16QAM / 64QAM																																																																						
LTE Voice / Data requirements	Voice and Data																																																																						
LTE Release Version	R10, Cat 13																																																																						
CA Support	Supported, Uplink and Downlink																																																																						
LTE MPR permanently built-in by design	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th> </tr> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						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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LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																																						
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																						
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors/receiver/hotspot detect mechanism, head/body-worn /hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.																																																																						





LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 2 carriers in the downlink and 2 carriers in the uplink.

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 7												
	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	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782		23230		782	
M	23230		782									
H	23255		784.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)		Channel #		Freq. (MHz)	
L	23755		706.5		23780		709		23780		709	
M	23790		710		23790		710		23790		710	
H	23825		713.5		23800		711		23800		711	



LTE Band 25												
	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	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26965	841.5
LTE Band 38												
	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)		
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37850	2580	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38150	2610	38150	2610
LTE Band 41												
	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)		
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506	39750	2506	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	40185	2549.5	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5	41055	2636.5	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680	41490	2680	41490	2680
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
LTE Band 71												
	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)		
L	133147	665.5	133172	668	133197	670.5	133222	673	133222	673	133222	673
M	133247	675.5	133272	678	133297	680.5	133322	683	133322	683	133322	683
H	133447	695.5	133422	693	133397	690.5	133372	688	133372	688	133372	688

**<For LTE Overlap Bands Description>**

1) LTE Bands BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 2	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 25	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 5	Yes	Yes	Yes	Yes		
LTE Band 26	Yes	Yes	Yes	Yes	Yes	
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes

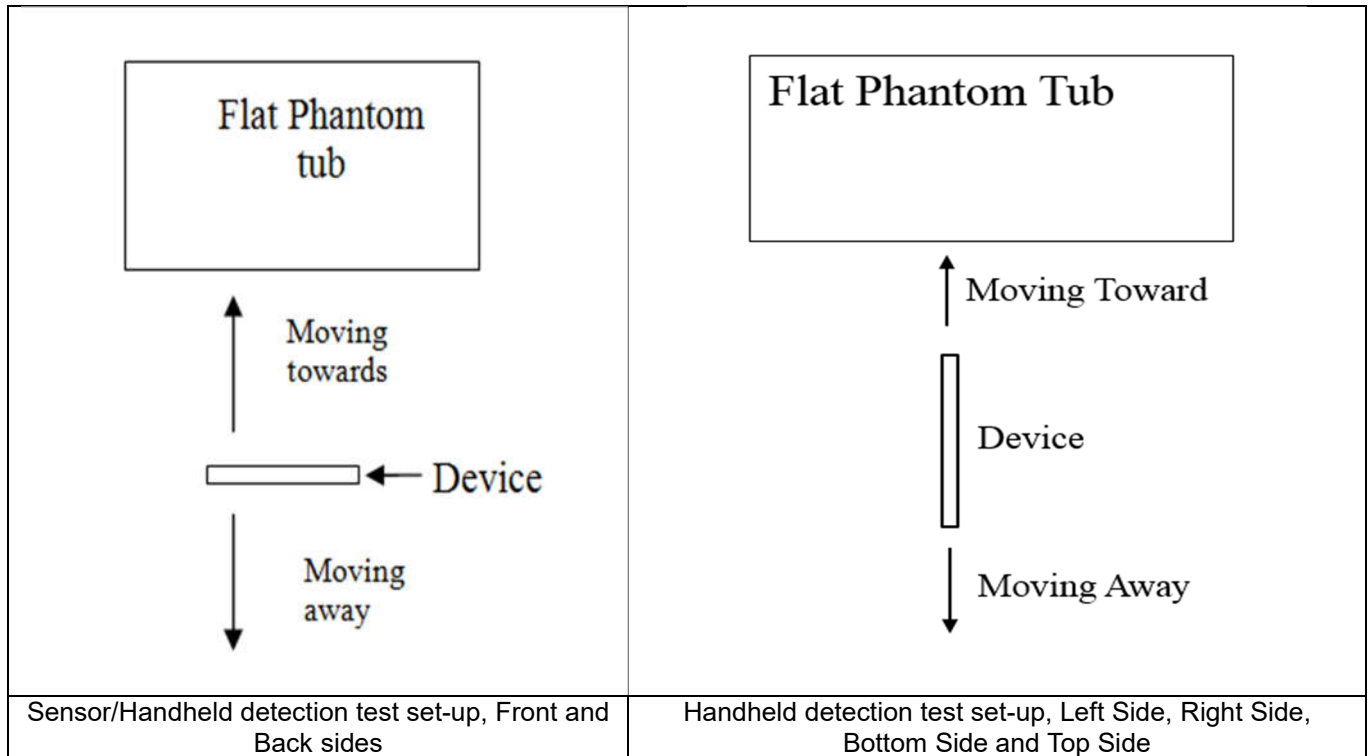
2) LTE Bands tune up:

Band	Antenna	Rec on	Hotspot	Sensor on	Handheld	Default
						Tune-up Limit
LTE Band 12	0	24	24	24	24	24
LTE Band 17	0	24	24	24	24	24
LTE Band 2	0	22	15.5	18	20	24
LTE Band 25	0	22	15.5	18	20	24
LTE Band 4	0	24	13.5	14.5	19.5	24
LTE Band 66	0	24	13.5	14.5	19.5	24
LTE Band 5	0	24	24	24	24	24
LTE Band 26	0	24	24	24	24	24
LTE Band 38(PC3)	0	24	13.5	14	17	24
LTE Band 41(PC3)	0	24	13.5	14	17	24
LTE Band 41(PC2)	0	27	16.5	17	20	27
LTE Band 2	1	18	14	16.5	18.5	24
LTE Band 25	1	18	14	16.5	18.5	24
LTE Band 4	1	16.5	12	14	19	24
LTE Band 66	1	16.5	12	14	19	24
LTE Band 5	1	23	19.5	21.5	23	24
LTE Band 26	1	23	19.5	21.5	23	24

## 5. Proximity Sensor Triggering Test

### <Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left/right sides of the device. When front/back/top/bottom/left/right sides of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.



**<P-Sensor>**

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	19	22	27	29

**<Handheld for ANT 0>**

Proximity Sensor Triggering Distance (mm)										
Position	Front		Back		Left Side		Right Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	19	22	26	28	9	11	9	10	24	26

**<Handheld for ANT1>**

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	9	14	20	24	9	10	15	17

**<Handheld for ANT2&3>**

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	5	9	15	18	5	9	12	15

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

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

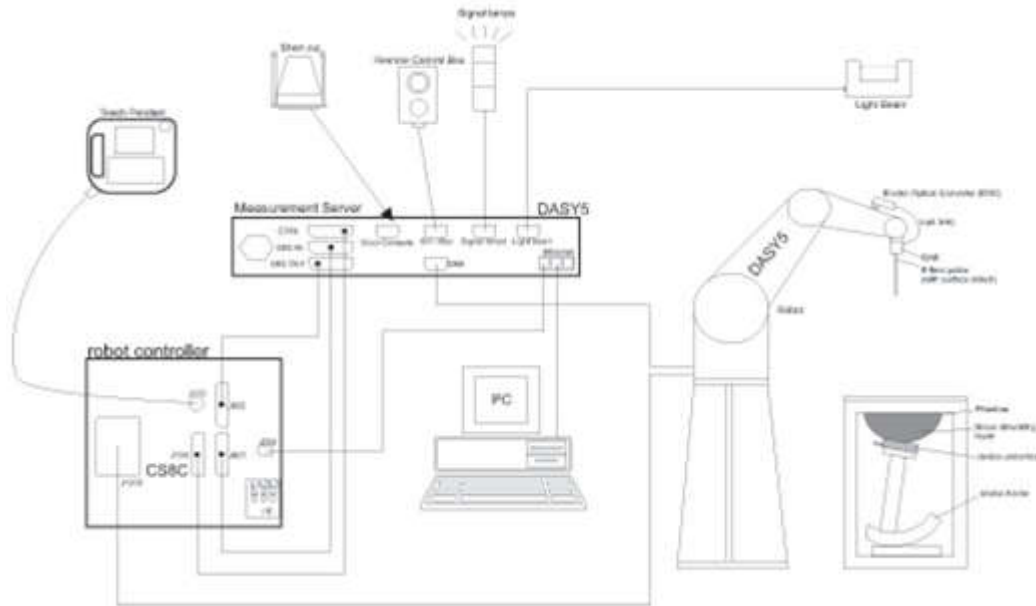
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

## 8. System Description and Setup

The 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 DASY 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>**

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

**8.2 Data Acquisition Electronics (DAE)**

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


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



**Photo of DAE**


### 8.3 Phantom

#### <SAM Twin Phantom>

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

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

#### <ELI Phantom>

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

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

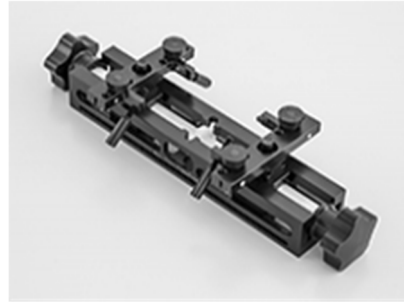
## 8.4 Device Holder

### <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 dB) 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° ± 1°	20° ± 1°
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 ≤ 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 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 shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

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

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

### 9.5 Volume Scan Procedures

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

### 9.6 Power Drift Monitoring

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



**10. Test Equipment List**

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 14, 2024
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 16, 2024
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 19, 2021	Oct. 18, 2024
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 19, 2024
SPEAG	2450MHz System Validation Kit	D2450V2	1040	Apr. 25, 2023	Apr. 24, 2026
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 20, 2021	Dec. 19, 2024
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 12, 2024
SPEAG	Data Acquisition Electronics	DAE4	1437	Nov. 23, 2022	Nov. 22, 2023
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	Jun. 06, 2023	Jun. 05, 2024
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1500	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 05, 2023	Jul. 04, 2024
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 27, 2022	Dec. 26, 2023
Anritsu	Radio communication analyzer	MT8821C	6272416846	Apr. 06, 2023	Apr. 05, 2024
Anritsu	Radio communication analyzer	MT8821C	6272416863	Apr. 03, 2023	Apr. 02, 2024
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 05, 2023	Jul. 04, 2024
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 17, 2022	Oct. 16, 2023
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 16, 2023	Oct. 15, 2024
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Feb. 20, 2023	Feb. 19, 2024
Agilent	Signal Generator	N5181A	MY50145381	Dec. 27, 2022	Dec. 26, 2023
Anritsu	Power Sensor	MA2411B	1542004	Dec. 27, 2022	Dec. 26, 2023
Anritsu	Power Meter	ML2495A	1339473	Dec. 27, 2022	Dec. 26, 2023
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 27, 2022	Dec. 26, 2023
R&S	Spectrum Analyzer	FSP7	100818	Jul. 05, 2023	Jul. 04, 2024
TES	Hygrometer	1310	200505600	Jul. 08, 2023	Jul. 07, 2024
Anymetre	Thermo-Hygrometer	JR593	2020062101	Jul. 08, 2023	Jul. 07, 2024
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 source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

## 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. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

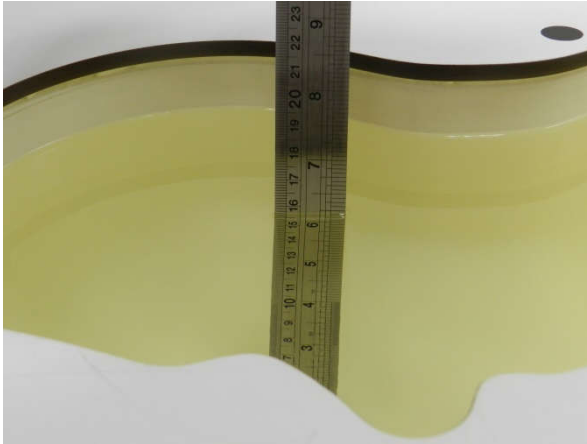


Fig 10.1 Photo of Liquid Height for Head SAR

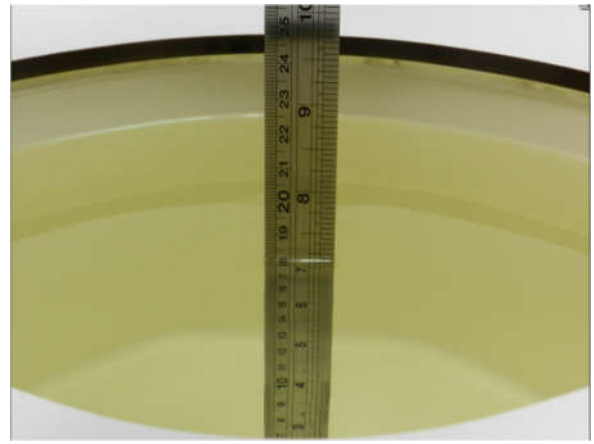


Fig 10.2 Photo of Liquid Height for Body SAR



**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 (εr)
<b>For Head</b>								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
<b>For Body</b>								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

**Simulating Liquid for 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 (εr)	Conductivity Target (σ)	Permittivity Target (εr)	Delta (σ) (%)	Delta (εr) (%)	Limit (%)	Date
750	Head	22.2	0.921	41.563	0.89	41.90	3.48	-0.80	±5	2023/9/26
750	Head	22.3	0.915	43.139	0.89	41.90	2.81	2.96	±5	2023/10/11
835	Head	22.4	0.934	40.173	0.90	41.50	3.78	-3.20	±5	2023/9/27
835	Head	22.4	0.939	42.796	0.90	41.50	4.33	3.12	±5	2023/10/12
1750	Head	22.5	1.335	38.437	1.37	40.10	-2.55	-4.15	±5	2023/9/29
1750	Head	22.5	1.374	41.404	1.37	40.10	0.29	3.25	±5	2023/10/14
1900	Head	22.5	1.448	40.982	1.40	40.00	3.43	2.46	±5	2023/10/4
1900	Head	22.5	1.456	41.183	1.40	40.00	4.00	2.96	±5	2023/10/16
2450	Head	22.6	1.809	39.682	1.80	39.20	0.50	1.23	±5	2023/10/6
2450	Head	22.2	1.810	40.312	1.80	39.20	0.56	2.84	±5	2023/10/18
2600	Head	22.6	1.939	37.938	1.96	39.00	-1.07	-2.72	±5	2023/10/7
2600	Head	22.4	1.915	39.986	1.96	39.00	-2.30	2.53	±5	2023/10/19
5250	Head	22.5	4.500	35.743	4.71	35.95	-4.46	-0.58	±5	2023/10/8
5250	Head	22.6	4.508	35.648	4.71	35.95	-4.29	-0.84	±5	2023/10/20
5600	Head	22.2	4.858	35.185	5.07	35.50	-4.18	-0.89	±5	2023/10/9
5600	Head	22.5	4.851	35.117	5.07	35.50	-4.32	-1.08	±5	2023/10/21
5750	Head	22.5	5.044	34.814	5.22	35.35	-3.37	-1.52	±5	2023/10/10
5750	Head	22.6	5.038	34.660	5.22	35.35	-3.49	-1.95	±5	2023/10/22



11.3 System Performance Check Results

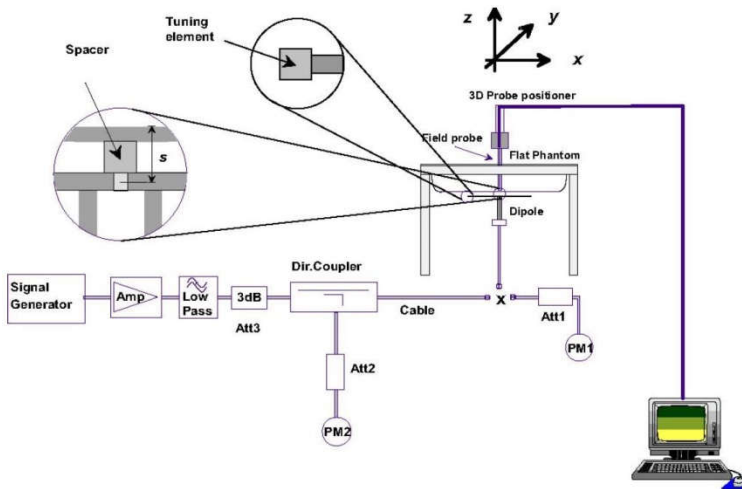
Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the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

<1g SAR>

Table with 11 columns: 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 (%). Rows contain test data from 2023/9/26 to 2023/10/22.

**<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 (%)
2023/9/26	750	Head	250	1099	3819	1437	1.480	5.650	5.92	4.78
2023/10/11	750	Head	250	1099	3819	1437	1.430	5.650	5.72	1.24
2023/9/27	835	Head	250	4d162	3819	1437	1.680	6.260	6.72	7.35
2023/10/12	835	Head	250	4d162	3819	1437	1.590	6.260	6.36	1.60
2023/9/29	1750	Head	250	1137	3819	1437	4.690	19.200	18.76	-2.29
2023/10/14	1750	Head	250	1137	3819	1437	4.950	19.200	19.8	3.13
2023/10/4	1900	Head	250	5d182	3819	1437	5.010	20.200	20.04	-0.79
2023/10/16	1900	Head	250	5d182	3819	1437	5.330	20.200	21.32	5.54
2023/10/6	2450	Head	250	1040	3819	1437	5.830	24.600	23.32	-5.20
2023/10/18	2450	Head	250	1040	3819	1437	5.810	24.600	23.24	-5.53
2023/10/7	2600	Head	250	1070	3819	1437	6.450	24.600	25.8	4.88
2023/10/19	2600	Head	250	1070	3819	1437	5.870	24.600	23.48	-4.55
2023/10/8	5250	Head	100	1341	3819	1437	2.420	23.100	24.2	4.76
2023/10/20	5250	Head	100	1341	3819	1437	2.240	23.100	22.4	-3.03
2023/10/9	5600	Head	100	1341	3819	1437	2.450	24.000	24.5	2.08
2023/10/21	5600	Head	100	1341	3819	1437	2.330	24.000	23.3	-2.92
2023/10/10	5750	Head	100	1341	3819	1437	2.360	22.700	23.6	3.96
2023/10/22	5750	Head	100	1341	3819	1437	2.190	22.700	21.9	-3.52



**Fig 10.3.1 System Performance Check Setup**



**Fig 10.3.2 Setup Photo**

## 12. RF Exposure Positions

### 12.1 Ear and handset reference point

Figure 11.1.1 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 11.1.2 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 11.1.3). 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 11.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

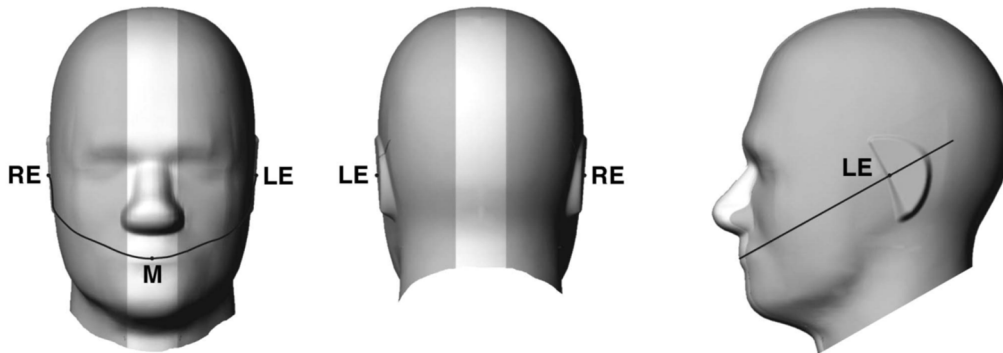


Fig 11.1.1 Front, back, and side views of SAM twin phantom

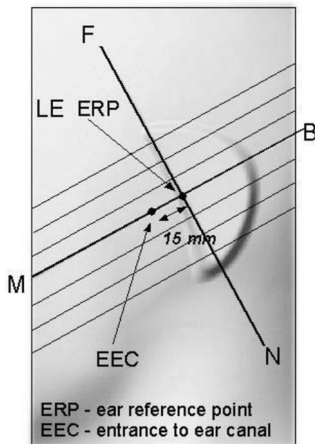


Fig 11.1.2 Close-up side view of phantom showing the ear region.

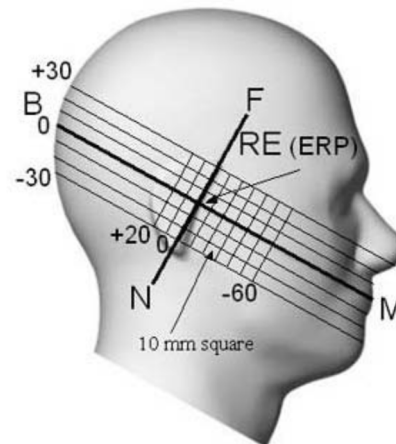


Fig 11.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

## 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 11.2.1 and Figure 11.2.2), 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 11.2.1). 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 11.2.2), 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 11.2.3), 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 11.2.3. The actual rotation angles should be documented in the test report.

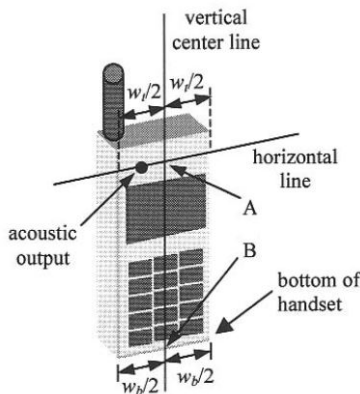


Fig 11.2.1 Handset vertical and horizontal reference lines—“fixed case”

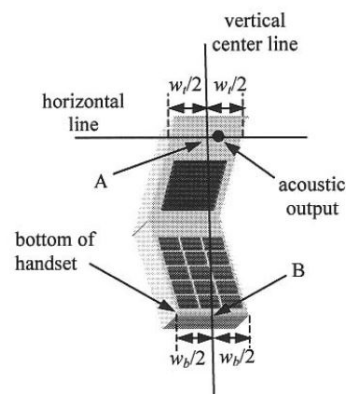


Fig 11.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

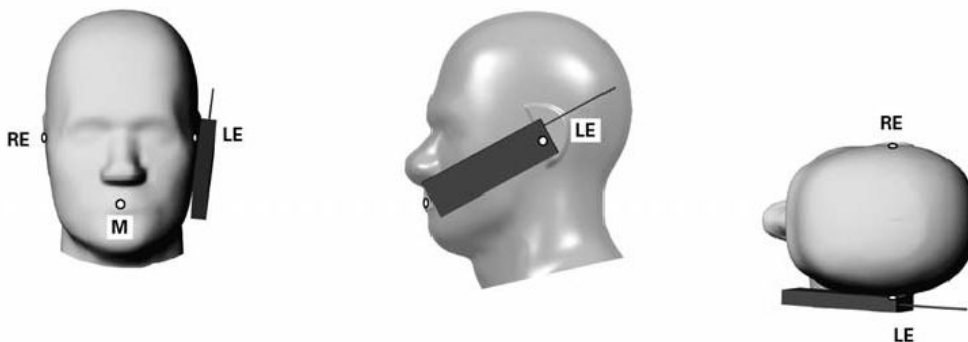
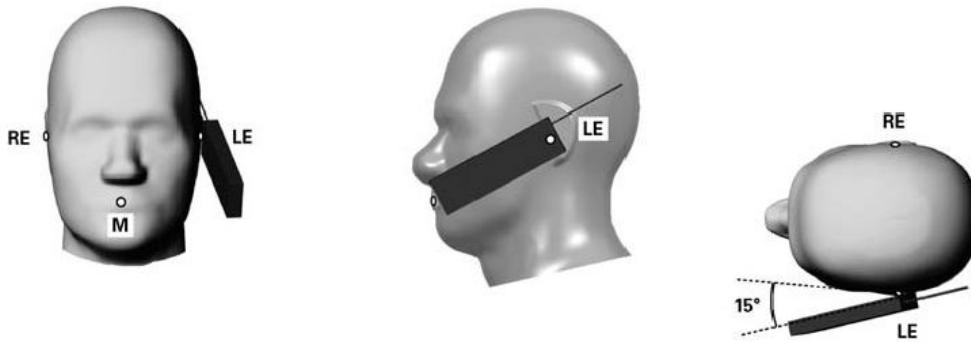


Fig 11.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

**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 11.3.1. 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 11.3.1 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 11.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are 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.

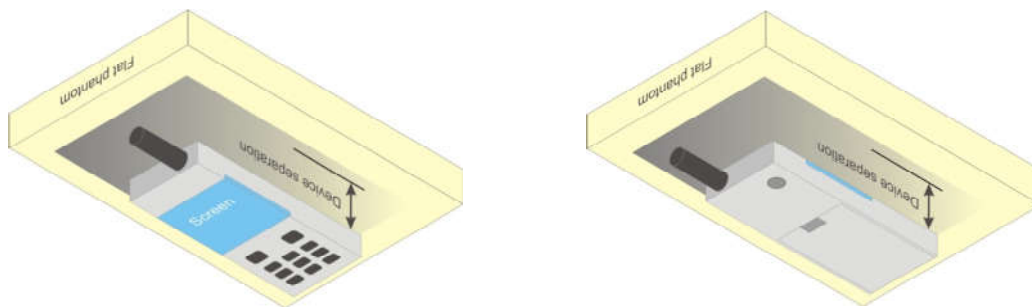


Fig 11.4 Body Worn Position



## **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 can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, according to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

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

## **12.6 Wireless Router**

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

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



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

The detailed conducted power table can refer to Appendix E.

### <GSM Conducted Power>

#### General Note:

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 GSM (1Tx slots) for GSM850/GSM1900 is 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 ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each
  - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
  - iii. Set RMC 12.2Kbps + HSDPA mode.
  - iv. Set Cell Power = -86 dBm
  - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
  - vi. Select HSDPA Uplink Parameters
  - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
  - viii. Set Ack-Nack Repetition Factor to 3
  - ix. Set CQI Feedback Cycle (k) to 4 ms
  - x. Set CQI Repetition Factor to 2
  - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

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

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

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

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

Note 3: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . 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  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

Setup Configuration

**HSUPA Setup Configuration:**

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

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

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

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

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

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, 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:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

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

**Setup Configuration**

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

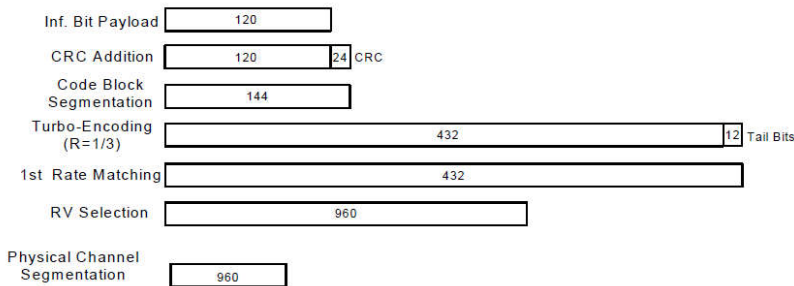
- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
  - iv. Select HSDPA Uplink Parameters
  - v. Set Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
    - a). Subtest 1:  $\beta_c/\beta_d=2/15$
    - b). Subtest 2:  $\beta_c/\beta_d=12/15$
    - c). Subtest 3:  $\beta_c/\beta_d=15/8$
    - d). Subtest 4:  $\beta_c/\beta_d=15/4$
  - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
  - vii. Set Ack-Nack Repetition Factor to 3
  - viii. Set CQI Feedback Cycle (k) to 4 ms
  - ix. Set CQI Repetition Factor to 2
  - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

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

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

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

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



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

**Setup Configuration**

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

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2E:HSPA+:UL with 16QAM
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E
  - iii. Set Channel 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:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

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

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

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  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.

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

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

**Setup Configuration**

**<WCDMA Conducted Power>**

**General Note:**

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

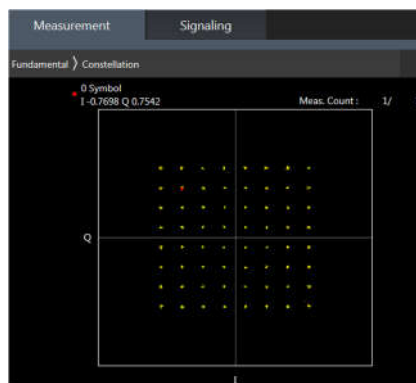
**<LTE Conducted Power>**

**General Note:**

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 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 B2 / B4 / B5 / B17 / B38 SAR test was covered by B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. the maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion
  - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to May 2017 TCB workshop, for 16QAM and 64QAM 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.



**16QAM**



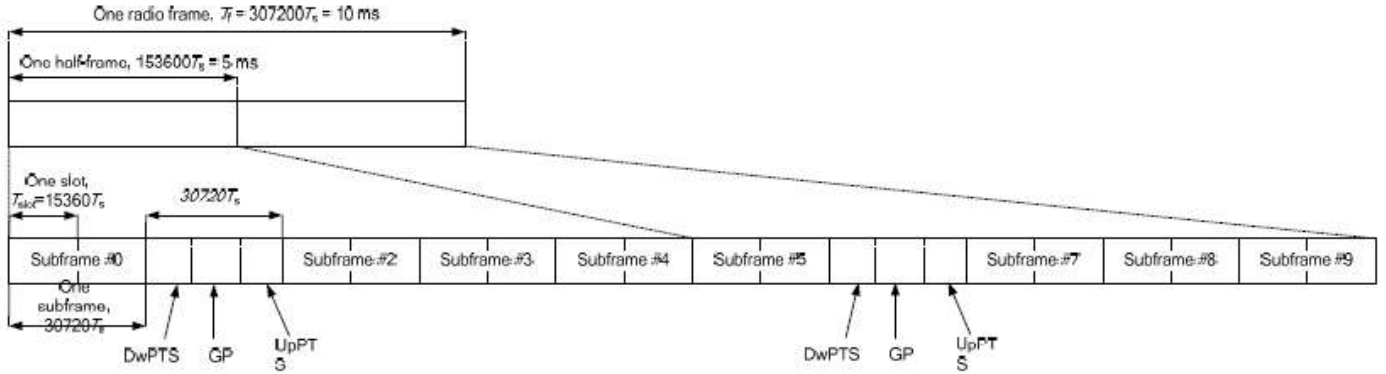
**64QAM**

**<TDD LTE SAR Measurement>**

TDD LTE configuration setup for SAR measurement

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

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



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

**Table 4.2-2: Uplink-downlink configurations.**

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

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

Special subframe configuration	Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
	DwPTS	UpPTS		DwPTS	UpPTS			
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		
0	6592 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	2192 · Ts	2560 · Ts		
1	19760 · Ts			20480 · Ts				
2	21952 · Ts			23040 · Ts				
3	24144 · Ts			25600 · Ts				
4	26336 · Ts			7680 · Ts	4384 · Ts	5120 · Ts		
5	6592 · Ts	4384 · Ts	5120 · Ts	20480 · Ts				
6	19760 · Ts			23040 · Ts				
7	21952 · Ts			12800 · Ts				
8	24144 · Ts			-	-	-		
9	13168 · Ts			-				

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

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

The highest duty factor is resulted from:

For LTE TDD Power class 2

- i. Uplink-downlink configuration: 1. In a half-frame consisted of 5 subframes, uplink operation is in 2 uplink subframes and 1 special subframe.
- ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  $(2+0.167)/5 = 43.3\%$
- iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:  $(2+0.143)/5 = 42.9\%$
- v. For TDD LTE SAR measurement, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $43.3\%/42.9\% = 1.009$  is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.

For LTE TDD Power class 3

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

The device can adjust uplink/downlink configuration automatically according to the transmitting power class level, as followings:

LTE TDD Band	Power Class level	support uplink/downlink configuration
LTE Band 41	> 23	1,2,3,4,5
	=23	0,1,2,3,4,5,6
	< 23	0,1,2,3,4,5,6





<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. The gray color table is covered by other combinations and no need to verify power.

2CC Downlink Carrier Aggregation			
Number	Combination	Number	Combination
1	CA_2A-2A	17	CA_7C
2	CA_2A-5A	18	CA_7A-7A
3	CA_2A-12A	19	CA_7A-12A
4	CA_2A-13A	20	CA_12B
5	CA_2A-71A	21	CA_12A-66A
6	CA_2C	22	CA_13A-66A
7	CA_4A-4A	23	CA_25A-25A
8	CA_4A-5A	24	CA_25A-26A
9	CA_4A-12A	25	CA_26A-41A
10	CA_4A-13A	26	CA_38C
11	CA_4A-17A	27	CA_41C
12	CA_4A-71A	28	CA_41A-41A
13	CA_5A-66A	29	CA_66B
14	CA_5A-7A	30	CA_66C
15	CA_5B	31	CA_66A-66A
16	CA_7B	32	CA_66A-71A

**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.

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



LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation
Intra-band	Antenna
CA_41C	Ant 1/0

**<Intra-band>**

**General Note:**

- i. The device supports intra-band uplink carrier aggregation for LTE B41 with a maximum of two component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. The device supports uplink carrier aggregation with a maximum of two component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According Nov. 2017 TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. Additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.



<WLAN Conducted Power>

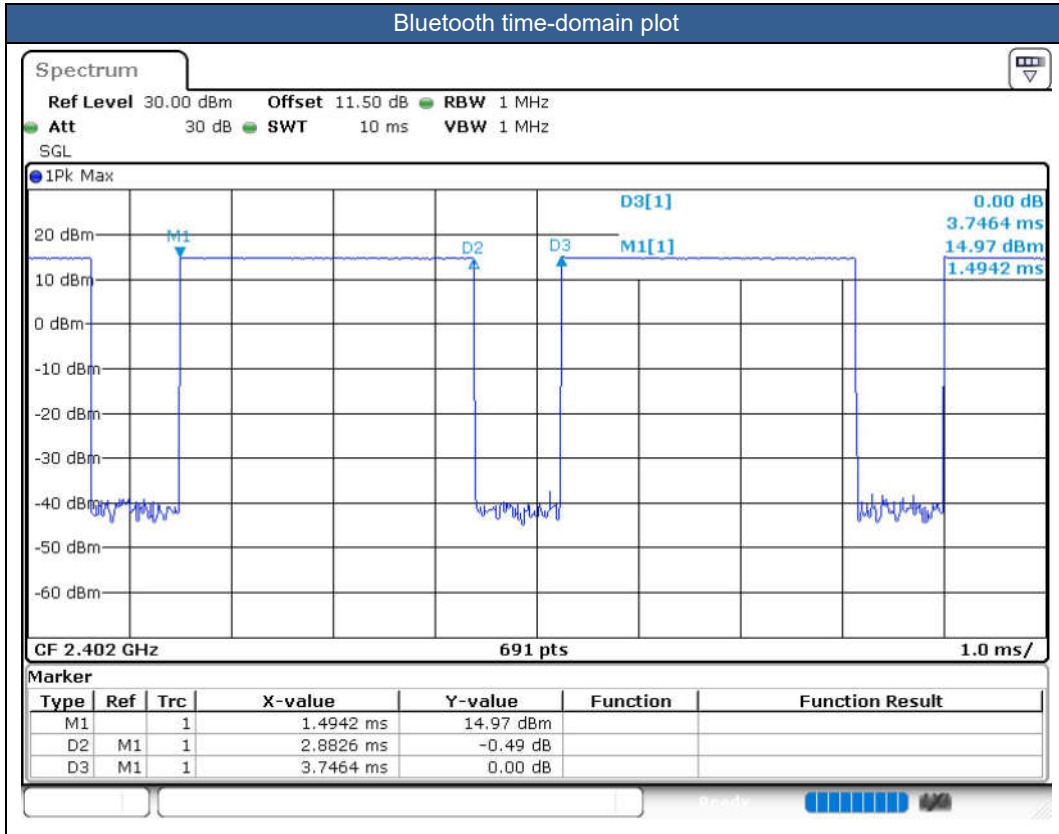
General Note:

1. The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures. For "Not required", SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration. Additional output power measurements were not necessary.
2. 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.
3. 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).
4. 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.
5. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
  - a. When the reported SAR of the initial test position is  $\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
  - b. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
  - c. For all positions/configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
6. The 2.4GHz/5GHz/BT WLAN can transmit in SISO antenna mode.

**<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 76.94 % as following figure, according to Oct. 2016 TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up 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 WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
  - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR (W/kg) = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix
  - f. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
  - g. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 43.3%/42.9% = 1.009 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
4. Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is  $\leq 1.2$  W/kg, SAR testing with a headset connected to the handset is not required.
5. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
6. For WLAN transmitter, while the device WLAN is transmitting simultaneously with the WWAN/BT antenna, the device power will be reduced power at head exposure conditions. For WLAN transmitter, while the device WLAN is transmitting simultaneously with the WWAN/BT antenna and Proximity sensors trigger, the device power will be reduced power at body-worn and extremity exposure conditions.
7. This device supports HPUE for LTE Band 41 with class 2 level, HPUE power has been measured separately. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
8. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15cm or an overall diagonal dimension > 16cm, when hotspot mode applies, 10-g product specific SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, in this report all the hotspot mode results are < 1.2W/kg.
9. 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 (for handheld on state, the maximum full power means reduced power), including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
  - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM1900, WCDMA Band II/IV/V, LTE Band 2/4/5/7/12/17/25/26/38/41 and WLAN 2.4GHz /WLAN



- 5.2/5.3/5.5/5.8GHz therefore product specific 10g SAR is necessary.
- b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
  - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
- 10. Although the headset SAR is greater than 0.8 W/kg, the headset SAR verified the worst of the non-headset SAR and less than non-headset SAR, so there is no need to be tested other channels.
  - 11. According to Nov. 2017 TCB workshop, when the reported 1gSAR for UL CA configuration is <1.2 W/kg, UL CA 1gSAR is not required for all required test channels (PCC based).
  - 12. For extremity exposure conditions, WLAN 2.4GHz SAR test at Back side and WLAN 5GHz SAR test at Front/Back/Right/Top side 0mm used full power SAR testing, so WLAN 5GHz distance SAR test is not required.
  - 13. The "Sim Tx" means Simultaneous Transmission in this report.
  - 14. The following table "n/a" in the result means the SAR cube is too small to be detected.

**GSM Note:**

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

**WCDMA Note:**

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



**LTE Note:**

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 / B71 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 B2/B4/B5/B17/B38 SAR test was covered by B25 / B66 / B26 / B12 / B41; 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/Bluetooth Note:**

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



15.1 Head SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows are grouped by frequency bands: 750MHz, 835MHz, and GSM850/WCDMA V.





FCC SAR Test Report

Report No. : FA391515

Table with columns for test parameters (Frequency, Modulation, Power, etc.) and SAR results. Includes rows for GSM1900, WCDMA II, and LTE Band 25/41. A section for 2600MHz is also present.





FCC SAR Test Report

Report No. : FA391515

LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Rec on	40620	2593	1	21.28	22.00	1.180	42.90	1.009	0.03	0.613	0.730
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Rec on	39750	2506	1	21.19	22.00	1.205	42.90	1.009	-0.08	0.667	0.811
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Rec on	40185	2549.5	1	21.08	22.00	1.236	42.90	1.009	-0.09	0.631	0.787
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Rec on	41055	2636.5	1	21.17	22.00	1.211	42.90	1.009	0.12	0.676	0.826
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Cheek	0mm	Ant 1	Rec on	41490	2680	1	21.11	22.00	1.227	42.90	1.009	-0.1	0.622	0.770
13 LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Rec on	39750	2506	1	21.19	22.00	1.205	42.90	1.009	-0.13	0.860	1.046
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Rec on	40185	2549.5	1	21.08	22.00	1.236	42.90	1.009	0.14	0.785	0.979
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Rec on	41055	2636.5	1	21.17	22.00	1.211	42.90	1.009	-0.06	0.659	0.805
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Tilted	0mm	Ant 1	Rec on	41490	2680	1	21.11	22.00	1.227	42.90	1.009	-0.1	0.580	0.718
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Rec on	39750	2506	1	21.19	22.00	1.205	42.90	1.009	0.07	0.459	0.558
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Rec on	40185	2549.5	1	21.08	22.00	1.236	42.90	1.009	-0.04	0.547	0.682
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Rec on	41055	2636.5	1	21.17	22.00	1.211	42.90	1.009	0.11	0.614	0.750
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Cheek	0mm	Ant 1	Rec on	41490	2680	1	21.11	22.00	1.227	42.90	1.009	-0.15	0.649	0.804
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Rec on	39750	2506	1	21.19	22.00	1.205	42.90	1.009	0.12	0.574	0.698
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Rec on	40185	2549.5	1	21.08	22.00	1.236	42.90	1.009	-0.14	0.566	0.706
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Rec on	41055	2636.5	1	21.17	22.00	1.211	42.90	1.009	0.14	0.581	0.710
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Tilted	0mm	Ant 1	Rec on	41490	2680	1	21.11	22.00	1.227	42.90	1.009	0.15	0.696	0.862
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	Rec on	40620	2593	1	19.95	21.00	1.274	42.90	1.009	-0.07	0.549	0.705
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	Rec on	40620	2593	1	19.95	21.00	1.274	42.90	1.009	0.05	0.573	0.736
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Cheek	0mm	Ant 1	Rec on	40620	2593	1	19.95	21.00	1.274	42.90	1.009	-0.12	0.422	0.542
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	Rec on	40620	2593	1	19.95	21.00	1.274	42.90	1.009	-0.1	0.482	0.619
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	Rec on	39750	2506	1	19.89	21.00	1.291	42.90	1.009	0.12	0.523	0.681
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	Rec on	40185	2549.5	1	19.89	21.00	1.291	42.90	1.009	0.04	0.490	0.638
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	Rec on	41055	2636.5	1	19.85	21.00	1.303	42.90	1.009	0	0.530	0.697
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Cheek	0mm	Ant 1	Rec on	41490	2680	1	19.88	21.00	1.294	42.90	1.009	-0.06	0.494	0.645
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	Rec on	39750	2506	1	19.89	21.00	1.291	42.90	1.009	-0.12	0.668	0.870
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	Rec on	40185	2549.5	1	19.89	21.00	1.291	42.90	1.009	-0.15	0.609	0.793
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	Rec on	41055	2636.5	1	19.85	21.00	1.303	42.90	1.009	0.16	0.517	0.680
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Tilted	0mm	Ant 1	Rec on	41490	2680	1	19.88	21.00	1.294	42.90	1.009	0.08	0.456	0.595
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	Rec on	39750	2506	1	19.89	21.00	1.291	42.90	1.009	-0.08	0.452	0.589
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	Rec on	40185	2549.5	1	19.89	21.00	1.291	42.90	1.009	-0.06	0.446	0.581
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	Rec on	41055	2636.5	1	19.85	21.00	1.303	42.90	1.009	0.07	0.457	0.601
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Tilted	0mm	Ant 1	Rec on	41490	2680	1	19.88	21.00	1.294	42.90	1.009	0.14	0.542	0.708
LTE Band 41_HPUE	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	Rec on	40620	2593	1	19.77	21.00	1.327	42.90	1.009	-0.09	0.539	0.722
LTE Band 41_HPUE	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	Rec on	40620	2593	1	19.77	21.00	1.327	42.90	1.009	0.03	0.572	0.766
LTE Band 41_HPUE	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 1	Rec on	40620	2593	1	19.77	21.00	1.327	42.90	1.009	-0.09	0.421	0.564
LTE Band 41_HPUE	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 1	Rec on	40620	2593	1	19.77	21.00	1.327	42.90	1.009	0.03	0.477	0.639



Table with 17 columns: Plot No., Band, Mode, Test Position, Gap (mm), Antenna, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows are grouped by BT/WLAN2.4GHz and WLAN5GHz.



18	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 3	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	0.16	0.394	<b>0.525</b>
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 3	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	-0.09	0.257	0.343
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 3	Full Power	157	5785	1	19.27	20.50	1.326	98.33	1.017	-0.14	0.296	0.399
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 3	Full Power	165	5825	1	19.06	20.50	1.392	98.33	1.017	0.12	0.233	0.330
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 3	Sim TX	155	5775	1	18.13	19.50	1.371	92.44	1.082	-0.07	0.132	0.196
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 3	Sim TX	155	5775	1	18.13	19.50	1.371	92.44	1.082	0.04	0.149	0.221
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 3	Sim TX	155	5775	1	18.13	19.50	1.371	92.44	1.082	0.02	0.261	0.387
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 3	Sim TX	155	5775	1	18.13	19.50	1.371	92.44	1.082	-0.05	0.185	0.274



**15.2 Hotspot SAR**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
<b>750MHz</b>																					
19	LTE Band 71	20M	QPSK	1	49	-	Front	5mm	Ant 0	Full Power	133297	680.5	1	22.75	24.00	1.334	-	-	0.02	0.374	0.499
	LTE Band 71	20M	QPSK	1	49	-	Back	5mm	Ant 0	Full Power	133297	680.5	1	22.75	24.00	1.334	-	-	-0.07	0.740	<b>0.987</b>
	LTE Band 71	20M	QPSK	1	49	-	Left Side	5mm	Ant 0	Full Power	133297	680.5	1	22.75	24.00	1.334	-	-	-0.14	0.533	0.711
	LTE Band 71	20M	QPSK	1	49	-	Right Side	5mm	Ant 0	Full Power	133297	680.5	1	22.75	24.00	1.334	-	-	-0.13	0.709	0.945
	LTE Band 71	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Full Power	133297	680.5	1	22.75	24.00	1.334	-	-	0.16	0.309	0.412
	LTE Band 71	20M	QPSK	50	24	-	Front	5mm	Ant 0	Full Power	133297	680.5	1	21.80	23.00	1.318	-	-	0.06	0.291	0.384
	LTE Band 71	20M	QPSK	50	24	-	Back	5mm	Ant 0	Full Power	133297	680.5	1	21.80	23.00	1.318	-	-	-0.04	0.586	0.772
	LTE Band 71	20M	QPSK	50	24	-	Left Side	5mm	Ant 0	Full Power	133297	680.5	1	21.80	23.00	1.318	-	-	0.04	0.420	0.554
	LTE Band 71	20M	QPSK	50	24	-	Right Side	5mm	Ant 0	Full Power	133297	680.5	1	21.80	23.00	1.318	-	-	0.16	0.557	0.734
	LTE Band 71	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Full Power	133297	680.5	1	21.80	23.00	1.318	-	-	0.14	0.240	0.316
	LTE Band 71	20M	QPSK	100	0	-	Back	5mm	Ant 0	Full Power	133297	680.5	1	21.50	23.00	1.413	-	-	-0.13	0.573	0.809
	LTE Band 71	20M	QPSK	100	0	-	Right Side	5mm	Ant 0	Full Power	133297	680.5	1	21.50	23.00	1.413	-	-	-0.09	0.553	0.781
	20	LTE Band 12	10M	QPSK	1	25	-	Front	5mm	Ant 0	Full Power	23095	707.5	1	23.00	24.00	1.259	-	-	-0.14	0.286
LTE Band 12		10M	QPSK	1	25	-	Back	5mm	Ant 0	Full Power	23095	707.5	1	23.00	24.00	1.259	-	-	-0.13	0.638	<b>0.803</b>
LTE Band 12		10M	QPSK	1	25	-	Left Side	5mm	Ant 0	Full Power	23095	707.5	1	23.00	24.00	1.259	-	-	0.11	0.259	0.326
LTE Band 12		10M	QPSK	1	25	-	Right Side	5mm	Ant 0	Full Power	23095	707.5	1	23.00	24.00	1.259	-	-	0.14	0.508	0.640
LTE Band 12		10M	QPSK	1	25	-	Bottom Side	5mm	Ant 0	Full Power	23095	707.5	1	23.00	24.00	1.259	-	-	0.03	0.249	0.313
LTE Band 12		10M	QPSK	25	12	-	Front	5mm	Ant 0	Full Power	23095	707.5	1	21.75	23.00	1.334	-	-	-0.18	0.225	0.300
LTE Band 12		10M	QPSK	25	12	-	Back	5mm	Ant 0	Full Power	23095	707.5	1	21.75	23.00	1.334	-	-	0.1	0.500	0.667
LTE Band 12		10M	QPSK	25	12	-	Left Side	5mm	Ant 0	Full Power	23095	707.5	1	21.75	23.00	1.334	-	-	0.02	0.203	0.271
LTE Band 12		10M	QPSK	25	12	-	Right Side	5mm	Ant 0	Full Power	23095	707.5	1	21.75	23.00	1.334	-	-	0.14	0.401	0.535
LTE Band 12		10M	QPSK	25	12	-	Bottom Side	5mm	Ant 0	Full Power	23095	707.5	1	21.75	23.00	1.334	-	-	-0.18	0.198	0.264
LTE Band 12		10M	QPSK	50	0	-	Back	5mm	Ant 0	Full Power	23095	707.5	1	21.74	23.00	1.337	-	-	-0.09	0.483	0.646
LTE Band 12		10M	QPSK	1	25	-	Front	5mm	Ant 1	Hotspot	23095	707.5	1	19.18	20.50	1.355	-	-	-0.04	0.195	0.264
LTE Band 12		10M	QPSK	1	25	-	Back	5mm	Ant 1	Hotspot	23095	707.5	1	19.18	20.50	1.355	-	-	0.11	0.474	0.642
LTE Band 12		10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.18	20.50	1.355	-	-	0.1	0.189	0.256
LTE Band 12		10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.18	20.50	1.355	-	-	0.16	0.109	0.148
LTE Band 12		10M	QPSK	1	25	-	Top Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.18	20.50	1.355	-	-	0.13	0.369	0.500
LTE Band 12		10M	QPSK	25	12	-	Front	5mm	Ant 1	Hotspot	23095	707.5	1	19.05	20.50	1.396	-	-	0.06	0.185	0.258
LTE Band 12		10M	QPSK	25	12	-	Back	5mm	Ant 1	Hotspot	23095	707.5	1	19.05	20.50	1.396	-	-	-0.09	0.458	0.640
LTE Band 12		10M	QPSK	25	12	-	Left Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.05	20.50	1.396	-	-	0.06	0.180	0.251
LTE Band 12		10M	QPSK	25	12	-	Right Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.05	20.50	1.396	-	-	0.04	0.103	0.144
LTE Band 12	10M	QPSK	25	12	-	Top Side	5mm	Ant 1	Hotspot	23095	707.5	1	19.05	20.50	1.396	-	-	-0.11	0.361	0.504	
21	LTE Band 13	10M	QPSK	1	25	-	Front	5mm	Ant 0	Full Power	23230	782	1	22.87	24.00	1.297	-	-	0.12	0.275	0.357
	LTE Band 13	10M	QPSK	1	25	-	Back	5mm	Ant 0	Full Power	23230	782	1	22.87	24.00	1.297	-	-	0.06	0.644	<b>0.835</b>
	LTE Band 13	10M	QPSK	1	25	-	Left Side	5mm	Ant 0	Full Power	23230	782	1	22.87	24.00	1.297	-	-	0	0.323	0.419
	LTE Band 13	10M	QPSK	1	25	-	Right Side	5mm	Ant 0	Full Power	23230	782	1	22.87	24.00	1.297	-	-	0.15	0.500	0.649
	LTE Band 13	10M	QPSK	1	25	-	Bottom Side	5mm	Ant 0	Full Power	23230	782	1	22.87	24.00	1.297	-	-	0.05	0.160	0.208
	LTE Band 13	10M	QPSK	25	12	-	Front	5mm	Ant 0	Full Power	23230	782	1	21.79	23.00	1.321	-	-	-0.02	0.213	0.281
	LTE Band 13	10M	QPSK	25	12	-	Back	5mm	Ant 0	Full Power	23230	782	1	21.79	23.00	1.321	-	-	0.15	0.502	0.663
	LTE Band 13	10M	QPSK	25	12	-	Left Side	5mm	Ant 0	Full Power	23230	782	1	21.79	23.00	1.321	-	-	-0.16	0.256	0.338
	LTE Band 13	10M	QPSK	25	12	-	Right Side	5mm	Ant 0	Full Power	23230	782	1	21.79	23.00	1.321	-	-	0.02	0.398	0.526
	LTE Band 13	10M	QPSK	25	12	-	Bottom Side	5mm	Ant 0	Full Power	23230	782	1	21.79	23.00	1.321	-	-	-0.09	0.125	0.165
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 0	Full Power	23230	782	1	21.80	23.00	1.318	-	-	-0.17	0.508	0.670
	LTE Band 13	10M	QPSK	1	25	-	Front	5mm	Ant 1	Hotspot	23230	782	1	20.50	22.00	1.413	-	-	0.12	0.132	0.186
	LTE Band 13	10M	QPSK	1	25	-	Back	5mm	Ant 1	Hotspot	23230	782	1	20.50	22.00	1.413	-	-	-0.06	0.466	0.658
	LTE Band 13	10M	QPSK	1	25	-	Left Side	5mm	Ant 1	Hotspot	23230	782	1	20.50	22.00	1.413	-	-	0.06	0.099	0.140
	LTE Band 13	10M	QPSK	1	25	-	Right Side	5mm	Ant 1	Hotspot	23230	782	1	20.50	22.00	1.413	-	-	-0.12	0.057	0.081
	LTE Band 13	10M	QPSK	1	25	-	Top Side	5mm	Ant 1	Hotspot	23230	782	1	20.50	22.00	1.413	-	-	0.15	0.326	0.460
	LTE Band 13	10M	QPSK	25	12	-	Front	5mm	Ant 1	Hotspot	23230	782	1	20.44	22.00	1.432	-	-	-0.13	0.126	0.180
LTE Band 13	10M	QPSK	25	12	-	Back	5mm	Ant 1	Hotspot	23230	782	1	20.44	22.00	1.432	-	-	-0.12	0.450	0.644	





Table with columns for LTE Band, Power, Modulation, Frequency, Location, Dimensions, Antenna, Power Density, and SAR values. Includes rows for 26, 27, 28, and 29, with a 1900MHz section. Some SAR values are highlighted in yellow (e.g., 1.289, 1.437, 1.290, 1.330).



LTE Band 25	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	26590	1905	1	13.92	15.50	1.439	-	-	0.03	0.813	1.170	
LTE Band 25	20M	QPSK	50	24	-	Front	5mm	Ant 0	Hotspot	26340	1880	1	14.02	15.50	1.406	-	-	-0.12	0.346	0.486	
LTE Band 25	20M	QPSK	50	24	-	Back	5mm	Ant 0	Hotspot	26340	1880	1	14.02	15.50	1.406	-	-	0.06	0.464	0.652	
LTE Band 25	20M	QPSK	50	24	-	Left Side	5mm	Ant 0	Hotspot	26340	1880	1	14.02	15.50	1.406	-	-	0.11	0.205	0.288	
LTE Band 25	20M	QPSK	50	24	-	Right Side	5mm	Ant 0	Hotspot	26340	1880	1	14.02	15.50	1.406	-	-	-0.13	0.054	0.076	
LTE Band 25	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	26340	1880	1	14.02	15.50	1.406	-	-	0.07	0.852	1.198	
LTE Band 25	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	26140	1860	1	13.98	15.50	1.419	-	-	0.1	0.920	1.306	
LTE Band 25	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	26590	1905	1	13.91	15.50	1.442	-	-	-0.11	0.769	1.109	
LTE Band 25	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	Hotspot	26340	1880	1	14.06	15.50	1.393	-	-	-0.02	0.848	1.181	
LTE Band 25	20M	QPSK	1	49	-	Front	5mm	Ant 1	Hotspot	26340	1880	1	12.93	14.00	1.279	-	-	-0.08	0.194	0.248	
LTE Band 25	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	26340	1880	1	12.93	14.00	1.279	-	-	-0.1	0.422	0.540	
LTE Band 25	20M	QPSK	1	49	-	Left Side	5mm	Ant 1	Hotspot	26340	1880	1	12.93	14.00	1.279	-	-	0.1	0.126	0.161	
LTE Band 25	20M	QPSK	1	49	-	Right Side	5mm	Ant 1	Hotspot	26340	1880	1	12.93	14.00	1.279	-	-	-	n/a	n/a	
LTE Band 25	20M	QPSK	1	49	-	Top Side	5mm	Ant 1	Hotspot	26340	1880	1	12.93	14.00	1.279	-	-	-0.05	0.523	0.669	
LTE Band 25	20M	QPSK	1	49	-	Top Side	5mm	Ant 1	Hotspot	26140	1860	1	12.89	14.00	1.291	-	-	0.11	0.541	0.699	
LTE Band 25	20M	QPSK	1	49	-	Top Side	5mm	Ant 1	Hotspot	26590	1905	1	12.81	14.00	1.315	-	-	-0.05	0.497	0.654	
LTE Band 25	20M	QPSK	50	24	-	Front	5mm	Ant 1	Hotspot	26340	1880	1	12.83	14.00	1.309	-	-	-0.12	0.184	0.241	
LTE Band 25	20M	QPSK	50	24	-	Back	5mm	Ant 1	Hotspot	26340	1880	1	12.83	14.00	1.309	-	-	-0.14	0.407	0.533	
LTE Band 25	20M	QPSK	50	24	-	Left Side	5mm	Ant 1	Hotspot	26340	1880	1	12.83	14.00	1.309	-	-	-0.12	0.119	0.156	
LTE Band 25	20M	QPSK	50	24	-	Right Side	5mm	Ant 1	Hotspot	26340	1880	1	12.83	14.00	1.309	-	-	-	n/a	n/a	
LTE Band 25	20M	QPSK	50	24	-	Top Side	5mm	Ant 1	Hotspot	26340	1880	1	12.83	14.00	1.309	-	-	0.07	0.495	0.648	
<b>2600MHz</b>																					
LTE Band 7	20M	QPSK	1	49	-	Front	5mm	Ant 0	Hotspot	21100	2535	1	10.33	11.50	1.309	-	-	0.02	0.376	0.492	
LTE Band 7	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	21100	2535	1	10.33	11.50	1.309	-	-	-0.11	0.805	1.054	
LTE Band 7	20M	QPSK	1	49	-	Left Side	5mm	Ant 0	Hotspot	21100	2535	1	10.33	11.50	1.309	-	-	-0.03	0.049	0.064	
LTE Band 7	20M	QPSK	1	49	-	Right Side	5mm	Ant 0	Hotspot	21100	2535	1	10.33	11.50	1.309	-	-	-	n/a	n/a	
LTE Band 7	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	21100	2535	1	10.33	11.50	1.309	-	-	0.11	0.967	1.266	
LTE Band 7	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	20850	2510	1	10.30	11.50	1.318	-	-	0.17	0.918	1.210	
30	LTE Band 7	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	21350	2560	1	10.09	11.50	1.384	-	-	-0.04	1.000	1.384
LTE Band 7	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	21350	2560	2	10.09	11.50	1.384	-	-	0.11	0.689	0.953	
LTE Band 7	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	20850	2510	1	10.30	11.50	1.318	-	-	0.05	0.702	0.925	
LTE Band 7	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	21350	2560	1	10.09	11.50	1.384	-	-	-0.1	0.896	1.240	
LTE Band 7	20M	QPSK	50	24	-	Front	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	0.01	0.359	0.472	
LTE Band 7	20M	QPSK	50	24	-	Back	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	0.1	0.769	1.011	
LTE Band 7	20M	QPSK	50	24	-	Left Side	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	-0.17	0.047	0.062	
LTE Band 7	20M	QPSK	50	24	-	Right Side	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	-	n/a	n/a	
LTE Band 7	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	-0.14	0.941	1.238	
LTE Band 7	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	20850	2510	1	10.25	11.50	1.334	-	-	-0.18	0.889	1.186	
LTE Band 7	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Hotspot	21350	2560	1	10.07	11.50	1.390	-	-	0.1	0.971	1.350	
LTE Band 7	20M	QPSK	50	24	-	Back	5mm	Ant 0	Hotspot	20850	2510	1	10.25	11.50	1.334	-	-	-0.05	0.681	0.908	
LTE Band 7	20M	QPSK	50	24	-	Back	5mm	Ant 0	Hotspot	21350	2560	1	10.07	11.50	1.390	-	-	-0.03	0.872	1.212	
LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	0.05	0.711	0.935	
LTE Band 7	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	Hotspot	21100	2535	1	10.31	11.50	1.315	-	-	0.12	0.923	1.214	
LTE Band 41	20M	QPSK	1	49	-	Front	5mm	Ant 0	Hotspot	40620	2593	1	13.14	13.50	1.086	62.90	1.006	-0.01	0.389	0.425	
LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	40620	2593	1	13.14	13.50	1.086	62.90	1.006	0.06	0.816	0.892	
LTE Band 41	20M	QPSK	1	49	-	Left Side	5mm	Ant 0	Hotspot	40620	2593	1	13.14	13.50	1.086	62.90	1.006	-0.08	0.037	0.040	
LTE Band 41	20M	QPSK	1	49	-	Right Side	5mm	Ant 0	Hotspot	40620	2593	1	13.14	13.50	1.086	62.90	1.006	-	n/a	n/a	
LTE Band 41	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	40620	2593	1	13.14	13.50	1.086	62.90	1.006	0.09	0.932	1.019	
LTE Band 41C	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	40620+40818	2593+2612.8	1	13.12	13.50	1.091	62.90	1.006	0.03	0.886	0.973	
LTE Band 41	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	39750	2506	1	13.11	13.50	1.094	62.90	1.006	0	0.688	0.757	
LTE Band 41	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	40185	2549.5	1	13.10	13.50	1.096	62.90	1.006	0.06	0.815	0.899	
LTE Band 41	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	41055	2636.5	1	13.04	13.50	1.112	62.90	1.006	-0.17	0.888	0.993	
LTE Band 41	20M	QPSK	1	49	-	Bottom Side	5mm	Ant 0	Hotspot	41490	2680	1	13.06	13.50	1.107	62.90	1.006	-0.14	0.652	0.726	
LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	39750	2506	1	13.11	13.50	1.094	62.90	1.006	-0.1	0.677	0.745	
LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	40185	2549.5	1	13.10	13.50	1.096	62.90	1.006	-0.17	0.760	0.838	
LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Hotspot	41055	2636.5	1	13.04	13.50	1.112	62.90	1.006	-0.07	0.766	0.857	





LTE Band 41	20M	QPSK	50	24	-	Left Side	5mm	Ant 1	Hotspot	40620	2593	1	12.79	13.50	1.178	62.90	1.006	-0.16	0.076	0.090
LTE Band 41	20M	QPSK	50	24	-	Right Side	5mm	Ant 1	Hotspot	40620	2593	1	12.79	13.50	1.178	62.90	1.006	0.15	0.031	0.037
LTE Band 41	20M	QPSK	50	24	-	Top Side	5mm	Ant 1	Hotspot	40620	2593	1	12.79	13.50	1.178	62.90	1.006	-0.02	0.252	0.299
LTE Band 41_HPUE	20M	QPSK	1	49	-	Front	5mm	Ant 1	Hotspot	40620	2593	1	16.76	17.50	1.186	42.90	1.009	0.05	0.133	0.159
LTE Band 41_HPUE	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	40620	2593	1	16.76	17.50	1.186	42.90	1.009	0.16	0.515	0.616
LTE Band 41_HPUE	20M	QPSK	1	49	-	Left Side	5mm	Ant 1	Hotspot	40620	2593	1	16.76	17.50	1.186	42.90	1.009	0.14	0.104	0.124
LTE Band 41_HPUE	20M	QPSK	1	49	-	Right Side	5mm	Ant 1	Hotspot	40620	2593	1	16.76	17.50	1.186	42.90	1.009	-0.02	0.041	0.049
LTE Band 41_HPUE	20M	QPSK	1	49	-	Top Side	5mm	Ant 1	Hotspot	40620	2593	1	16.76	17.50	1.186	42.90	1.009	-0.17	0.339	0.406
LTE Band 41_HPUE	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	39750	2506	1	16.73	17.50	1.194	42.90	1.009	-0.01	0.542	0.653
LTE Band 41_HPUE	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	40185	2549.5	1	16.68	17.50	1.208	42.90	1.009	0	0.512	0.624
LTE Band 41_HPUE	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	41055	2636.5	1	16.75	17.50	1.189	42.90	1.009	0.03	0.470	0.564
LTE Band 41_HPUE	20M	QPSK	1	49	-	Back	5mm	Ant 1	Hotspot	41490	2680	1	16.69	17.50	1.205	42.90	1.009	0.18	0.415	0.505
LTE Band 41_HPUE	20M	QPSK	50	24	-	Front	5mm	Ant 1	Hotspot	40620	2593	1	15.37	16.50	1.297	42.90	1.009	0.13	0.103	0.135
LTE Band 41_HPUE	20M	QPSK	50	24	-	Back	5mm	Ant 1	Hotspot	40620	2593	1	15.37	16.50	1.297	42.90	1.009	0.12	0.387	0.507
LTE Band 41_HPUE	20M	QPSK	50	24	-	Left Side	5mm	Ant 1	Hotspot	40620	2593	1	15.37	16.50	1.297	42.90	1.009	-0.16	0.082	0.107
LTE Band 41_HPUE	20M	QPSK	50	24	-	Right Side	5mm	Ant 1	Hotspot	40620	2593	1	15.37	16.50	1.297	42.90	1.009	0.15	0.033	0.043
LTE Band 41_HPUE	20M	QPSK	50	24	-	Top Side	5mm	Ant 1	Hotspot	40620	2593	1	15.37	16.50	1.297	42.90	1.009	-0.02	0.265	0.347
LTE Band 41_HPUE	20M	QPSK	100	0	-	Back	5mm	Ant 1	Hotspot	40620	2593	1	15.16	16.50	1.361	42.90	1.009	0.01	0.391	0.537



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
<b>BT/WLAN2.4GHz</b>																		
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 2	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.18	0.038	0.058	
	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.15	0.070	0.107	
	Bluetooth	DH5 1Mbps	Left Side	5mm	Ant 2	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	-	n/a	n/a	
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 2	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.17	0.045	0.069	
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 2	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.06	0.040	0.061	
32	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	Full Power	39	2441	1	14.10	15.00	1.230	76.94	1.300	0.01	0.077	0.123	
	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	Full Power	78	2480	1	13.50	15.00	1.413	76.94	1.300	-0.14	0.050	0.092	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 2	Hotspot	11	2462	1	17.50	19.00	1.413	98.61	1.014	0.06	0.160	0.229	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	Hotspot	11	2462	1	17.50	19.00	1.413	98.61	1.014	-0.01	0.404	0.579	
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 2	Hotspot	11	2462	1	17.50	19.00	1.413	98.61	1.014	-0.04	0.000	0.000	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 2	Hotspot	11	2462	1	17.50	19.00	1.413	98.61	1.014	-0.13	0.228	0.327	
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 2	Hotspot	11	2462	1	17.50	19.00	1.413	98.61	1.014	-0.05	0.165	0.236	
33	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	Hotspot	1	2412	1	17.60	19.00	1.380	98.61	1.014	0.05	0.503	0.704	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	Hotspot	6	2437	1	17.50	19.00	1.413	98.61	1.014	0.15	0.469	0.672	
<b>WLAN5GHz</b>																		
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Hotspot	42	5210	1	16.03	18.00	1.574	92.44	1.082	0.01	0.122	0.208	
34	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Hotspot	42	5210	1	16.03	18.00	1.574	92.44	1.082	-0.06	0.397	0.676	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Hotspot	42	5210	2	16.03	18.00	1.574	92.44	1.082	-0.06	0.325	0.553	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 3	Hotspot	42	5210	1	16.03	18.00	1.574	92.44	1.082	-0.09	0.040	0.068	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3	Hotspot	42	5210	1	16.03	18.00	1.574	92.44	1.082	-0.02	0.327	0.557	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3	Hotspot	42	5210	1	16.03	18.00	1.574	92.44	1.082	-0.1	0.128	0.218	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Hotspot	155	5775	1	13.37	14.50	1.297	92.44	1.082	-0.15	0.075	0.105	
35	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Hotspot	155	5775	1	13.37	14.50	1.297	92.44	1.082	0.1	0.418	0.587	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Hotspot	155	5775	2	13.37	14.50	1.297	92.44	1.082	0.05	0.340	0.477	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 3	Hotspot	155	5775	1	13.37	14.50	1.297	92.44	1.082	-0.08	0.091	0.128	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3	Hotspot	155	5775	1	13.37	14.50	1.297	92.44	1.082	0.05	0.199	0.279	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3	Hotspot	155	5775	1	13.37	14.50	1.297	92.44	1.082	0.15	0.098	0.138	



15.3 Body Worn Accessory SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB Offset, Mode, Test Position, Gap (mm), Antenna, Headset, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows are grouped by frequency bands: 750MHz, 835MHz, and LTE Band 26.





	LTE Band 26	15M	QPSK	1	37			Front	18mm	Ant 1			Full Power	26865	831.5	1	23.48	24.00	1.127			1.000	0.05	0.302	0.340
	LTE Band 26	15M	QPSK	1	37			Back	26mm	Ant 1			Full Power	26965	841.5	1	23.45	24.00	1.135			1.000	0.07	0.092	0.104
	LTE Band 26	15M	QPSK	36	20			Front	5mm	Ant 1			Sensor on	26865	831.5	1	20.65	21.50	1.216			1.000	0.07	0.125	0.152
	LTE Band 26	15M	QPSK	36	20			Back	5mm	Ant 1			Sensor on	26865	831.5	1	20.65	21.50	1.216			1.000	0.11	0.638	0.776
	LTE Band 26	15M	QPSK	36	20			Back	5mm	Ant 1			Sensor on	26765	821.5	1	20.58	21.50	1.236			1.000	-0.12	0.531	0.656
	LTE Band 26	15M	QPSK	36	20			Back	5mm	Ant 1			Sensor on	26965	841.5	1	20.60	21.50	1.230			1.000	-0.06	0.785	0.966
	LTE Band 26	15M	QPSK	75	0			Back	5mm	Ant 1			Sensor on	26865	831.5	1	20.52	21.50	1.253			1.000	0.18	0.660	0.827

**1750MHz**

	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Front	5mm	Ant 0			Sensor on	1413	1732.6	1	14.91	15.50	1.146			1.000	-0.17	0.396	0.454
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Back	5mm	Ant 0			Sensor on	1413	1732.6	1	14.91	15.50	1.146			1.000	0.13	0.877	1.005
42	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Back	5mm	Ant 0			Sensor on	1312	1712.4	1	14.81	15.50	1.172			1.000	0.02	1.110	<b>1.301</b>
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Back	5mm	Ant 0			Sensor on	1513	1752.6	1	14.77	15.50	1.183			1.000	0.03	0.755	0.893
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Back	5mm	Ant 0	Headset		Sensor on	1312	1712.4	1	14.81	15.50	1.172			1.000	-0.06	1.040	1.219
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Front	18mm	Ant 0			Full Power	1413	1732.6	1	23.42	24.00	1.143			1.000	0.16	0.736	0.841
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Front	18mm	Ant 0			Full Power	1312	1712.4	1	23.38	24.00	1.153			1.000	0.03	0.703	0.811
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Front	18mm	Ant 0			Full Power	1513	1752.6	1	23.34	24.00	1.164			1.000	0.07	0.691	0.804
	WCDMA IV	-	-	-	-	RMC 12.2Kbps		Back	26mm	Ant 0			Full Power	1312	1712.4	1	23.38	24.00	1.153			1.000	-0.07	0.557	0.642

	LTE Band 66	20M	QPSK	1	49			Front	5mm	Ant 0			Sensor on	132322	1745	1	13.47	14.50	1.268			1.000	0.11	0.366	0.464
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 0			Sensor on	132322	1745	1	13.47	14.50	1.268			1.000	-0.12	0.825	1.046
43	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 0			Sensor on	132072	1720	1	13.26	14.50	1.330			1.000	0.11	1.050	<b>1.397</b>
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 0			Sensor on	132572	1770	1	13.41	14.50	1.285			1.000	0.14	0.701	0.901
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 0	Headset		Sensor on	132072	1720	1	13.26	14.50	1.330			1.000	-0.18	0.979	1.303
	LTE Band 66	20M	QPSK	1	49			Front	18mm	Ant 0			Full Power	132322	1745	1	22.98	24.00	1.265			1.000	0.04	0.670	0.847
	LTE Band 66	20M	QPSK	1	49			Front	18mm	Ant 0			Full Power	132072	1720	1	22.72	24.00	1.343			1.000	0.03	0.639	0.858
	LTE Band 66	20M	QPSK	1	49			Front	18mm	Ant 0			Full Power	132572	1770	1	22.87	24.00	1.297			1.000	-0.17	0.648	0.841
	LTE Band 66	20M	QPSK	1	49			Back	26mm	Ant 0			Full Power	132072	1720	1	22.72	24.00	1.343			1.000	-0.15	0.601	0.807
	LTE Band 66	20M	QPSK	50	24			Front	5mm	Ant 0			Sensor on	132322	1745	1	13.42	14.50	1.282			1.000	0.13	0.350	0.449
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 0			Sensor on	132322	1745	1	13.42	14.50	1.282			1.000	0.01	0.786	1.008
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 0			Sensor on	132072	1720	1	13.20	14.50	1.349			1.000	-0.03	1.010	1.362
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 0			Sensor on	132572	1770	1	13.40	14.50	1.288			1.000	0.09	0.679	0.875
	LTE Band 66	20M	QPSK	100	0			Back	5mm	Ant 0			Sensor on	132322	1745	1	13.46	14.50	1.271			1.000	-0.08	0.842	1.070
	LTE Band 66	20M	QPSK	1	49			Front	5mm	Ant 1			Sensor on	132322	1745	1	13.13	14.00	1.222			1.000	-0.03	0.294	0.359
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 1			Sensor on	132322	1745	1	13.13	14.00	1.222			1.000	-0.08	0.664	0.811
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 1			Sensor on	132072	1720	1	12.85	14.00	1.303			1.000	0.11	0.801	1.044
	LTE Band 66	20M	QPSK	1	49			Back	5mm	Ant 1			Sensor on	132572	1770	1	12.81	14.00	1.315			1.000	0.18	0.564	0.742
	LTE Band 66	20M	QPSK	1	49			Front	18mm	Ant 1			Full Power	132322	1745	1	23.15	24.00	1.216			1.000	0.01	0.463	0.563
	LTE Band 66	20M	QPSK	1	49			Back	26mm	Ant 1			Full Power	132072	1720	1	22.87	24.00	1.297			1.000	-	n/a	n/a
	LTE Band 66	20M	QPSK	50	24			Front	5mm	Ant 1			Sensor on	132322	1745	1	13.07	14.00	1.239			1.000	0.14	0.279	0.346
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 1			Sensor on	132322	1745	1	13.07	14.00	1.239			1.000	-0.02	0.633	0.784
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 1			Sensor on	132072	1720	1	12.74	14.00	1.337			1.000	-0.1	0.772	1.032
	LTE Band 66	20M	QPSK	50	24			Back	5mm	Ant 1			Sensor on	132572	1770	1	12.78	14.00	1.324			1.000	0.05	0.547	0.724
	LTE Band 66	20M	QPSK	100	0			Back	5mm	Ant 1			Sensor on	132322	1745	1	13.10	14.00	1.230			1.000	0.04	0.657	0.808

**1900MHz**

	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Front	5mm	Ant 0			Sensor on	661	1880	1	25.52	26.50	1.253			1.000	-0.16	0.676	0.847
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Back	5mm	Ant 0			Sensor on	661	1880	1	25.52	26.50	1.253			1.000	0.12	0.896	1.123
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Front	5mm	Ant 0			Sensor on	512	1850.2	1	25.50	26.50	1.259			1.000	0.06	0.669	0.842
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Front	5mm	Ant 0			Sensor on	810	1909.8	1	25.46	26.50	1.271			1.000	-0.11	0.762	0.968
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Back	5mm	Ant 0			Sensor on	512	1850.2	1	25.50	26.50	1.259			1.000	-0.13	0.887	1.117
44	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Back	5mm	Ant 0			Sensor on	810	1909.8	1	25.46	26.50	1.271			1.000	-0.04	1.050	<b>1.334</b>
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Back	5mm	Ant 0	Headset		Sensor on	810	1909.8	1	25.46	26.50	1.271			1.000	-0.03	0.925	1.175
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Front	18mm	Ant 0			Full Power	810	1909.8	1	27.00	28.00	1.259			1.000	0	0.246	0.310
	GSM1900	-	-	-	-	GPRS (2 Tx slots)		Back	26mm	Ant 0			Full Power	810	1909.8	1	27.00	28.00	1.259			1.000	0.16	0.095	0.120
	WCDMA II	-	-	-	-	RMC 12.2Kbps		Front	5mm	Ant 0			Sensor on	9400	1880	1	18.34	19.00	1.164			1.000	0.02	0.734	0.854
	WCDMA II	-	-	-	-	RMC 12.2Kbps		Back	5mm	Ant 0			Sensor on	9400	1880	1	18.34	19.00	1.164			1.000	-0.1	0.978	1.139
	WCDMA II	-	-	-	-	RMC 12.2Kbps		Front	5mm	Ant 0			Sensor on	9262	1852.4	1	18.26	19.00	1.186			1.000	-0.08	0.795	0.943
	WCDMA II	-	-	-	-	RMC 12.2Kbps		Front	5mm	Ant 0			Sensor on	9538	1907.6	1	18.17	19.00	1.211			1.000	0.01	0.720	0.872



Table with columns for test parameters (e.g., WCDMA II, LTE Band 25) and SAR results. Includes rows for 45 and 46, and a section for 2600MHz. Values include frequency, power, distance, and SAR exposure metrics.



FCC SAR Test Report

Report No. : FA391515

Table with columns for LTE Band, Power, Modulation, Repetition, Time, Position, Antenna, Headset, Power Level, Frequency, Power, Time, SAR, and other metrics. Includes a highlighted cell with value 1.353.



**FCC SAR Test Report**

**Report No. : FA391515**

LTE Band 41_HPUE	20M	QPSK	1	49		Back	5mm	Ant 1		Sensor on	39750	2506	1	18.74	19.50	1.191	42.90	1.009	-0.01	0.800	0.962
LTE Band 41_HPUE	20M	QPSK	1	49		Back	5mm	Ant 1		Sensor on	40185	2549.5	1	18.69	19.50	1.205	42.90	1.009	0	0.609	0.740
LTE Band 41_HPUE	20M	QPSK	1	49		Back	5mm	Ant 1		Sensor on	41055	2636.5	1	18.76	19.50	1.186	42.90	1.009	0.03	0.436	0.522
LTE Band 41_HPUE	20M	QPSK	1	49		Back	5mm	Ant 1		Sensor on	41490	2680	1	18.70	19.50	1.202	42.90	1.009	0.18	0.353	0.428
LTE Band 41_HPUE	20M	QPSK	1	49		Front	18mm	Ant 1		Full Power	40620	2593	1	25.93	27.00	1.279	42.90	1.009	0.05	0.267	0.345
LTE Band 41_HPUE	20M	QPSK	1	49		Back	26mm	Ant 1		Full Power	39750	2506	1	25.82	27.00	1.312	42.90	1.009	0.14	0.275	0.364
LTE Band 41_HPUE	20M	QPSK	50	24		Front	5mm	Ant 1		Sensor on	40620	2593	1	17.38	18.50	1.294	42.90	1.009	0.13	0.168	0.219
LTE Band 41_HPUE	20M	QPSK	50	24		Back	5mm	Ant 1		Sensor on	40620	2593	1	17.38	18.50	1.294	42.90	1.009	0.12	0.449	0.586
LTE Band 41_HPUE	20M	QPSK	50	24		Back	5mm	Ant 1		Sensor on	39750	2506	1	17.35	18.50	1.303	42.90	1.009	0	0.599	0.788
LTE Band 41_HPUE	20M	QPSK	50	24		Back	5mm	Ant 1		Sensor on	40185	2549.5	1	17.31	18.50	1.315	42.90	1.009	-0.17	0.530	0.703
LTE Band 41_HPUE	20M	QPSK	50	24		Back	5mm	Ant 1		Sensor on	41055	2636.5	1	17.37	18.50	1.297	42.90	1.009	0.07	0.384	0.503
LTE Band 41_HPUE	20M	QPSK	50	24		Back	5mm	Ant 1		Sensor on	41490	2680	1	17.37	18.50	1.297	42.90	1.009	-0.1	0.293	0.383
LTE Band 41_HPUE	20M	QPSK	100	0		Back	5mm	Ant 1		Sensor on	40620	2593	1	17.17	18.50	1.358	42.90	1.009	-0.02	0.437	0.599



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
<b>BT/WLAN2.4GHz</b>																			
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 2	-	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.18	0.038	0.058	
	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	-	Full Power	0	2402	1	14.30	15.00	1.175	76.94	1.300	0.15	0.070	0.107	
49	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	-	Full Power	39	2441	1	14.10	15.00	1.230	76.94	1.300	0.01	0.077	0.123	
	Bluetooth	DH5 1Mbps	Back	5mm	Ant 2	-	Full Power	78	2480	1	13.50	15.00	1.413	76.94	1.300	-0.14	0.050	0.092	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 2	-	Full Power	11	2462	1	20.20	21.50	1.349	98.61	1.014	0.06	0.389	0.532	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Full Power	11	2462	1	20.20	21.50	1.349	98.61	1.014	-0.01	0.719	0.983	
50	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Full Power	1	2412	1	20.00	21.50	1.413	98.61	1.014	0.11	0.888	1.272	
	WLAN2.4GHz	802.11g 6Mbps	Back	5mm	Ant 2	-	Full Power	1	2412	1	20.00	21.50	1.413	98.33	1.017	0.08	0.832	1.195	
	WLAN2.4GHz	802.11n-HT20 MCS0	Back	5mm	Ant 2	-	Full Power	1	2412	1	20.10	21.50	1.380	97.62	1.024	-0.11	0.846	1.196	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Full Power	6	2437	1	20.10	21.50	1.380	98.61	1.014	0.15	0.858	1.201	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	Headset	Full Power	1	2412	1	20.00	21.50	1.413	98.61	1.014	0.03	0.863	1.236	
	WLAN2.4GHz	802.11b 1Mbps	Front	18mm	Ant 2	-	Full Power	11	2462	1	20.20	21.50	1.349	98.61	1.014	-0.12	0.101	0.138	
	WLAN2.4GHz	802.11b 1Mbps	Back	26mm	Ant 2	-	Full Power	1	2412	1	20.00	21.50	1.413	98.61	1.014	-0.08	0.066	0.095	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 2	-	Sim TX	11	2462	1	15.00	16.50	1.413	98.61	1.014	0.07	0.123	0.176	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Sim TX	11	2462	1	15.00	16.50	1.413	98.61	1.014	0.02	0.226	0.324	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Sim TX	1	2412	1	15.10	16.50	1.380	98.61	1.014	-0.01	0.276	0.386	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 2	-	Sim TX	6	2437	1	15.00	16.50	1.413	98.61	1.014	0.14	0.271	0.388	
<b>WLAN5GHz</b>																			
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sensor on	58	5290	1	17.68	19.50	1.521	92.44	1.082	0.01	0.198	0.326	
51	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	58	5290	1	17.68	19.50	1.521	92.44	1.082	-0.14	0.695	1.143	
	WLAN5.3GHz	802.11a 6Mbps	Front	18mm	Ant 3	-	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	0.03	0.053	0.069	
	WLAN5.3GHz	802.11a 6Mbps	Back	26mm	Ant 3	-	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	0.07	0.239	0.311	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sim TX	58	5290	1	12.77	14.50	1.489	92.44	1.082	-0.09	0.074	0.119	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sim TX	58	5290	1	12.77	14.50	1.489	92.44	1.082	-0.04	0.231	0.372	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sensor on	106	5530	1	14.73	16.00	1.340	92.44	1.082	0.09	0.094	0.136	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	106	5530	1	14.73	16.00	1.340	92.44	1.082	0.03	0.375	0.544	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	122	5610	1	14.76	16.00	1.330	92.44	1.082	-0.04	0.520	0.749	
52	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	138	5690	1	14.59	16.00	1.384	92.44	1.082	0.07	0.734	1.099	
	WLAN5.5GHz	802.11a 6Mbps	Front	18mm	Ant 3	-	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	0.02	0.098	0.123	
	WLAN5.5GHz	802.11a 6Mbps	Back	26mm	Ant 3	-	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	0.07	0.332	0.417	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sim TX	106	5530	1	10.28	11.50	1.324	92.44	1.082	0.01	0.033	0.047	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sim TX	106	5530	1	10.28	11.50	1.324	92.44	1.082	-0.11	0.133	0.191	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sim TX	122	5610	1	10.22	11.50	1.343	92.44	1.082	0.1	0.185	0.269	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sim TX	138	5690	1	10.07	11.50	1.390	92.44	1.082	0.14	0.256	0.385	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sensor on	155	5775	1	15.37	16.50	1.297	92.44	1.082	-0.13	0.123	0.173	
53	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	155	5775	1	15.37	16.50	1.297	92.44	1.082	-0.01	0.753	1.057	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sensor on	155	5775	2	15.37	16.50	1.297	92.44	1.082	0.08	0.480	0.674	
	WLAN5.8GHz	802.11a 6Mbps	Front	18mm	Ant 3	-	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	0.12	0.082	0.109	
	WLAN5.8GHz	802.11a 6Mbps	Back	26mm	Ant 3	-	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	0.14	0.401	0.535	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Sim TX	155	5775	1	10.11	11.50	1.377	92.44	1.082	0.06	0.069	0.103	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Sim TX	155	5775	1	10.11	11.50	1.377	92.44	1.082	-0.03	0.244	0.364	



15.4 Product specific 10g SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Power State, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 10g SAR (W/kg), Reported 10g SAR (W/kg). Rows include frequencies like 750MHz, 835MHz, 1750MHz and bands like LTE Band 12, WCDMA V, WCDMA IV, LTE Band 66.



Table with columns for LTE Band, Modulation, Power, Frequency, etc. Includes a section for 1900MHz with rows for GSM1900 and WCDMA II. Some cells are highlighted in yellow (e.g., 2.342, 3.494, 3.258).



	LTE Band 25	20M	QPSK	1	49		Top Side	14mm	Ant 1	Full Power	26340	1880	1	22.94	24.00	1.276		1.000	0.02	0.671	0.856
	LTE Band 25	20M	QPSK	50	24		Front	0mm	Ant 1	Handheld	26340	1880	1	17.45	18.50	1.274		1.000	0.11	0.420	0.535
	LTE Band 25	20M	QPSK	50	24		Back	0mm	Ant 1	Handheld	26340	1880	1	17.45	18.50	1.274		1.000	-0.01	1.720	2.190
	LTE Band 25	20M	QPSK	50	24		Back	0mm	Ant 1	Handheld	26140	1860	1	17.37	18.50	1.297		1.000	-0.16	1.640	2.127
	LTE Band 25	20M	QPSK	50	24		Back	0mm	Ant 1	Handheld	26590	1905	1	17.17	18.50	1.358		1.000	0.01	1.750	2.377
	LTE Band 25	20M	QPSK	50	24		Left Side	0mm	Ant 1	Handheld	26340	1880	1	17.45	18.50	1.274		1.000	-0.13	0.590	0.751
	LTE Band 25	20M	QPSK	50	24		Top Side	0mm	Ant 1	Handheld	26340	1880	1	17.45	18.50	1.274		1.000	-0.08	1.400	1.783
	LTE Band 25	20M	QPSK	100	0		Back	0mm	Ant 1	Handheld	26340	1880	1	17.45	18.50	1.274		1.000	0.01	1.740	2.216

**2600MHZ**

	LTE Band 7	20M	QPSK	1	49		Front	0mm	Ant 0	Handheld	21100	2535	1	15.88	17.00	1.294		1.000	-0.02	1.350	1.747
	LTE Band 7	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	21100	2535	1	15.88	17.00	1.294		1.000	-0.16	1.820	2.355
62	LTE Band 7	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	20850	2510	1	15.79	17.00	1.321		1.000	-0.16	1.800	<b>2.378</b>
	LTE Band 7	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	21350	2560	1	15.63	17.00	1.371		1.000	0.01	1.700	2.330
	LTE Band 7	20M	QPSK	1	49		Bottom Side	0mm	Ant 0	Handheld	21100	2535	1	15.88	17.00	1.294		1.000	-0.04	1.500	1.941
	LTE Band 7	20M	QPSK	1	49		Front	18mm	Ant 0	Full Power	21100	2535	1	22.85	24.00	1.303		1.000	0.07	0.455	0.593
	LTE Band 7	20M	QPSK	1	49		Back	25mm	Ant 0	Full Power	20850	2510	1	22.78	24.00	1.324		1.000	0.12	0.443	0.587
	LTE Band 7	20M	QPSK	1	49		Bottom Side	23mm	Ant 0	Full Power	21100	2535	1	22.85	24.00	1.303		1.000	0.04	0.908	1.183
	LTE Band 7	20M	QPSK	50	24		Front	0mm	Ant 0	Handheld	21100	2535	1	15.81	17.00	1.315		1.000	0.15	1.300	1.710
	LTE Band 7	20M	QPSK	50	24		Back	0mm	Ant 0	Handheld	21100	2535	1	15.81	17.00	1.315		1.000	0.01	1.730	2.275
	LTE Band 7	20M	QPSK	50	24		Back	0mm	Ant 0	Handheld	20850	2510	1	15.73	17.00	1.340		1.000	0.1	1.680	2.251
	LTE Band 7	20M	QPSK	50	24		Back	0mm	Ant 0	Handheld	21350	2560	1	15.56	17.00	1.393		1.000	0.07	1.670	2.327
	LTE Band 7	20M	QPSK	50	24		Bottom Side	0mm	Ant 0	Handheld	21100	2535	1	15.81	17.00	1.315		1.000	-0.15	1.450	1.907
	LTE Band 7	20M	QPSK	100	0		Back	0mm	Ant 0	Handheld	21100	2535	1	15.78	17.00	1.324		1.000	0.05	1.740	2.304
	LTE Band 41	20M	QPSK	1	49		Front	0mm	Ant 0	Handheld	40620	2593	1	16.52	17.00	1.117	62.90	1.006	0.03	0.807	0.907
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	40620	2593	1	16.52	17.00	1.117	62.90	1.006	-0.18	1.000	1.124
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	39750	2506	1	16.45	17.00	1.135	62.90	1.006	-0.16	1.010	1.153
	LTE Band 41C	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	39750+39948	2506+2525.8	1	16.41	17.00	1.146	62.90	1.006	0.06	0.980	1.129
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	40185	2549.5	1	16.48	17.00	1.127	62.90	1.006	-0.01	0.993	1.126
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	41055	2636.5	1	16.43	17.00	1.140	62.90	1.006	-0.06	0.988	1.133
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	41490	2680	1	16.51	17.00	1.119	62.90	1.006	-0.17	0.809	0.911
	LTE Band 41	20M	QPSK	1	49		Bottom Side	0mm	Ant 0	Handheld	40620	2593	1	16.52	17.00	1.117	62.90	1.006	0.08	0.899	1.010
	LTE Band 41	20M	QPSK	1	49		Front	18mm	Ant 0	Full Power	40620	2593	1	22.87	24.00	1.297	62.90	1.006	0.13	0.246	0.321
	LTE Band 41	20M	QPSK	1	49		Back	25mm	Ant 0	Full Power	39750	2506	1	22.80	24.00	1.318	62.90	1.006	-0.07	0.277	0.367
	LTE Band 41	20M	QPSK	1	49		Bottom Side	23mm	Ant 0	Full Power	40620	2593	1	22.87	24.00	1.297	62.90	1.006	-0.16	0.501	0.654
	LTE Band 41	20M	QPSK	50	24		Front	0mm	Ant 0	Handheld	40620	2593	1	15.32	16.50	1.312	62.90	1.006	-0.18	0.688	0.908
	LTE Band 41	20M	QPSK	50	24		Back	0mm	Ant 0	Handheld	40620	2593	1	15.32	16.50	1.312	62.90	1.006	0.03	0.799	1.055
	LTE Band 41	20M	QPSK	50	24		Bottom Side	0mm	Ant 0	Handheld	40620	2593	1	15.32	16.50	1.312	62.90	1.006	-0.09	0.635	0.838
	LTE Band 41_HPUE	20M	QPSK	1	49		Front	0mm	Ant 0	Handheld	40620	2593	1	19.06	20.00	1.242	42.90	1.009	0.03	0.900	1.128
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	40620	2593	1	19.06	20.00	1.242	42.90	1.009	-0.18	1.120	1.403
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	39750	2506	1	18.97	20.00	1.268	42.90	1.009	0.08	1.130	1.445
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	40185	2549.5	1	19.00	20.00	1.259	42.90	1.009	-0.01	1.110	1.410
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	41055	2636.5	1	19.02	20.00	1.253	42.90	1.009	-0.06	1.080	1.366
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	0mm	Ant 0	Handheld	41490	2680	1	19.01	20.00	1.256	42.90	1.009	-0.17	0.907	1.149
	LTE Band 41_HPUE	20M	QPSK	1	49		Bottom Side	0mm	Ant 0	Handheld	40620	2593	1	19.06	20.00	1.242	42.90	1.009	0.08	1.000	1.253
	LTE Band 41_HPUE	20M	QPSK	1	49		Front	18mm	Ant 0	Full Power	40620	2593	1	25.82	27.00	1.312	42.90	1.009	0.17	0.275	0.364
	LTE Band 41_HPUE	20M	QPSK	1	49		Back	25mm	Ant 0	Full Power	39750	2506	1	25.62	27.00	1.374	42.90	1.009	-0.1	0.310	0.430
	LTE Band 41_HPUE	20M	QPSK	1	49		Bottom Side	23mm	Ant 0	Full Power	40620	2593	1	25.82	27.00	1.312	42.90	1.009	0.03	0.561	0.743
	LTE Band 41_HPUE	20M	QPSK	50	24		Front	0mm	Ant 0	Handheld	40620	2593	1	17.77	19.00	1.327	42.90	1.009	-0.18	0.707	0.947
	LTE Band 41_HPUE	20M	QPSK	50	24		Back	0mm	Ant 0	Handheld	40620	2593	1	17.77	19.00	1.327	42.90	1.009	0.03	0.892	1.195
	LTE Band 41_HPUE	20M	QPSK	50	24		Bottom Side	0mm	Ant 0	Handheld	40620	2593	1	17.77	19.00	1.327	42.90	1.009	-0.09	0.791	1.059
	LTE Band 41_HPUE	20M	QPSK	100	0		Back	0mm	Ant 0	Handheld	40620	2593	1	17.62	19.00	1.374	42.90	1.009	0.04	0.994	1.378
	LTE Band 41	20M	QPSK	1	49		Front	0mm	Ant 1	Handheld	40620	2593	1	20.10	20.50	1.096	62.90	1.006	-0.16	0.800	0.882
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 1	Handheld	40620	2593	1	20.10	20.50	1.096	62.90	1.006	0.13	1.530	1.688
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 1	Handheld	39750	2506	1	20.02	20.50	1.117	62.90	1.006	-0.17	1.880	2.112
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 1	Handheld	40185	2549.5	1	20.06	20.50	1.107	62.90	1.006	0.18	1.720	1.915
	LTE Band 41	20M	QPSK	1	49		Back	0mm	Ant 1	Handheld	41055	2636.5	1	20.00	20.50	1.122	62.90	1.006	-0.13	1.420	1.603





FCC SAR Test Report

Report No. : FA391515

Main table with columns for LTE Band, Mode, Power State, Antenna, etc. Row 63 is highlighted in yellow.

Summary table for WLAN2.4GHz with columns for Plot No., Band, Mode, Test Position, Gap, Antenna, Power State, Ch., Freq., Sample, Average Power, etc. Row 64 is highlighted in yellow.



	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Sim Tx	1	2412	1	18.70	20.00	1.349	98.61	1.014	-0.15	0.653	0.893
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 2	Sim Tx	6	2437	1	18.60	20.00	1.380	98.61	1.014	0.04	0.579	0.810
<b>WLAN5GHz</b>																	
	WLAN5.2GHz	802.11a 6Mbps	Front	0mm	Ant 3	Full Power	48	5240	1	19.85	21.50	1.461	98.33	1.017	0.04	0.365	0.542
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	48	5240	1	19.85	21.50	1.461	98.33	1.017	0.18	1.020	1.516
	WLAN5.2GHz	802.11a 6Mbps	Left Side	0mm	Ant 3	Full Power	48	5240	1	19.85	21.50	1.461	98.33	1.017	0.02	0.038	0.056
	WLAN5.2GHz	802.11a 6Mbps	Right Side	0mm	Ant 3	Full Power	48	5240	1	19.85	21.50	1.461	98.33	1.017	-0.05	0.795	1.181
	WLAN5.2GHz	802.11a 6Mbps	Top Side	0mm	Ant 3	Full Power	48	5240	1	19.85	21.50	1.461	98.33	1.017	0.03	0.296	0.440
65	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	36	5180	1	19.72	21.50	1.506	98.33	1.017	-0.07	1.150	1.761
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	40	5200	1	19.69	21.50	1.517	98.33	1.017	0.15	1.100	1.697
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	44	5220	1	19.79	21.50	1.481	98.33	1.017	0.02	1.070	1.612
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3	Sim Tx	42	5210	1	16.03	18.00	1.574	92.44	1.082	0.05	0.166	0.283
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	42	5210	1	16.03	18.00	1.574	92.44	1.082	0.14	0.552	0.940
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3	Sim Tx	42	5210	1	16.03	18.00	1.574	92.44	1.082	0.06	0.027	0.046
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3	Sim Tx	42	5210	1	16.03	18.00	1.574	92.44	1.082	0.09	0.427	0.727
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3	Sim Tx	42	5210	1	16.03	18.00	1.574	92.44	1.082	-0.16	0.136	0.232
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 3	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	-0.01	0.323	0.421
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	0.17	1.340	1.746
	WLAN5.3GHz	802.11a 6Mbps	Left Side	0mm	Ant 3	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	0.14	0.039	0.051
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 3	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	-0.09	0.957	1.247
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 3	Full Power	64	5320	1	20.42	21.50	1.281	98.33	1.017	0.01	0.271	0.353
66	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	52	5260	1	19.95	21.50	1.428	98.33	1.017	0.16	1.240	1.801
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	56	5280	1	19.91	21.50	1.442	98.33	1.017	0.01	1.180	1.731
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	60	5300	1	20.12	21.50	1.373	98.33	1.017	0.04	1.200	1.676
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3	Sim Tx	58	5290	1	16.16	18.00	1.528	92.44	1.082	0.12	0.180	0.298
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	58	5290	1	16.16	18.00	1.528	92.44	1.082	-0.02	0.603	0.997
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3	Sim Tx	58	5290	1	16.16	18.00	1.528	92.44	1.082	0.03	0.015	0.025
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3	Sim Tx	58	5290	1	16.16	18.00	1.528	92.44	1.082	0.1	0.458	0.757
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3	Sim Tx	58	5290	1	16.16	18.00	1.528	92.44	1.082	0.07	0.137	0.226
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 3	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	0.1	0.338	0.425
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	-0.14	1.190	1.495
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	Ant 3	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	-0.17	0.047	0.059
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 3	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	0.15	0.886	1.113
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 3	Full Power	116	5580	1	20.08	21.00	1.235	98.33	1.017	0.06	0.281	0.353
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	100	5500	1	19.97	20.50	1.129	98.33	1.017	-0.13	1.380	1.585
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	124	5620	1	19.41	20.50	1.285	98.33	1.017	-0.04	1.710	2.235
67	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	132	5660	1	19.35	20.50	1.303	98.33	1.017	-0.17	1.930	2.558
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	132	5660	2	19.35	20.50	1.303	98.33	1.017	0.08	1.930	2.558
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	140	5700	1	19.30	20.50	1.317	98.33	1.017	0.17	1.740	2.331
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	144	5720	1	19.25	20.50	1.333	98.33	1.017	0.13	1.740	2.358
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3	Sim Tx	106	5530	1	15.44	16.50	1.276	92.44	1.082	0.04	0.134	0.185
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	106	5530	1	15.44	16.50	1.276	92.44	1.082	-0.1	0.529	0.731
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant 3	Sim Tx	106	5530	1	15.44	16.50	1.276	92.44	1.082	-0.13	0.019	0.026
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3	Sim Tx	106	5530	1	15.44	16.50	1.276	92.44	1.082	0.05	0.465	0.642
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3	Sim Tx	106	5530	1	15.44	16.50	1.276	92.44	1.082	0.02	0.142	0.196
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	122	5610	1	15.28	16.50	1.324	92.44	1.082	-0.11	0.655	0.939
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	138	5690	1	15.26	16.50	1.330	92.44	1.082	0.02	0.636	0.916
68	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	0.16	1.400	1.867
	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 3	Full Power	149	5745	1	19.32	20.50	1.311	98.33	1.017	-0.13	1.110	1.480
	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	157	5785	1	19.27	20.50	1.326	98.33	1.017	-0.04	1.340	1.808
	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant 3	Full Power	165	5825	1	19.06	20.50	1.392	98.33	1.017	-0.09	1.310	1.855
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Sim Tx	155	5775	1	17.22	18.50	1.343	92.44	1.082	-0.01	0.741	1.077
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3	Sim Tx	155	5775	1	17.22	18.50	1.343	92.44	1.082	-0.06	0.587	0.853



15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Full	4233	846.6	1	23.16	24.00	1.213	-	-	0.15	1.050	1	1.274
2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Full	4233	846.6	1	23.16	24.00	1.213	-	-	0.04	0.993	1.057	1.205
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Hotspot	1312	1712.4	1	13.78	14.50	1.180	-	-	0.13	1.140	1	1.346
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Hotspot	1312	1712.4	1	13.78	14.50	1.180	-	-	0.13	1.080	1.056	1.275
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Sensor on	9262	1852.4	1	18.26	19.00	1.186	-	-	0.04	1.190	1	1.411
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Sensor on	9262	1852.4	1	18.26	19.00	1.186	-	-	0.04	1.130	1.130	1.340
1st	LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Sensor on	40620	2593	1	13.60	14.00	1.096	62.90	1.006	-0.06	1.110	1	1.224
2nd	LTE Band 41	20M	QPSK	1	49	-	Back	5mm	Ant 0	Sensor on	40620	2593	1	13.60	14.00	1.096	62.90	1.006	-0.06	1.030	1.078	1.136
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Full	1	2412	1	20.00	21.50	1.413	98.61	1.014	0.01	0.901	1	1.291
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Full	1	2412	1	20.00	21.50	1.413	98.61	1.014	0.04	0.886	1.017	1.269

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 26	15M	QPSK	1	37	-	Back	0mm	Ant 1	Handheld	26965	841.5	1	22.22	23.00	1.197	-	-	0.04	2.310	1	2.764
2nd	LTE Band 26	15M	QPSK	1	37	-	Back	0mm	Ant 1	Handheld	26965	841.5	1	22.22	23.00	1.197	-	-	0.04	2.240	1.031	2.681
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Handheld	1312	1712.4	1	19.85	20.50	1.161	-	-	0.13	2.840	1	3.299
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Handheld	1312	1712.4	1	19.85	20.50	1.161	-	-	0.13	2.810	1.01	3.264
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Handheld	9262	1852.4	1	20.72	21.50	1.197	-	-	0.13	2.920	1	3.494
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Handheld	9262	1852.4	1	20.72	21.50	1.197	-	-	0.13	2.810	1.039	3.363
1st	LTE Band 41	20M	QPSK	1	49	-	Top Side	10mm	Ant 0	Handheld	40620	2593	1	20.10	20.50	1.096	62.90	1.006	-0.15	2.200	1	2.427
2nd	LTE Band 41	20M	QPSK	1	49	-	Top Side	10mm	Ant 0	Handheld	40620	2593	1	20.10	20.50	1.096	62.90	1.006	0.06	2.110	1.043	2.327

General Note:

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

## 16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Mobile Cellular Phone			
		Head	Body	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.	WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + WLAN 5GHz + Bluetooth	Yes	Yes	Yes	Yes

**General Note:**

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), and LTE supports VoLTE function.
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 WLAN 2.4GHz supports 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. According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
6. According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz cannot transmit simultaneously.
7. WLAN 2.4GHz and Bluetooth share the same antenna and they cannot transmit simultaneously.
8. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
9. When stand-alone SAR is not required for a transmitter or antenna, its SAR is considered zero in the SAR summing process to assess Multi-band transmission SAR compliance.
10. The maximum SAR summation is calculated based on the same configuration and test position.
11. 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)  $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - iii) If  $SPLSR \leq 0.04$  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	4	5	1+3	1+4+5
		WWAN	WLAN2.4GHz Sim TX	WLAN5GHz Sim TX	Bluetooth	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM850 Ant 0	Right Cheek	0.362	0.122	0.196	0.050	0.48	0.61
	Right Tilted	0.176	0.107	0.221	0.050	0.28	0.45
	Left Cheek	0.289	0.307	0.387	0.115	0.60	0.79
	Left Tilted	0.151	0.179	0.274	0.092	0.33	0.52
GSM1900 Ant 0	Right Cheek	0.164	0.122	0.196	0.050	0.29	0.41
	Right Tilted	0.138	0.107	0.221	0.050	0.25	0.41
	Left Cheek	0.225	0.307	0.387	0.115	0.53	0.73
	Left Tilted	0.166	0.179	0.274	0.092	0.35	0.53
WCDMA II Ant 0	Right Cheek	0.389	0.122	0.196	0.050	0.51	0.64
	Right Tilted	0.365	0.107	0.221	0.050	0.47	0.64
	Left Cheek	0.487	0.307	0.387	0.115	0.79	0.99
	Left Tilted	0.400	0.179	0.274	0.092	0.58	0.77
WCDMA IV Ant 0	Right Cheek	0.205	0.122	0.196	0.050	0.33	0.45
	Right Tilted	0.144	0.107	0.221	0.050	0.25	0.42
	Left Cheek	0.174	0.307	0.387	0.115	0.48	0.68
	Left Tilted	0.139	0.179	0.274	0.092	0.32	0.51
WCDMA V Ant 0	Right Cheek	0.460	0.122	0.196	0.050	0.58	0.71
	Right Tilted	0.215	0.107	0.221	0.050	0.32	0.49
	Left Cheek	0.310	0.307	0.387	0.115	0.62	0.81
	Left Tilted	0.181	0.179	0.274	0.092	0.36	0.55
LTE Band 12 Ant 0	Right Cheek	0.213	0.122	0.196	0.050	0.34	0.46
	Right Tilted	0.102	0.107	0.221	0.050	0.21	0.37
	Left Cheek	0.205	0.307	0.387	0.115	0.51	0.71
	Left Tilted	0.103	0.179	0.274	0.092	0.28	0.47
LTE Band 12 Ant 1	Right Cheek	0.825	0.122	0.196	0.050	0.95	1.07
	Right Tilted	0.702	0.107	0.221	0.050	0.81	0.97
	Left Cheek	0.650	0.307	0.387	0.115	0.96	1.15
	Left Tilted	0.591	0.179	0.274	0.092	0.77	0.96
LTE Band 13 Ant 0	Right Cheek	0.339	0.122	0.196	0.050	0.46	0.59
	Right Tilted	0.210	0.107	0.221	0.050	0.32	0.48
	Left Cheek	0.297	0.307	0.387	0.115	0.60	0.80
	Left Tilted	0.169	0.179	0.274	0.092	0.35	0.54
LTE Band 13 Ant 1	Right Cheek	0.556	0.122	0.196	0.050	0.68	0.80
	Right Tilted	0.517	0.107	0.221	0.050	0.62	0.79
	Left Cheek	0.502	0.307	0.387	0.115	0.81	1.00
	Left Tilted	0.471	0.179	0.274	0.092	0.65	0.84
LTE Band 71 Ant 0	Right Cheek	0.509	0.122	0.196	0.050	0.63	0.76
	Right Tilted	0.240	0.107	0.221	0.050	0.35	0.51
	Left Cheek	0.417	0.307	0.387	0.115	0.72	0.92
	Left Tilted	0.235	0.179	0.274	0.092	0.41	0.60
LTE Band 26 Ant 0	Right Cheek	0.442	0.122	0.196	0.050	0.56	0.69
	Right Tilted	0.236	0.107	0.221	0.050	0.34	0.51
	Left Cheek	0.354	0.307	0.387	0.115	0.66	0.86
	Left Tilted	0.195	0.179	0.274	0.092	0.37	0.56
LTE Band 26 Ant 1	Right Cheek	1.017	0.122	0.196	0.050	1.14	1.26
	Right Tilted	0.585	0.107	0.221	0.050	0.69	0.86
	Left Cheek	0.554	0.307	0.387	0.115	0.86	1.06
	Left Tilted	0.448	0.179	0.274	0.092	0.63	0.81
LTE Band 66 Ant 0	Right Cheek	0.346	0.122	0.196	0.050	0.47	0.59
	Right Tilted	0.223	0.107	0.221	0.050	0.33	0.49



	Left Cheek	0.225	0.307	0.387	0.115	0.53	0.73
	Left Tilted	0.196	0.179	0.274	0.092	0.38	0.56
LTE Band 66 Ant 1	Right Cheek	0.704	0.122	0.196	0.050	0.83	0.95
	Right Tilted	0.956	0.107	0.221	0.050	1.06	1.23
	Left Cheek	0.414	0.307	0.387	0.115	0.72	0.92
	Left Tilted	0.520	0.179	0.274	0.092	0.70	0.89
LTE Band 25 Ant 0	Right Cheek	0.312	0.122	0.196	0.050	0.43	0.56
	Right Tilted	0.298	0.107	0.221	0.050	0.41	0.57
	Left Cheek	0.377	0.307	0.387	0.115	0.68	0.88
	Left Tilted	0.320	0.179	0.274	0.092	0.50	0.69
LTE Band 25 Ant 1	Right Cheek	0.944	0.122	0.196	0.050	1.07	1.19
	Right Tilted	0.999	0.107	0.221	0.050	1.11	1.27
	Left Cheek	0.620	0.307	0.387	0.115	0.93	1.12
	Left Tilted	0.778	0.179	0.274	0.092	0.96	1.14
LTE Band 7 Ant 0	Right Cheek	0.137	0.122	0.196	0.050	0.26	0.38
	Right Tilted	0.127	0.107	0.221	0.050	0.23	0.40
	Left Cheek	0.119	0.307	0.387	0.115	0.43	0.62
	Left Tilted	0.107	0.179	0.274	0.092	0.29	0.47
LTE Band 41 Ant 0	Right Cheek	0.136	0.122	0.196	0.050	0.26	0.38
	Right Tilted		0.107	0.221	0.050	0.11	0.27
	Left Cheek	0.054	0.307	0.387	0.115	0.36	0.56
	Left Tilted		0.179	0.274	0.092	0.18	0.37
LTE Band 41 Ant 1	Right Cheek	0.787	0.122	0.196	0.050	0.91	1.03
	Right Tilted	1.016	0.107	0.221	0.050	1.12	1.29
	Left Cheek	0.579	0.307	0.387	0.115	0.89	1.08
	Left Tilted	0.821	0.179	0.274	0.092	1.00	1.19

**16.2 Hotspot Exposure Conditions**

WWAN Band	Exposure Position	1	3	4	5	1+3	1+4+5	SPLSR
		WWAN	WLAN2.4GHz	WLAN5GHz	Bluetooth	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850 Ant 0	Front	0.497	0.229	0.208	0.058	0.73	0.76	
	Back	0.951	0.704	0.676	0.123	<b>1.66</b>	<b>1.75</b>	<b>Case 1/2</b>
	Left side	0.262		0.128		0.26	0.39	
	Right side	0.486	0.327	0.557	0.069	0.81	1.11	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.466				0.47	0.47	
GSM1900 Ant 0	Front	0.649	0.229	0.208	0.058	0.88	0.92	
	Back	0.971	0.704	0.676	0.123	<b>1.68</b>	<b>1.77</b>	<b>Case 3/4</b>
	Left side	0.368		0.128		0.37	0.50	
	Right side	0.119	0.327	0.557	0.069	0.45	0.75	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.437				1.44	1.44	
WCDMA II Ant 0	Front	0.493	0.229	0.208	0.058	0.72	0.76	
	Back	0.674	0.704	0.676	0.123	1.38	1.47	
	Left side	0.291		0.128		0.29	0.42	
	Right side	0.079	0.327	0.557	0.069	0.41	0.71	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.290				1.29	1.29	
WCDMA IV Ant 0	Front	0.407	0.229	0.208	0.058	0.64	0.67	
	Back	1.088	0.704	0.676	0.123	<b>1.79</b>	<b>1.89</b>	<b>Case 5/6</b>
	Left side	0.048		0.128		0.05	0.18	
	Right side	0.070	0.327	0.557	0.069	0.40	0.70	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.346				1.35	1.35	
WCDMA V Ant 0	Front	0.583	0.229	0.208	0.058	0.81	0.85	
	Back	1.274	0.704	0.676	0.123	<b>1.98</b>	<b>2.07</b>	<b>Case 7/8</b>
	Left side	0.327		0.128		0.33	0.46	
	Right side	0.603	0.327	0.557	0.069	0.93	1.23	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.560				0.56	0.56	
LTE Band 12 Ant 0	Front	0.360	0.229	0.208	0.058	0.59	0.63	
	Back	0.803	0.704	0.676	0.123	1.51	<b>1.60</b>	<b>Case 9</b>
	Left side	0.326		0.128		0.33	0.45	
	Right side	0.640	0.327	0.557	0.069	0.97	1.27	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.313				0.31	0.31	
LTE Band 12 Ant 1	Front	0.264	0.229	0.208	0.058	0.49	0.53	
	Back	0.642	0.704	0.676	0.123	1.35	1.44	
	Left side	0.256		0.128		0.26	0.38	
	Right side	0.148	0.327	0.557	0.069	0.48	0.77	
	Top side	0.504	0.236	0.218	0.061	0.74	0.78	
	Bottom side					0.00	0.00	
LTE Band 13 Ant 0	Front	0.357	0.229	0.208	0.058	0.59	0.62	
	Back	0.835	0.704	0.676	0.123	1.54	<b>1.63</b>	<b>Case 10</b>
	Left side	0.419		0.128		0.42	0.55	
	Right side	0.649	0.327	0.557	0.069	0.98	1.28	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.208				0.21	0.21	
LTE Band 13 Ant 1	Front	0.186	0.229	0.208	0.058	0.42	0.45	
	Back	0.658	0.704	0.676	0.123	1.36	1.46	
	Left side	0.140		0.128		0.14	0.27	



	Right side	0.081	0.327	0.557	0.069	0.41	0.71	
	Top side	0.460	0.236	0.218	0.061	0.70	0.74	
	Bottom side					0.00	0.00	
LTE Band 71 Ant 0	Front	0.499	0.229	0.208	0.058	0.73	0.77	
	Back	0.987	0.704	0.676	0.123	1.69	1.79	Case 11/12
	Left side	0.711		0.128		0.71	0.84	
	Right side	0.945	0.327	0.557	0.069	1.27	1.57	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.412				0.41	0.41	
LTE Band 26 Ant 0	Front	0.532	0.229	0.208	0.058	0.76	0.80	
	Back	1.127	0.704	0.676	0.123	1.83	1.93	Case 13/14
	Left side	0.497		0.128		0.50	0.63	
	Right side	0.690	0.327	0.557	0.069	1.02	1.32	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	0.336				0.34	0.34	
LTE Band 26 Ant 1	Front	0.124	0.229	0.208	0.058	0.35	0.39	
	Back	0.695	0.704	0.676	0.123	1.40	1.49	
	Left side	0.102		0.128		0.10	0.23	
	Right side	0.091	0.327	0.557	0.069	0.42	0.72	
	Top side	0.348	0.236	0.218	0.061	0.58	0.63	
	Bottom side					0.00	0.00	
LTE Band 66 Ant 0	Front	0.366	0.229	0.208	0.058	0.60	0.63	
	Back	0.996	0.704	0.676	0.123	1.70	1.80	Case 15/16
	Left side	0.053		0.128		0.05	0.18	
	Right side	0.060	0.327	0.557	0.069	0.39	0.69	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.289				1.29	1.29	
LTE Band 66 Ant 1	Front	0.263	0.229	0.208	0.058	0.49	0.53	
	Back	0.684	0.704	0.676	0.123	1.39	1.48	
	Left side	0.072		0.128		0.07	0.20	
	Right side	0.038	0.327	0.557	0.069	0.37	0.66	
	Top side	0.645	0.236	0.218	0.061	0.88	0.92	
	Bottom side					0.00	0.00	
LTE Band 25 Ant 0	Front	0.498	0.229	0.208	0.058	0.73	0.76	
	Back	0.667	0.704	0.676	0.123	1.37	1.47	
	Left side	0.298		0.128		0.30	0.43	
	Right side	0.079	0.327	0.557	0.069	0.41	0.71	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.330				1.33	1.33	
LTE Band 25 Ant 1	Front	0.248	0.229	0.208	0.058	0.48	0.51	
	Back	0.540	0.704	0.676	0.123	1.24	1.34	
	Left side	0.161		0.128		0.16	0.29	
	Right side		0.327	0.557	0.069	0.33	0.63	
	Top side	0.699	0.236	0.218	0.061	0.94	0.98	
	Bottom side					0.00	0.00	
LTE Band 7 Ant 0	Front	0.492	0.229	0.208	0.058	0.72	0.76	
	Back	1.240	0.704	0.676	0.123	1.94	2.04	Case 17/18
	Left side	0.064		0.128		0.06	0.19	
	Right side		0.327	0.557	0.069	0.33	0.63	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.384				1.38	1.38	
LTE Band 41 Ant 0	Front	0.425	0.229	0.208	0.058	0.65	0.69	
	Back	0.892	0.704	0.676	0.123	1.60	1.69	Case 19/20
	Left side	0.040		0.128		0.04	0.17	
	Right side		0.327	0.557	0.069	0.33	0.63	
	Top side		0.236	0.218	0.061	0.24	0.28	





	Bottom side	1.019				1.02	1.02	
LTE Band 41 Ant 1	Front	0.138	0.229	0.208	0.058	0.37	0.40	
	Back	0.566	0.704	0.676	0.123	1.27	1.37	
	Left side	0.108		0.128		0.11	0.24	
	Right side	0.043	0.327	0.557	0.069	0.37	0.67	
	Top side	0.349	0.236	0.218	0.061	0.59	0.63	
	Bottom side					0.00	0.00	
LTE Band 41_HPUE Ant 0	Front	0.564	0.229	0.208	0.058	0.79	0.83	
	Back	1.183	0.704	0.676	0.123	<b>1.89</b>	<b>1.98</b>	<b>Case 21/22</b>
	Left side	0.053		0.128		0.05	0.18	
	Right side		0.327	0.557	0.069	0.33	0.63	
	Top side		0.236	0.218	0.061	0.24	0.28	
	Bottom side	1.353				1.35	1.35	
LTE Band 41_HPUE Ant 1	Front	0.159	0.229	0.208	0.058	0.39	0.43	
	Back	0.653	0.704	0.676	0.123	1.36	1.45	
	Left side	0.124		0.128		0.12	0.25	
	Right side	0.049	0.327	0.557	0.069	0.38	0.68	
	Top side	0.406	0.236	0.218	0.061	0.64	0.69	
	Bottom side					0.00	0.00	

16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	3	4	5	1+3	1+4+5	SPLSR
		WWAN	WLAN2.4GHz Sim TX	WLAN5GHz Sim TX	Bluetooth	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM850 Ant 0	Front	0.497	0.176	0.119	0.058	0.67	0.67	
	Back	0.951	0.388	0.385	0.123	1.34	1.46	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
GSM1900 Ant 0	Front	0.968	0.176	0.119	0.058	1.14	1.15	
	Back	1.334	0.388	0.385	0.123	1.72	1.84	Case 23/24
	Front with Headset					0.00	0.00	
	Back with Headset	1.175				1.18	1.18	
WCDMA II Ant 0	Front	0.943	0.176	0.119	0.058	1.12	1.12	
	Back	1.411	0.388	0.385	0.123	1.80	1.92	Case 25/26
	Front with Headset					0.00	0.00	
	Back with Headset	1.292				1.29	1.29	
WCDMA IV Ant 0	Front	0.454	0.176	0.119	0.058	0.63	0.63	
	Back	1.301	0.388	0.385	0.123	1.69	1.81	Case 27/28
	Front with Headset					0.00	0.00	
	Back with Headset	1.219				1.22	1.22	
WCDMA V Ant 0	Front	0.583	0.176	0.119	0.058	0.76	0.76	
	Back	1.274	0.388	0.385	0.123	1.66	1.78	Case 29/30
	Front with Headset					0.00	0.00	
	Back with Headset	1.250				1.25	1.25	
LTE Band 12 Ant 0	Front	0.360	0.176	0.119	0.058	0.54	0.54	
	Back	0.803	0.388	0.385	0.123	1.19	1.31	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 12 Ant 1	Front	0.264	0.176	0.119	0.058	0.44	0.44	
	Back	1.048	0.388	0.385	0.123	1.44	1.56	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 13 Ant 0	Front	0.357	0.176	0.119	0.058	0.53	0.53	
	Back	0.835	0.388	0.385	0.123	1.22	1.34	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 13 Ant 1	Front	0.371	0.176	0.119	0.058	0.55	0.55	
	Back	0.813	0.388	0.385	0.123	1.20	1.32	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 71 Ant 0	Front	0.499	0.176	0.119	0.058	0.68	0.68	
	Back	0.987	0.388	0.385	0.123	1.38	1.50	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 26 Ant 0	Front	0.532	0.176	0.119	0.058	0.71	0.71	
	Back	1.174	0.388	0.385	0.123	1.56	1.68	Case 31
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 26 Ant 1	Front	0.156	0.176	0.119	0.058	0.33	0.33	
	Back	1.000	0.388	0.385	0.123	1.39	1.51	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 66 Ant 0	Front	0.464	0.176	0.119	0.058	0.64	0.64	
	Back	1.397	0.388	0.385	0.123	1.79	1.91	Case 32/33
	Front with Headset					0.00	0.00	



	Back with Headset	1.303				1.30	1.30	
LTE Band 66 Ant 1	Front	0.359	0.176	0.119	0.058	0.54	0.54	
	Back	1.044	0.388	0.385	0.123	1.43	1.55	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 25 Ant 0	Front	0.910	0.176	0.119	0.058	1.09	1.09	
	Back	1.420	0.388	0.385	0.123	<b>1.81</b>	<b>1.93</b>	<b>Case 34/35</b>
	Front with Headset					0.00	0.00	
	Back with Headset	1.296				1.30	1.30	
LTE Band 25 Ant 1	Front	0.652	0.176	0.119	0.058	0.83	0.83	
	Back	0.958	0.388	0.385	0.123	1.35	1.47	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 7 Ant 0	Front	0.573	0.176	0.119	0.058	0.75	0.75	
	Back	1.430	0.388	0.385	0.123	<b>1.82</b>	<b>1.94</b>	<b>Case 36/37</b>
	Front with Headset					0.00	0.00	
	Back with Headset	1.349				1.35	1.35	
LTE Band 41 Ant 0	Front	0.504	0.176	0.119	0.058	0.68	0.68	
	Back	1.224	0.388	0.385	0.123	<b>1.61</b>	<b>1.73</b>	<b>Case 38/39</b>
	Front with Headset					0.00	0.00	
	Back with Headset	1.147				1.15	1.15	
LTE Band 41 Ant 1	Front	0.226	0.176	0.119	0.058	0.40	0.40	
	Back	0.741	0.388	0.385	0.123	1.13	1.25	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	
LTE Band 41_HPUE Ant 0	Front	0.564	0.176	0.119	0.058	0.74	0.74	
	Back	1.353	0.388	0.385	0.123	<b>1.74</b>	<b>1.86</b>	<b>Case 40/41</b>
	Front with Headset					0.00	0.00	
	Back with Headset	1.266				1.27	1.27	
LTE Band 41_HPUE Ant 1	Front	0.295	0.176	0.119	0.058	0.47	0.47	
	Back	0.962	0.388	0.385	0.123	1.35	1.47	
	Front with Headset					0.00	0.00	
	Back with Headset					0.00	0.00	



Sensor-off

WWAN Band	Exposure Position	1	3	4	1+3	1+4	SPLSR
		WWAN	WLAN2.4GHz	WLAN5GHz	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
GSM1900 Ant 0	Front	0.310	0.138	0.123	0.45	0.43	
	Back	0.120	0.095	0.535	0.22	0.66	
WCDMA II Ant 0	Front	0.491	0.138	0.123	0.63	0.61	
	Back	0.342	0.095	0.535	0.44	0.88	
WCDMA IV Ant 0	Front	0.841	0.138	0.123	0.98	0.96	
	Back	0.642	0.095	0.535	0.74	1.18	
LTE Band 12 Ant 1	Front	0.303	0.138	0.123	0.44	0.43	
	Back	0.121	0.095	0.535	0.22	0.66	
LTE Band 26 Ant 1	Front	0.340	0.138	0.123	0.48	0.46	
	Back	0.104	0.095	0.535	0.20	0.64	
LTE Band 66 Ant 0	Front	0.858	0.138	0.123	1.00	0.98	
	Back	0.807	0.095	0.535	0.90	1.34	
LTE Band 66 Ant 1	Front	0.563	0.138	0.123	0.70	0.69	
	Back		0.095	0.535	0.10	0.54	
LTE Band 25 Ant 0	Front	0.951	0.138	0.123	1.09	1.07	
	Back	0.413	0.095	0.535	0.51	0.95	
LTE Band 25 Ant 1	Front	0.451	0.138	0.123	0.59	0.57	
	Back		0.095	0.535	0.10	0.54	
LTE Band 7 Ant 0	Front	1.165	0.138	0.123	1.30	1.29	
	Back	1.263	0.095	0.535	1.36	1.80	Case 43
LTE Band 41 Ant 0	Front	0.846	0.138	0.123	0.98	0.97	
	Back	0.666	0.095	0.535	0.76	1.20	
LTE Band 41_HPUE Ant 0	Front	0.977	0.138	0.123	1.12	1.10	
	Back	0.687	0.095	0.535	0.78	1.22	
LTE Band 41 Ant 1	Front	0.269	0.138	0.123	0.41	0.39	
	Back	0.259	0.095	0.535	0.35	0.79	
LTE Band 41_HPUE Ant 1	Front	0.345	0.138	0.123	0.48	0.47	
	Back	0.364	0.095	0.535	0.46	0.90	



16.4 Product specific 10g SAR Exposure Conditions

WWAN Band	Exposure Position	1	3	4	1+3	1+4	SPLSR
		WWAN	WLAN2.4GHz Sim TX	WLAN5GHz Sim TX	Summed	Summed	
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	
GSM850 Ant 0	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
GSM1900 Ant 0	Front			0.298	0.00	0.30	
	Back	2.342	0.893	1.077	3.24	3.42	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	1.932			1.93	1.93	
WCDMA II Ant 0	Front	1.739		0.298	1.74	2.04	
	Back	2.958	0.893	1.077	3.85	4.04	Case 42
	Left side	1.984		0.046	1.98	2.03	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	3.494			3.49	3.49	
WCDMA IV Ant 0	Front	1.669		0.298	1.67	1.97	
	Back	1.910	0.893	1.077	2.80	2.99	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	3.299			3.30	3.30	
WCDMA V Ant 0	Front			0.298	0.00	0.30	
	Back	2.591	0.893	1.077	3.48	3.67	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 12 Ant 0	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 12 Ant 1	Front			0.298	0.00	0.30	
	Back	2.546	0.893	1.077	3.44	3.62	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 13 Ant 0	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 13 Ant 1	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	



	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 71 Ant 0	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 26 Ant 0	Front			0.298	0.00	0.30	
	Back		0.893	1.077	0.89	1.08	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 26 Ant 1	Front			0.298	0.00	0.30	
	Back	2.764	0.893	1.077	3.66	3.84	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side				0.00	0.00	
LTE Band 66 Ant 0	Front	1.653		0.298	1.65	1.95	
	Back	2.226	0.893	1.077	3.12	3.30	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	3.170			3.17	3.17	
LTE Band 66 Ant 1	Front	1.356		0.298	1.36	1.65	
	Back	2.769	0.893	1.077	3.66	3.85	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side	1.707		0.232	1.71	1.94	
	Bottom side				0.00	0.00	
LTE Band 25 Ant 0	Front	1.808		0.298	1.81	2.11	
	Back	2.786	0.893	1.077	3.68	3.86	
	Left side	1.978		0.046	1.98	2.02	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	3.258			3.26	3.26	
LTE Band 25 Ant 1	Front	0.540		0.298	0.54	0.84	
	Back	2.471	0.893	1.077	3.36	3.55	
	Left side	0.775		0.046	0.78	0.82	
	Right side			0.853	0.00	0.85	
	Top side	1.800		0.232	1.80	2.03	
	Bottom side				0.00	0.00	
LTE Band 7 Ant 0	Front	1.747		0.298	1.75	2.05	
	Back	2.378	0.893	1.077	3.27	3.46	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	
	Bottom side	1.941			1.94	1.94	
LTE Band 41 Ant 0	Front	0.908		0.298	0.91	1.21	
	Back	1.153	0.893	1.077	2.05	2.23	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side			0.232	0.00	0.23	



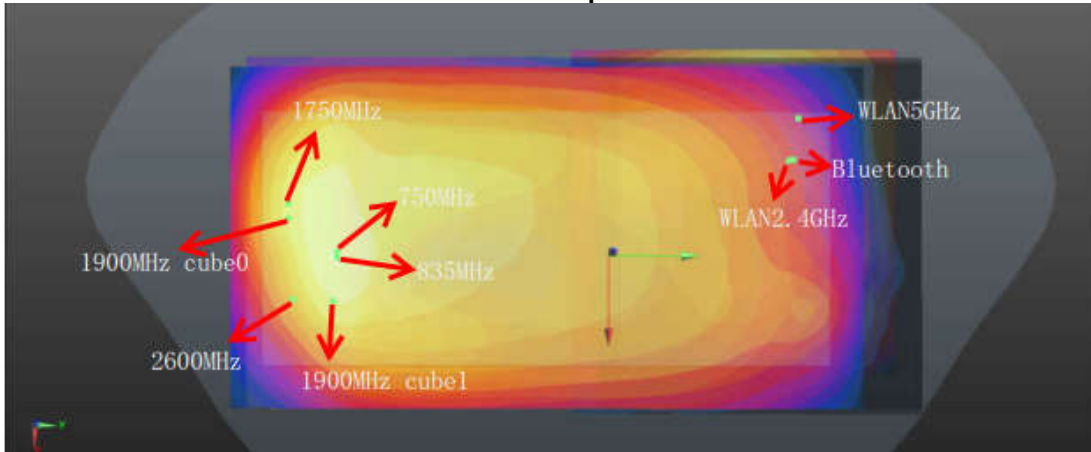
	Bottom side	1.010			1.01	1.01	
LTE Band 41 Ant 1	Front	0.882		0.298	0.88	1.18	
	Back	2.112	0.893	1.077	3.01	3.19	
	Left side			0.046	0.00	0.05	
	Right side			0.853	0.00	0.85	
	Top side	2.427		0.232	2.43	2.66	
	Bottom side				0.00	0.00	

### 16.5 SPLSR Evaluation and Analysis

**General Note:**

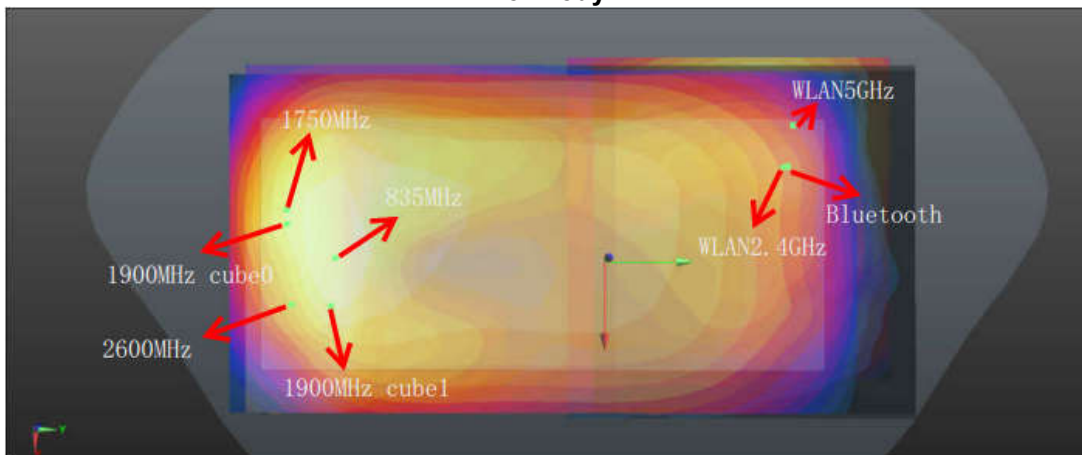
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans,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

**For Hotspot**



**WWAN + WLAN 5GHz/2.4GHz + Bluetooth Back\_5mm**

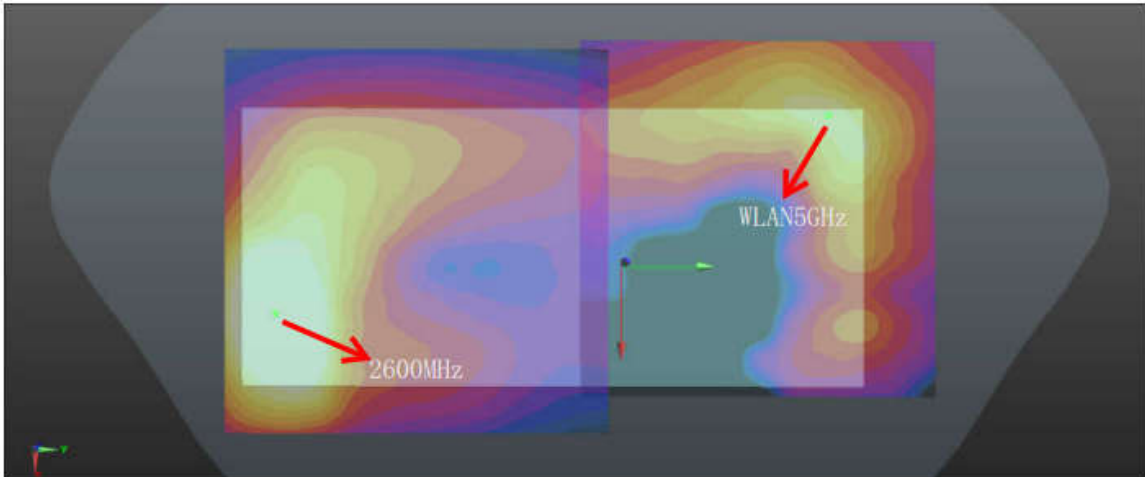
**For Body**



**WWAN + WLAN 5GHz/2.4GHz + Bluetooth Back\_5mm**

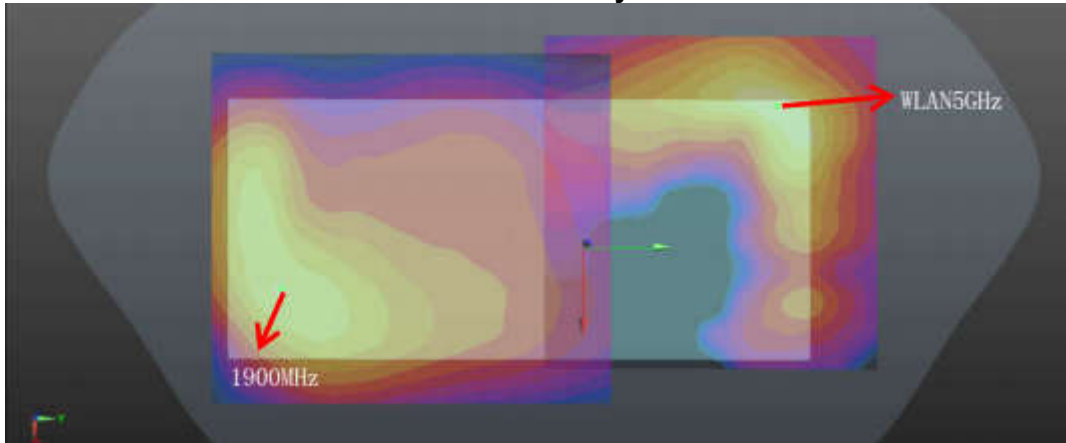


For Body Sensor-off



WWAN + WLAN 5GHz Back\_26mm

For Extremity



WWAN + WLAN 5GHz Back\_0mm

**For Hotspot**

Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR																																																																																																																																																																																																																																																								
					X	Y	Z																																																																																																																																																																																																																																																												
Case 1	GSM850	Back	0.951	5	-0.019	-0.08	-0.208	148.6	1.66	0.01	Not required																																																																																																																																																																																																																																																								
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 2	GSM850	Back	0.951	5	-0.019	-0.08	-0.208	140.2	1.63	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	GSM850	0.951	5	-0.019	-0.08	-0.208	150.1	1.07	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 3	GSM1900	Back	0.971	5	-0.002	-0.079	-0.207	151.4	1.68	0.01	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 4	GSM1900	Back	0.971	5	-0.002	-0.079	-0.207	144.9	1.65	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	GSM1900	0.971	5	-0.002	-0.079	-0.207	152.5	1.09	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 5	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	155.6	1.79	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 6	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	146.3	1.76	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA IV	1.088	5	-0.026	-0.088	-0.207	157.1	1.21	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 7	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	148.6	1.98	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 8	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.95	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA V	1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413
Case 2	GSM850	Back	0.951	5	-0.019	-0.08	-0.208	140.2	1.63	0.01	Not required																																																																																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	GSM850		0.951	5	-0.019	-0.08	-0.208	150.1	1.07	0.01	Not required																																																																																																																																																																																																																																																								
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																																																																																												
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					20.7	0.80	0.03	Not required																																																																																																																																																																																																																																																				
Case 3	GSM1900	Back	0.971	5	-0.002	-0.079	-0.207	151.4	1.68	0.01	Not required																																																																																																																																																																																																																																																								
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 4	GSM1900	Back	0.971	5	-0.002	-0.079	-0.207	144.9	1.65	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	GSM1900	0.971	5	-0.002	-0.079	-0.207	152.5	1.09	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 5	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	155.6	1.79	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 6	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	146.3	1.76	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA IV	1.088	5	-0.026	-0.088	-0.207	157.1	1.21	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 7	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	148.6	1.98	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 8	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.95	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA V	1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required																																																														
Case 4	GSM1900	Back	0.971	5	-0.002	-0.079	-0.207	144.9	1.65	0.01	Not required																																																																																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	GSM1900		0.971	5	-0.002	-0.079	-0.207	152.5	1.09	0.01	Not required																																																																																																																																																																																																																																																								
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																																																																																												
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					20.7	0.80	0.03	Not required																																																																																																																																																																																																																																																				
Case 5	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	155.6	1.79	0.02	Not required																																																																																																																																																																																																																																																								
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 6	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	146.3	1.76	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA IV	1.088	5	-0.026	-0.088	-0.207	157.1	1.21	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required	Case 7	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	148.6	1.98	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 8	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.95	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA V	1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required																																																																																																																																		
Case 6	WCDMA IV	Back	1.088	5	-0.026	-0.088	-0.207	146.3	1.76	0.02	Not required																																																																																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	WCDMA IV		1.088	5	-0.026	-0.088	-0.207	157.1	1.21	0.01	Not required																																																																																																																																																																																																																																																								
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																																																																																												
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					20.7	0.80	0.03	Not required																																																																																																																																																																																																																																																				
Case 7	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	148.6	1.98	0.02	Not required																																																																																																																																																																																																																																																								
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 8	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.95	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	WCDMA V	1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	20.7	0.80	0.03	Not required																																																																																																																																																																																																						
Case 8	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.95	0.02	Not required																																																																																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	WCDMA V		1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required																																																																																																																																																																																																																																																								
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																																																																																												
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																																																																																												
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					20.7	0.80	0.03	Not required																																																																																																																																																																																																																																																				

	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 9	LTE Band 12	Back	0.803	5	-0.019	-0.08	-0.208	140.2	1.48	0.01	Not required
	WLAN5G		0.676	5	-0.057	0.055	-0.208				
	LTE Band 12		0.803	5	-0.019	-0.08	-0.208	150.1	0.93	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 10	LTE Band 13	Back	0.835	5	-0.011	-0.072	-0.208	135.1	1.51	0.01	Not required
	WLAN5G		0.676	5	-0.057	0.055	-0.208				
	LTE Band 13		0.835	5	-0.011	-0.072	-0.208	143.6	0.96	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 11	LTE Band 71	Back	0.987	5	-0.019	-0.08	-0.208	148.6	1.69	0.01	Not required
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208				
Case 12	LTE Band 71	Back	0.987	5	-0.019	-0.08	-0.208	140.2	1.66	0.02	Not required
	WLAN5G		0.676	5	-0.057	0.055	-0.208				
	LTE Band 71		0.987	5	-0.019	-0.08	-0.208	150.1	1.11	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 13	LTE Band 26	Back	1.127	5	-0.0205	-0.08	-0.208	148.4	1.83	0.02	Not required
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208				
Case 14	LTE Band 26	Back	1.127	5	-0.0205	-0.08	-0.208	139.8	1.80	0.02	Not required
	WLAN5G		0.676	5	-0.057	0.055	-0.208				
	LTE Band 26		1.127	5	-0.0205	-0.08	-0.208	149.9	1.25	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 15	LTE Band 66	Back	0.996	5	-0.0275	-0.087	-0.207	154.4	1.70	0.01	Not required
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208				
Case 16	LTE Band 66	Back	0.996	5	-0.0275	-0.087	-0.207	145.0	1.67	0.01	Not required
	WLAN5G		0.676	5	-0.057	0.055	-0.208				
	LTE Band 66		0.996	5	-0.0275	-0.087	-0.207	156.0	1.12	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-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 17	LTE Band 7	Back	1.24	5	-0.0275	-0.087	-0.207	154.4	1.94	0.02	Not required																																																																																																																																																																																				
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 18	LTE Band 7	Back	1.24	5	-0.0275	-0.087	-0.207	145.0	1.92	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 7	1.24	5	-0.0275	-0.087	-0.207	156.0	1.36	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	Case 19	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	151.6	1.60	0.01	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 20	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	145.3	1.57	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 41	0.892	5	0.0007	-0.0784	-0.207	152.7	1.02	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	Case 21	LTE Band 41_HPUE	Back	1.183	5	-0.0005	-0.0852	-0.207	157.7	1.89	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 41	1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required
Case 18	LTE Band 7	Back	1.24	5	-0.0275	-0.087	-0.207	145.0	1.92	0.02	Not required																																																																																																																																																																																				
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																								
	LTE Band 7		1.24	5	-0.0275	-0.087	-0.207	156.0	1.36	0.01	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					Case 19	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	151.6	1.60	0.01	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 20	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	145.3	1.57	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 41	0.892	5	0.0007	-0.0784	-0.207	152.7	1.02	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	Case 21	LTE Band 41_HPUE	Back	1.183	5	-0.0005	-0.0852	-0.207	157.7	1.89	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 41	1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207																																												
Case 19	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	151.6	1.60	0.01	Not required																																																																																																																																																																																				
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 20	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	145.3	1.57	0.01	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208		LTE Band 41		0.892	5	0.0007	-0.0784	-0.207	152.7	1.02	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	Case 21	LTE Band 41_HPUE	Back	1.183	5	-0.0005	-0.0852	-0.207	157.7	1.89	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required	WLAN5G	0.676	5	-0.057		0.055		-0.208	LTE Band 41	1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207																																																										
Case 20	LTE Band 41	Back	0.892	5	0.0007	-0.0784	-0.207	145.3	1.57	0.01	Not required																																																																																																																																																																																				
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																								
	LTE Band 41		0.892	5	0.0007	-0.0784	-0.207	152.7	1.02	0.01	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207					Case 21	LTE Band 41_HPUE	Back	1.183	5	-0.0005	-0.0852	-0.207	157.7	1.89	0.02	Not required	WLAN2.4G	0.704	5	-0.0434	0.0666	-0.208	Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208	LTE Band 41	1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207																																																																																																																
Case 21	LTE Band 41_HPUE	Back	1.183	5	-0.0005	-0.0852	-0.207	157.7	1.89	0.02	Not required																																																																																																																																																																																				
	WLAN2.4G		0.704	5	-0.0434	0.0666	-0.208					Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required	WLAN5G	0.676	5	-0.057	0.055	-0.208		LTE Band 41		1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207	WLAN5G	0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required	Bluetooth	0.123	5	-0.0413	0.0684	-0.207																																																																																																																																
Case 22	LTE Band 41	Back	1.183	5	-0.0005	-0.0852	-0.207	151.2	1.86	0.02	Not required																																																																																																																																																																																				
	WLAN5G		0.676	5	-0.057	0.055	-0.208																																																																																																																																																																																								
	LTE Band 41		1.183	5	-0.0005	-0.0852	-0.207	158.9	1.31	0.01	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																								
	WLAN5G		0.676	5	-0.057	0.055	-0.208	20.7	0.80	0.03	Not required																																																																																																																																																																																				
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207																																																																																																																																																																																								

**For Body**

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 23	GSM1900	Back	1.334	5	-0.002	-0.079	-0.207	151.4	1.72	0.01	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 24	GSM1900	Back	1.334	5	-0.002	-0.079	-0.207	144.9	1.72	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	GSM1900		1.334	5	-0.002	-0.079	-0.207	152.5	1.46	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 25	WCDMA II cube0	Back	1.411	5	-0.023	-0.087	-0.207	155.0	1.80	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 26	WCDMA II cube0	Back	1.411	5	-0.023	-0.087	-0.207	146.0	1.80	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	WCDMA II cube0		1.411	5	-0.023	-0.087	-0.207	156.5	1.53	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 25	WCDMA II cube1	Back	1.411	5	-0.0055	-0.08	-0.207	151.4	1.80	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 26	WCDMA II cube1	Back	1.411	5	-0.0055	-0.08	-0.207	144.5	1.80	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	WCDMA II cube1		1.411	5	-0.0055	-0.08	-0.207	152.7	1.53	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 27	WCDMA IV	Back	1.301	5	-0.026	-0.088	-0.207	155.6	1.69	0.01	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 28	WCDMA IV	Back	1.301	5	-0.026	-0.088	-0.207	146.3	1.69	0.01	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	WCDMA IV		1.301	5	-0.026	-0.088	-0.207	157.1	1.42	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 29	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	148.6	1.66	0.01	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				

	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 30	WCDMA V	Back	1.274	5	-0.019	-0.08	-0.208	140.2	1.66	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	WCDMA V		1.274	5	-0.019	-0.08	-0.208	150.1	1.40	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 31	LTE Band 26	Back	1.174	5	-0.0205	-0.08	-0.208	139.8	1.56	0.01	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 26		1.174	5	-0.0205	-0.08	-0.208	149.9	1.30	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 32	LTE Band 66	Back	1.397	5	-0.0275	-0.087	-0.207	154.4	1.79	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 33	LTE Band 66	Back	1.397	5	-0.0275	-0.087	-0.207	145.0	1.78	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 66		1.397	5	-0.0275	-0.087	-0.207	156.0	1.52	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 34	LTE Band 25 cube0	Back	1.42	5	-0.023	-0.087	-0.207	155.0	1.81	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 35	LTE Band 25 cube0	Back	1.42	5	-0.023	-0.087	-0.207	146.0	1.81	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 25 cube0		1.42	5	-0.023	-0.087	-0.207	156.5	1.54	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 34	LTE Band 25 cube1	Back	1.42	5	-0.0055	-0.0815	-0.207	152.9	1.81	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 35	LTE Band 25 cube1	Back	1.42	5	-0.0055	-0.0815	-0.207	145.9	1.81	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 25 cube1		1.42	5	-0.0055	-0.0815	-0.207	154.1	1.54	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-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 36	LTE Band 7	Back	1.43	5	0.0019	-0.0868	-0.207	160.0	1.82	0.02	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 37	LTE Band 7	Back	1.43	5	0.0019	-0.0868	-0.207	153.5	1.82	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 7		1.43	5	0.0019	-0.0868	-0.207	161.1	1.55	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 38	LTE Band 41	Back	1.224	5	0.0007	-0.0784	-0.207	151.6	1.61	0.01	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 39	LTE Band 41	Back	1.224	5	0.0007	-0.0784	-0.207	145.3	1.61	0.01	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 41		1.224	5	0.0007	-0.0784	-0.207	152.7	1.35	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
Case 40	LTE Band 41_HPUE	Back	1.353	5	-0.0005	-0.0852	-0.207	157.7	1.74	0.01	Not required
	WLAN2.4G		0.388	5	-0.0434	0.0666	-0.208				
Case 41	LTE Band 41_HPUE	Back	1.353	5	-0.0005	-0.0852	-0.207	151.2	1.74	0.02	Not required
	WLAN5G		0.385	5	-0.057	0.055	-0.208				
	LTE Band 41_HPUE		1.353	5	-0.0005	-0.0852	-0.207	158.9	1.48	0.01	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				
	WLAN5G		0.385	5	-0.057	0.055	-0.208	20.7	0.51	0.02	Not required
	Bluetooth		0.123	5	-0.0413	0.0684	-0.207				

**For Body Sensor-off**

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 43	LTE Band 7	Back	1.263	26	0.0021	-0.0883	-0.207	152.3	1.80	0.02	Not required
	WLAN5G		0.535	26	-0.061	0.0503	-0.208				

**For Extremity**

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 42	WCDMA II	Back	2.958	0	-0.019	-0.088	-0.207	153.8	4.04	0.05	Not required
	WLAN5G		1.077	0	-0.048	0.063	-0.207				

**Test Engineer :** Hank Huang, Kevin Xu, David Dai, Bin He



## **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 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.
- [6] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015
- [7] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.
- [8] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015
- [9] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015
- [10] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015
- [11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [12] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [13] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.
- [14] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

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