FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2211-1, XT2211-2, XT2211DL
FCC ID	:	IHDT56AA2
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

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

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

Nick Hu

Reviewed by: Nick Hu / Supervisor

Kat Yin

Approved by: Kat Yin / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA181714-02	Rev. 01	Initial issue of report.	Dec. 07, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2211-1, XT2211-2, XT2211DL,** 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	0.47	1.37	1.37	1.59
		GSM1900	<0.10	1.35	1.29	
	WCDMA	Band II	0.14	1.40	1.38	
		Band IV	0.15	1.30	1.26	
		Band V	**1.33**	1.39	1.39	
	LTE	Band 7	0.47	1.24	1.24	
		Band 12/Band 17	1.11	1.19	1.19	
		Band 13	0.86	1.41	1.41	
		Band 14	0.80	**1.44**	**1.44**	
		Band 25/Band 2	0.14	1.26	1.25	
		Band 26/Band 5	1.22	1.27	1.27	
		Band 30	0.35	1.20	1.20	
		Band 66/ Band 4	0.12	1.27	1.23	
		Band 71	0.44	0.98	0.98	
		Band 38	0.26	1.37	1.30	
		Band 41	0.30	1.43	1.26	
DTS	WLAN	2.4GHz WLAN	1.14	0.74	1.29	1.59
NII		5GHz WLAN	1.19	0.70	1.17	1.59
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	<0.10	<0.10	1.46

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
License	GSM	GSM850	1.73	3.99
		GSM1900	**3.55**	
	WCDMA	Band II	3.41	
		Band IV	3.52	
		Band V	2.19	
	LTE	Band 7	2.70	
		Band 13	1.57	
		Band 14	1.31	
		Band 25/Band 2	3.54	
		Band 26/Band 5	1.95	
		Band 30	3.42	
		Band 66/ Band 4	3.44	
		Band 38	2.23	
		Band 41	1.88	
DTS	WLAN	2.4GHz WLAN	3.19	3.99
NII		5GHz WLAN	3.20	3.90
Date of Testing:			2021/11/23 ~ 2021/12/2	

Remark: 1. This device supports both LTE B4/5/17/2 and B66/26/12/25. Since the supported frequency span for LTE B4/5/17/2 falls completely within the supports frequency span for LTE B66/26/12/25, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66/26/12/25.
2. This is a variant report for XT2211-1, XT2211-2, XT2211DL. For model change note, please refer to the XT2211-1, XT2211-2, XT2211DL_Operational Description of Product Equality Declaration which is exhibited separately. According to the change, WLAN full SAR testing and performed new measured power. And the other Bands were verified worse cases from original test report (Sporton Report Number FA181714). Chose higher SAR between original application and verified to perform max SAR.

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 (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-KS, SAR06-KS	CN1257	314309

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 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2211-1, XT2211-2, XT2211DL
FCC ID	IHDT56AA2
IMEI Code	358116610026496
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 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 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 RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	PVT
SW Version	RRDE31.Q3-58
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: 1. 802.11n-HT40 is not supported in 2.4GHz WLAN. 2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation. 3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications. 4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only). 5. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.	

6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at original project.
7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to Head and extremity. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn.
8. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
9. This device supports HPUE for LTE Band 41 with class 2 level, HPUE power have 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 and power class 2 full SAR testing.
10. The different model name is for different market purpose.
11. This is a variant report for XT2211-1, XT2211-2, XT2211DL. For model change note, please refer to the XT2211-1, XT2211-2, XT2211DL_Operational Description of Product Equality Declaration which is exhibited separately. According to the change, WLAN full SAR testing and performed new measured power. And the other Bands were verified worse cases from original test report (Sporton Report Number FA181714).

4.2 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>IHDT56AA2</td></tr>
<tr><td>Equipment Name</td><td>Mobile Cellular Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>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 14: 788 MHz ~ 798 MHz
LTE Band 17: 704 MHz ~ 716 MHz
LTE Band 25: 1850 MHz ~ 1915 MHz
LTE Band 26: 814 MHz ~ 849 MHz
LTE Band 30: 2305 MHz ~ 2315 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</td></tr>
<tr><td>Channel Bandwidth</td><td>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 14: 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 30: 5MHz, 10MHz
LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R16, Cat7</td></tr>
<tr><td>CA Support</td><td>Supported, Uplink and Downlink</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table></td></tr>
<tr><td>LTE A-MPR</td><td>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)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>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.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to original report.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations and the detail power verification please referred to original report.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>1. This device supports LTE Carrier Aggregation (CA) in the uplink for 41C 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. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 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)				
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)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		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)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	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

LTE Band 30				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	27685	2307.5	27710	2310
M	27710	2310		
H	27735	2312.5		

LTE Band 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)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	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)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

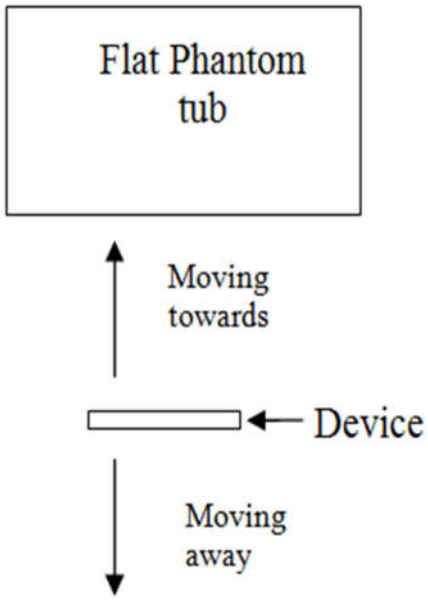
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	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)
L	133147	665.5	133172	668	133197	670.5	133222	673
M	133247	675.5	133272	678	133297	680.5	133322	683
H	133447	695.5	133422	693	133397	690.5	133372	688

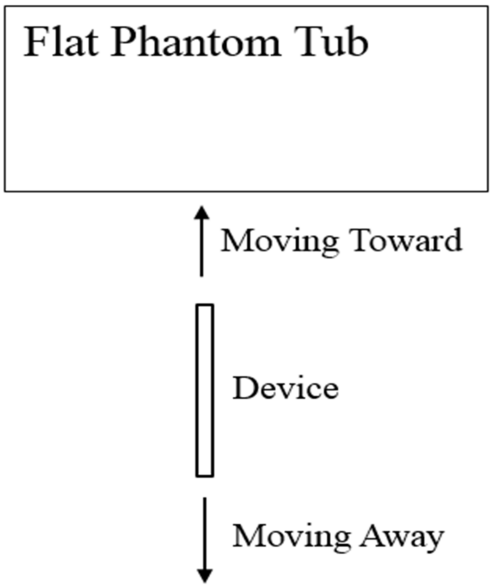
5. Proximity Sensor Triggering Test

<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 (835MHz) 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. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
3. 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.
4. 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/left/bottom side of the device. When front/back/left/bottom side of handheld condition is detected reduced power will be active.
5. 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:



Sensor/Handheld detection test set-up, front and back sides



Handheld detection test set-up, left and bottom sides

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	20	23	23	24

<Handheld for ANT1>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	10	14	15	18	11	22

<Handheld for ANT2>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	3	5	5	9	6	10	7	9

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

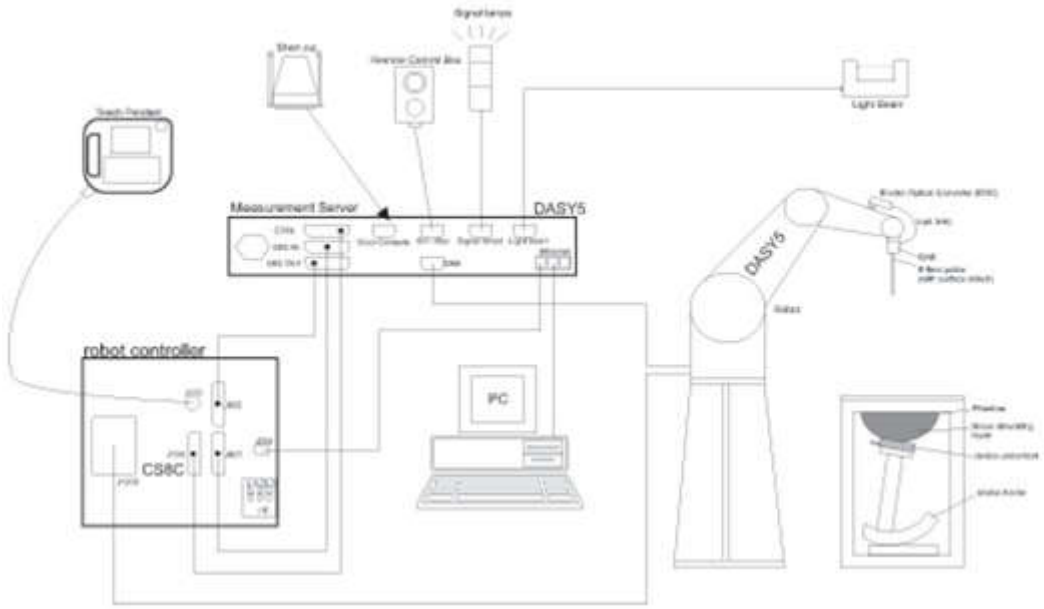
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



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

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

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

8.2 Data Acquisition Electronics (DAE)

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

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

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

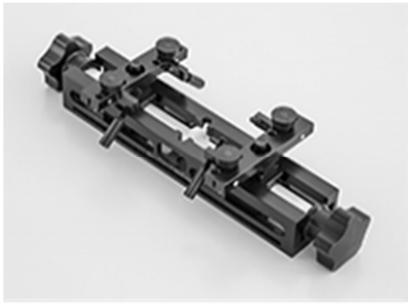
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

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

9.1 Spatial Peak SAR Evaluation

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

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

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

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

9.2 Power Reference Measurement

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

9.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 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: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ 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: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.5 Volume Scan Procedures

The volume scan is used 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	1087	2019/3/27	2022/3/24
SPEAG	835MHz System Validation Kit	D835V2	4d258	2020/5/7	2023/5/6
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/25
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/24
SPEAG	2300MHz System Validation Kit	D2300V2	1055	2020/9/15	2023/9/14
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2022/3/23
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2021/11/25
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/22
SPEAG	Data Acquisition Electronics	DAE4	690	2021/3/17	2022/3/16
SPEAG	Dosimetric E-Field Probe	EX3DV4	7630	2021/2/10	2022/2/9
SPEAG	SAM Twin Phantom	SAM Twin	TP-2022	NCR	NCR
Testo	Thermo-Hygrometer	608-H1	1241332102	2021/1/7	2022/1/6
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2021/4/13	2022/4/12
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2021/7/31	2022/7/30
SPEAG	Dielectric Probe Kit	DAK-3.5	1138	2021/6/9	2022/6/8
Anritsu	Vector Signal Generator	MG3710A	6201682672	2021/1/7	2022/1/6
Rohde & Schwarz	Power Meter	NRVD	102081	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2021/8/12	2022/8/11
R&S	CBT BLUETOOTH TESTER	CBT	101246	2021/4/12	2022/4/11
EXA	Spectrum Analyzer	FSV7	101632	2021/1/7	2022/1/6
FLUKE	DIGITAC THERMOMETER	51II	97240029	2021/8/13	2022/8/12
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	

Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.2.

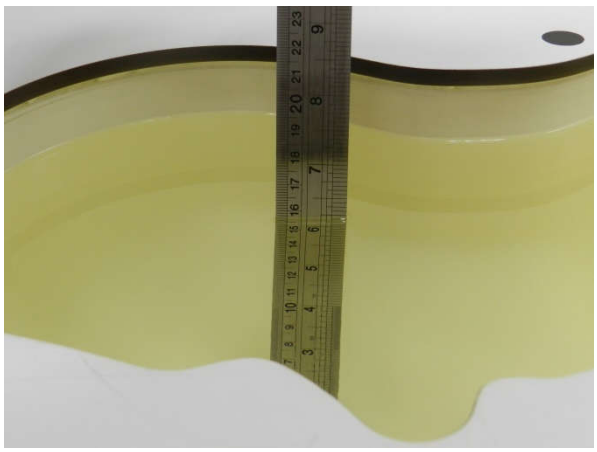


Fig 11.1 Photo of Liquid Height for Head SAR

Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.6	0.909	43.498	0.89	41.90	2.13	3.81	±5	2021/11/25
835	Head	22.8	0.934	41.804	0.90	41.50	3.78	0.73	±5	2021/11/25
1750	Head	22.8	1.370	41.286	1.37	40.10	0.00	2.96	±5	2021/11/25
1900	Head	22.8	1.434	39.914	1.40	40.00	2.43	-0.21	±5	2021/11/25
2300	Head	22.7	1.719	39.465	1.67	39.50	2.93	-0.09	±5	2021/11/26
2450	Head	22.9	1.824	39.243	1.80	39.20	1.33	0.11	±5	2021/11/26
2600	Head	22.7	2.014	40.602	1.96	39.00	2.76	4.11	±5	2021/11/23
5250	Head	22.9	4.587	36.210	4.71	35.90	-2.61	0.86	±5	2021/12/2
5600	Head	22.9	4.964	35.705	5.07	35.50	-2.09	0.58	±5	2021/11/30
5750	Head	22.9	5.138	35.514	5.22	35.40	-1.57	0.32	±5	2021/11/30

11.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2021/11/25	750	Head	50	1087	7630	690	0.416	8.36	8.32	-0.48
2021/11/25	835	Head	50	4d258	7630	690	0.507	9.44	10.14	7.42
2021/11/25	1750	Head	50	1090	7630	690	1.850	36.40	37	1.65
2021/11/25	1900	Head	50	5d170	7630	690	2.060	39.00	41.2	5.64
2021/11/26	2300	Head	50	1055	7630	690	2.510	47.70	50.2	5.24
2021/11/26	2450	Head	50	908	7630	690	2.620	52.80	52.4	-0.76
2021/11/23	2600	Head	50	1061	7630	690	2.750	56.60	55	-2.83
2021/12/2	5250	Head	50	1113	7630	690	3.810	80.50	76.2	-5.34
2021/11/30	5600	Head	50	1113	7630	690	4.080	83.40	81.6	-2.16
2021/11/30	5750	Head	50	1113	7630	690	3.880	80.00	77.6	-3.00

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2021/11/25	750	Head	50	1087	7630	690	0.272	5.65	5.44	-3.72
2021/11/25	835	Head	50	4d258	7630	690	0.329	6.13	6.58	7.34
2021/11/25	1750	Head	50	1090	7630	690	0.978	19.20	19.56	1.88
2021/11/25	1900	Head	50	5d170	7630	690	1.060	20.30	21.2	4.43
2021/11/26	2300	Head	50	1055	7630	690	1.230	22.90	24.6	7.42
2021/11/26	2450	Head	50	908	7630	690	1.220	24.20	24.4	0.83
2021/11/23	2600	Head	50	1061	7630	690	1.240	25.10	24.8	-1.20
2021/12/2	5250	Head	50	1113	7630	690	1.090	23.10	21.8	-5.63
2021/11/30	5600	Head	50	1113	7630	690	1.110	23.80	22.2	-6.72
2021/11/30	5750	Head	50	1113	7630	690	1.050	22.80	21	-7.89

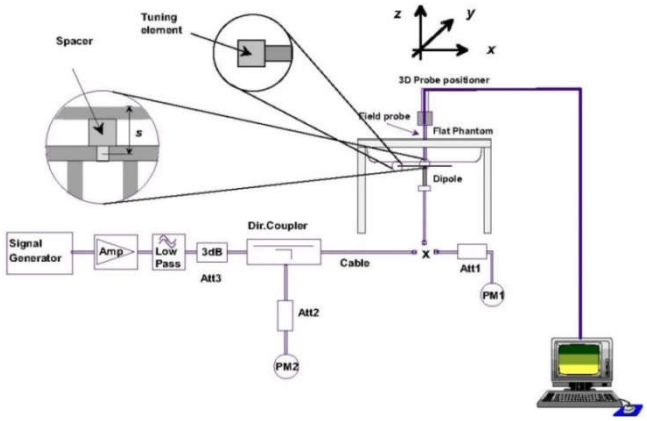


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

Figure 12.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 12.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 12.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

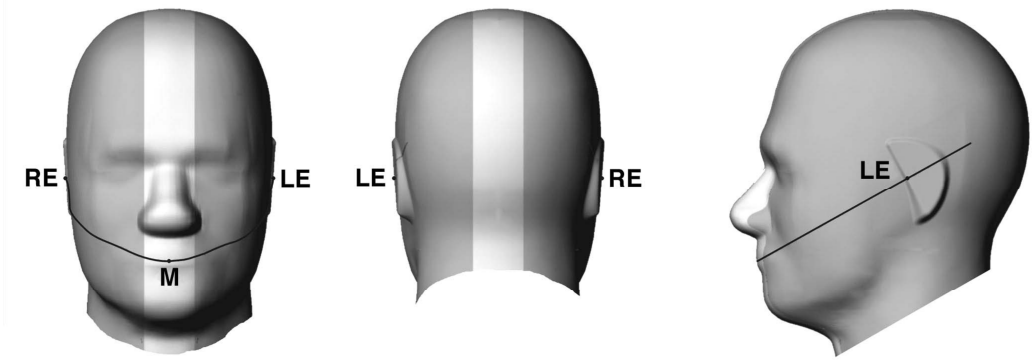


Fig 12.1.1 Front, back, and side views of SAM twin phantom

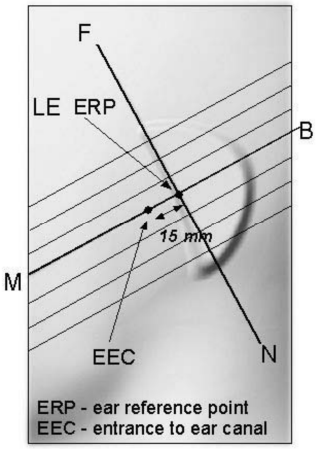


Fig 12.1.2 Close-up side view of phantom showing the ear region.

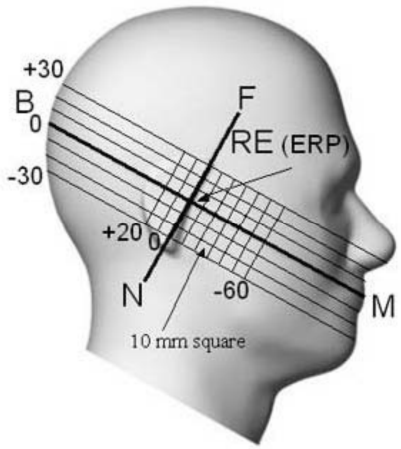


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 12.2.1 and Figure 12.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

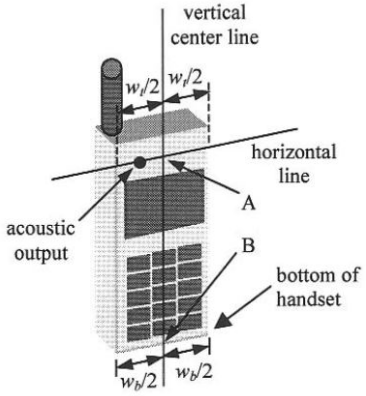


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

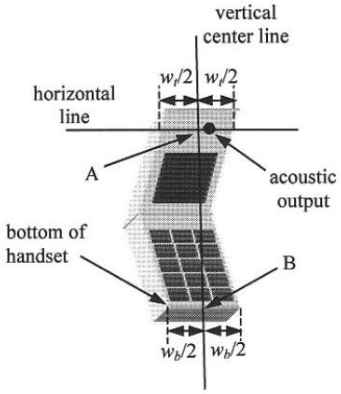


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

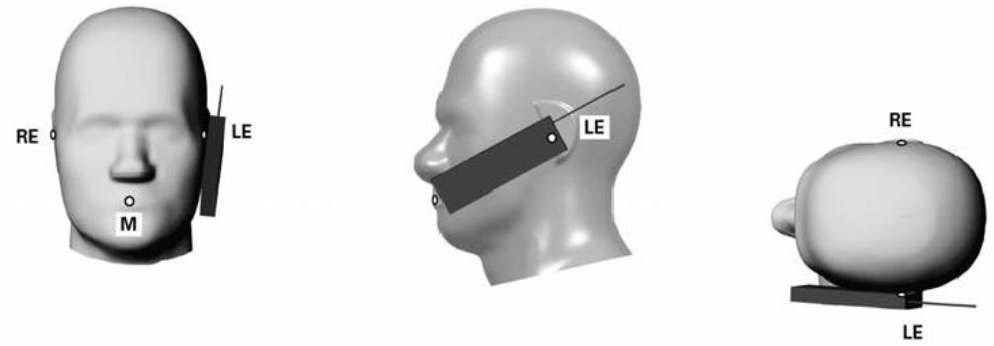


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 12.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

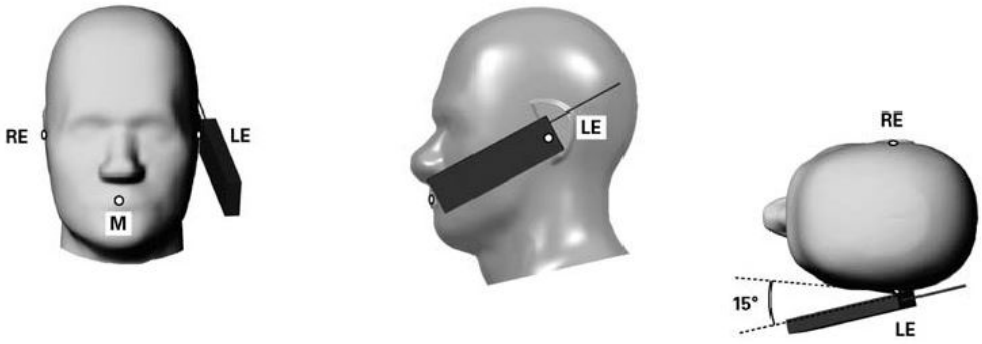


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a 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 and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

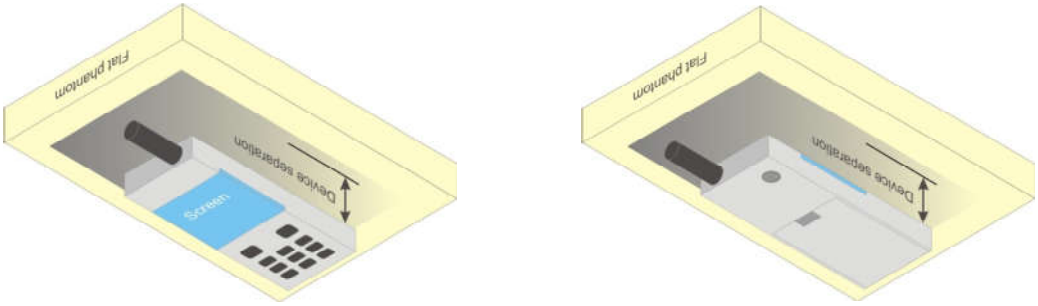


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

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

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

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

12.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 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 form 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.

<WLAN Conducted Power>

General Note:

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

14. SAR Test Results

14.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																			
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23095	707.5	1	22.58	24.00	1.387	0.07	0.143	0.198
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23095	707.5	2	22.58	24.00	1.387	0.12	0.148	0.205
	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23095	707.5	1	21.93	23.00	1.279	0.03	0.687	0.879
01	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23095	707.5	2	21.93	23.00	1.279	0.13	0.764	**0.977**
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23230	782	1	22.47	24.00	1.422	0.02	0.176	0.250
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23230	782	2	22.47	24.00	1.422	0.06	0.156	0.222
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23230	782	1	21.91	23.00	1.285	0.09	0.461	0.593
02	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23230	782	2	21.91	23.00	1.285	-0.03	0.512	**0.658**
	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23330	793	1	22.64	24.00	1.368	0.09	0.192	0.263
	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	23330	793	2	22.64	24.00	1.368	0.02	0.186	0.254
	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23330	793	1	22.05	23.00	1.245	-0.06	0.463	0.576
03	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	23330	793	2	22.05	23.00	1.245	-0.02	0.485	**0.604**
	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	133322	683	1	22.62	24.00	1.374	0.03	0.166	0.228
	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	133322	683	2	22.62	24.00	1.374	-0.07	0.186	0.256
	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	133322	683	1	22.04	23.00	1.247	-0.19	0.252	0.314
04	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	133322	683	2	22.04	23.00	1.247	-0.02	0.287	**0.358**
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	Full	189	836.4	1	27.88	29.00	1.294	0.10	0.248	0.321
05	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	Full	189	836.4	2	27.88	29.00	1.294	-0.02	0.270	**0.349**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full	4182	836.4	1	22.74	24.00	1.337	-0.01	0.250	0.334
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full	4182	836.4	2	22.74	24.00	1.337	0.00	0.241	0.322
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 3	Full	4182	836.4	1	22.34	23.50	1.306	-0.03	0.966	1.262
06	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 3	Full	4182	836.4	2	22.34	23.50	1.306	-0.03	1.010	**1.319**
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	26865	831.5	1	22.92	24.00	1.282	0.02	0.177	0.227
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Full	26865	831.5	2	22.92	24.00	1.282	-0.04	0.205	0.263
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	26865	831.5	1	22.19	23.00	1.205	-0.02	0.841	1.013
07	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	Full	26865	831.5	2	22.19	23.00	1.205	0.01	0.933	**1.124**
1750MHz																			
08	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	1413	1732.6	1	22.70	24.00	1.349	-0.03	0.065	**0.087**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	1413	1732.6	2	22.70	24.00	1.349	-0.16	0.051	0.069
09	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Full	132322	1745	1	22.59	24.00	1.384	-0.05	0.050	**0.070**
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Full	132322	1745	2	22.59	24.00	1.384	-0.05	0.044	0.060
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	Full	661	1880	1	24.84	26.00	1.306	0.02	0.029	0.038
10	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	Full	661	1880	2	24.84	26.00	1.306	0.19	0.036	**0.047**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	9400	1880	1	22.91	24.00	1.285	-0.03	0.070	0.090
11	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	9400	1880	2	22.91	24.00	1.285	0.04	0.078	**0.101**
	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Full	26340	1880	1	22.66	24.00	1.361	0.14	0.056	0.076
12	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Full	26340	1880	2	22.66	24.00	1.361	0.11	0.058	**0.079**
2300MHz																			
	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	Full	27710	2310	1	22.76	24.00	1.330	-0.10	0.242	0.322
13	LTE Band 30	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	Full	27710	2310	2	22.76	24.00	1.330	0.01	0.251	**0.334**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	21100	2535	1	22.69	24.00	1.352	-	-	-0.06	0.226	0.306
14	LTE Band 7	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	21100	2535	2	22.69	24.00	1.352	-	-	-0.16	0.330	**0.446**
	LTE Band 38	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	38000	2595	1	22.75	24.00	1.334	62.9	1.006	0.09	0.118	0.158
15	LTE Band 38	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	38000	2595	2	22.75	24.00	1.334	62.9	1.006	0.01	0.177	**0.237**
	LTE Band 41	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	40620	2593	1	22.27	23.50	1.327	62.9	1.006	-0.05	0.096	0.128
	LTE Band 41	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	40620	2593	2	22.27	23.50	1.327	62.9	1.006	0.03	0.136	0.182
	LTE Band 41_HPUE	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	40620	2593	1	25.26	26.50	1.330	42.9	1.009	0.07	0.126	0.169
16	LTE Band 41_HPUE	20M	QPSK	1	0	Left Cheek	0mm	Ant 2	Full	40620	2593	2	25.26	26.50	1.330	42.9	1.009	-0.10	0.208	**0.279**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2450MHz																	
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 5	Reduced	1	2412	1	15.05	16.50	1.396	99.4	1.006	0.02	0.317	0.445
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 5	Reduced	1	2412	1	15.05	16.50	1.396	99.4	1.006	-0.08	0.339	0.476
17	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 5	Reduced	1	2412	1	15.05	16.50	1.396	99.4	1.006	0.07	0.813	**1.142**
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 5	Reduced	6	2437	1	14.72	16.50	1.507	99.4	1.006	0.02	0.694	1.052
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 5	Reduced	1	2412	1	15.05	16.50	1.396	99.4	1.006	0.01	0.613	0.861
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 5	Reduced	6	2437	1	14.72	16.50	1.507	99.4	1.006	0.05	0.538	0.815
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 5	Simultaneous	1	2412	1	7.70	9.50	1.514	99.4	1.006	0.08	0.125	0.190
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 5	Reduced	1	2412	2	15.05	16.50	1.396	99.4	1.006	-0.09	0.730	1.025
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 5	Full	39	2441	1	9.20	9.50	1.072	76.95	1.300	0.05	0.025	0.035
18	Bluetooth	1Mbps	Left Cheek	0mm	Ant 5	Full	39	2441	2	9.20	9.50	1.072	76.95	1.300	-0.03	0.033	**0.046**
5000MHz																	
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 6	Full	38	5190	1	17.81	19.50	1.476	93.52	1.069	0.03	0.355	0.560
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 6	Full	38	5190	1	17.81	19.50	1.476	93.52	1.069	0.01	0.464	0.732
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 6	Full	38	5190	1	17.81	19.50	1.476	93.52	1.069	0.03	0.465	0.734
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 6	Full	46	5230	1	17.75	19.50	1.496	93.52	1.069	-0.02	0.513	0.821
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	Full	38	5190	1	17.81	19.50	1.476	93.52	1.069	0.09	0.711	1.122
19A	WLAN5.2GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	Full	46	5230	1	17.75	19.50	1.496	93.52	1.069	0.01	0.743	**1.188**
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	Simultaneous	42	5210	1	7.62	9.50	1.542	87.65	1.141	0.02	0.058	0.102
	WLAN5.2GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	Full	46	5230	2	17.75	19.50	1.496	93.52	1.069	-0.07	0.547	0.875
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.07	0.305	0.521
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.18	0.383	0.654
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.06	0.563	0.961
19	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	-0.04	0.684	**1.168**
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Simultaneous	58	5290	1	7.61	9.50	1.545	87.65	1.141	0.08	0.142	0.250
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Full	58	5290	2	17.25	19.00	1.496	87.65	1.141	0.14	0.632	1.079
20	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	-0.18	0.661	**1.022**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Full	122	5610	1	18.11	19.50	1.377	87.65	1.141	0.01	0.485	0.762
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.02	0.468	0.724
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.01	0.196	0.303
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.08	0.232	0.359
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Simultaneous	138	5690	1	13.93	15.00	1.279	87.65	1.141	-0.07	0.173	0.253
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Full	138	5690	2	18.18	19.50	1.355	87.65	1.141	0.17	0.512	0.792
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Reduced	155	5775	1	14.57	16.00	1.390	87.65	1.141	0.04	0.223	0.354
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Reduced	155	5775	1	14.57	16.00	1.390	87.65	1.141	-0.11	0.220	0.349
21	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Reduced	155	5775	1	14.57	16.00	1.390	87.65	1.141	-0.06	0.740	**1.174**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Reduced	155	5775	1	14.57	16.00	1.390	87.65	1.141	0.01	0.549	0.871
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Simultaneous	155	5775	1	5.20	7.00	1.514	87.65	1.141	0.08	0.136	0.235
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Reduced	155	5775	2	14.57	16.00	1.390	87.65	1.141	0.16	0.392	0.622

14.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																			
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23095	707.5	1	22.58	24.00	1.387	-0.07	0.576	0.799
22	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23095	707.5	2	22.58	24.00	1.387	-0.04	0.696	**0.965**
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23095	707.5	1	21.93	23.00	1.279	-0.04	0.292	0.374
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23095	707.5	2	21.93	23.00	1.279	0.02	0.202	0.258
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23230	782	1	22.47	24.00	1.422	-0.06	0.705	1.003
23	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23230	782	2	22.47	24.00	1.422	-0.01	0.844	**1.200**
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23230	782	1	21.91	23.00	1.285	0.03	0.255	0.328
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23230	782	2	21.91	23.00	1.285	-0.10	0.274	0.352
24	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23330	793	1	22.64	24.00	1.368	-0.02	0.743	**1.016**
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23330	793	2	22.64	24.00	1.368	-0.01	0.601	0.822
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23330	793	1	22.05	23.00	1.245	-0.01	0.248	0.309
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 3	Full	23330	793	2	22.05	23.00	1.245	0.01	0.258	0.321
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	Full	133322	683	1	22.62	24.00	1.374	-0.01	0.460	0.632
25	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	Full	133322	683	2	22.62	24.00	1.374	-0.01	0.587	**0.807**
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 3	Full	133322	683	1	22.04	23.00	1.247	-0.01	0.130	0.162
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 3	Full	133322	683	2	22.04	23.00	1.247	0.08	0.144	0.180
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	189	836.4	1	25.49	27.00	1.416	-0.03	0.734	1.039
26	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	189	836.4	2	25.49	27.00	1.416	-0.03	0.951	**1.346**
27	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	1	21.21	22.00	1.199	-0.03	1.050	**1.259**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	2	21.21	22.00	1.199	-0.02	0.809	0.970
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 3	Full	4182	836.4	1	22.34	23.50	1.306	-0.02	0.480	0.627
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 3	Full	4182	836.4	2	22.34	23.50	1.306	-0.07	0.600	0.784
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	26865	831.5	1	21.95	23.00	1.274	-0.01	0.774	0.986
28	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	26865	831.5	2	21.95	23.00	1.274	-0.02	0.939	**1.196**
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 3	Full	26865	831.5	1	22.19	23.00	1.205	-0.06	0.364	0.439
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 3	Full	26865	831.5	2	22.19	23.00	1.205	-0.09	0.394	0.475
1750MHz																			
29	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	1	13.71	15.00	1.346	-0.01	0.823	**1.108**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	2	13.71	15.00	1.346	-0.05	0.540	0.727
30	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	132572	1770	1	13.47	15.00	1.422	0.04	0.721	**1.025**
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	132572	1770	2	13.47	15.00	1.422	-0.01	0.604	0.859
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	661	1880	1	18.11	19.00	1.227	-0.02	0.618	0.759
31	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	Reduced	661	1880	2	18.11	19.00	1.227	-0.09	0.827	**1.015**
32	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9538	1907.6	1	13.48	14.50	1.265	-0.11	0.962	**1.217**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9538	1907.6	2	13.48	14.50	1.265	-0.02	0.829	1.048
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	26590	1905	1	13.95	15.00	1.274	-0.01	0.908	1.156
33	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	26590	1905	2	13.95	15.00	1.274	-0.03	0.952	**1.212**
2300MHz																			
34	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 2	Reduced	27710	2310	1	19.28	20.50	1.324	-0.08	0.798	**1.057**
	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 2	Reduced	27710	2310	2	19.28	20.50	1.324	-0.01	0.752	0.996

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	Back	5mm	Ant 2	Reduced	20850	2510	1	18.49	19.50	1.262	-	-	-0.05	0.721	0.910
35	LTE Band 7	20M	QPSK	1	0	Back	5mm	Ant 2	Reduced	20850	2510	2	18.49	19.50	1.262	-	-	0.04	0.835	**1.054**
36	LTE Band 38	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	38150	2610	1	18.74	20.00	1.337	62.9	1.006	-0.02	0.784	**1.054**
	LTE Band 38	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	38150	2610	2	18.74	20.00	1.337	62.9	1.006	0.01	0.545	0.733
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	1	16.55	18.00	1.396	62.9	1.006	-0.15	0.519	0.729
	LTE Band 41	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	2	16.55	18.00	1.396	62.9	1.006	0.06	0.453	0.636
37	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	1	19.71	21.00	1.346	42.9	1.009	0.01	0.937	**1.272**
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	2	19.71	21.00	1.346	42.9	1.009	-0.05	0.876	1.190

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2450MHz																	
38	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	Reduced	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.06	0.496	**0.740**
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	Reduced	1	2412	2	17.29	19.00	1.483	99.4	1.006	-0.04	0.413	0.616
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 5	Reduced	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.11	0.417	0.622
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 5	Reduced	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.08	0.267	0.398
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 5	Reduced	1	2412	1	17.29	19.00	1.483	99.4	1.006	-0.03	0.458	0.683
39	Bluetooth	1Mbps	Front	5mm	Ant 5	Full	39	2441	1	9.20	9.50	1.072	76.95	1.300	0.03	0.011	**0.015**
	Bluetooth	1Mbps	Front	5mm	Ant 5	Full	39	2441	2	9.20	9.50	1.072	76.95	1.300	-0.05	0.006	0.008
5000MHz																	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	Reduced	42	5210	1	9.70	10.50	1.202	87.65	1.141	0.11	0.062	0.085
40	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	42	5210	1	9.70	10.50	1.202	87.65	1.141	0.02	0.505	**0.693**
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	Reduced	42	5210	1	9.70	10.50	1.202	87.65	1.141	-0.03	0.023	0.032
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Reduced	42	5210	1	9.70	10.50	1.202	87.65	1.141	0.06	0.208	0.285
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	42	5210	2	9.70	10.50	1.202	87.65	1.141	-0.06	0.481	0.660
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	Reduced	155	5775	1	8.51	9.50	1.256	87.65	1.141	0.01	0.064	0.092
41	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	155	5775	1	8.51	9.50	1.256	87.65	1.141	-0.12	0.487	**0.698**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	Reduced	155	5775	1	8.51	9.50	1.256	87.65	1.141	0.06	0.044	0.063
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Reduced	155	5775	1	8.51	9.50	1.256	87.65	1.141	-0.11	0.155	0.222
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	155	5775	2	8.51	9.50	1.256	87.65	1.141	-0.09	0.380	0.545

14.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23095	707.5	1	22.58	24.00	1.387	-0.07	0.576	0.799
42	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23095	707.5	2	22.58	24.00	1.387	-0.04	0.696	**0.965**
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23095	707.5	1	21.93	23.00	1.279	-0.04	0.292	0.374
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23095	707.5	2	21.93	23.00	1.279	0.02	0.202	0.258
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23230	782	1	22.47	24.00	1.422	-0.06	0.705	1.003
43	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23230	782	2	22.47	24.00	1.422	-0.01	0.844	**1.200**
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23230	782	1	21.91	23.00	1.285	0.03	0.255	0.328
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23230	782	2	21.91	23.00	1.285	-0.1	0.274	0.352
44	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23330	793	1	22.64	24.00	1.368	-0.02	0.743	**1.016**
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	23330	793	2	22.64	24.00	1.368	-0.01	0.601	0.822
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23330	793	1	22.05	23.00	1.245	-0.01	0.248	0.309
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	23330	793	2	22.05	23.00	1.245	0.01	0.258	0.321
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	133322	683	1	22.62	24.00	1.374	-0.01	0.460	0.632
45	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Full	133322	683	2	22.62	24.00	1.374	-0.01	0.587	**0.807**
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	133322	683	1	22.04	23.00	1.247	-0.01	0.130	0.162
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	133322	683	2	22.04	23.00	1.247	0.08	0.144	0.180
835MHz																				
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	189	836.4	1	25.49	27.00	1.416	-0.03	0.734	1.039
46	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	189	836.4	2	25.49	27.00	1.416	-0.03	0.951	**1.346**
47	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4132	826.4	1	21.21	22.00	1.199	-0.03	1.050	**1.259**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4132	826.4	2	21.21	22.00	1.199	-0.02	0.809	0.970
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 3	-	Full	4182	836.4	1	22.34	23.50	1.306	-0.02	0.480	0.627
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 3	-	Full	4182	836.4	2	22.34	23.50	1.306	-0.07	0.600	0.784
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	26865	831.5	1	21.95	23.00	1.274	-0.01	0.774	0.986
48	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	26865	831.5	2	21.95	23.00	1.274	-0.02	0.939	**1.196**
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	26865	831.5	1	22.19	23.00	1.205	-0.06	0.364	0.439
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 3	-	Full	26865	831.5	2	22.19	23.00	1.205	-0.09	0.394	0.475
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1513	1752.6	1	14.59	16.50	1.552	-0.01	0.524	0.813
49	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1513	1752.6	2	14.59	16.50	1.552	-0.03	0.538	**0.835**
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	132572	1770	1	14.55	16.00	1.396	-0.13	0.539	0.753
50	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	132572	1770	2	14.55	16.00	1.396	-0.14	0.612	**0.855**
1900MHz																				
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	661	1880	1	18.82	20.00	1.312	0.07	0.613	0.804
51	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	-	Reduced	661	1880	2	18.82	20.00	1.312	-0.02	0.977	**1.282**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9538	1907.6	1	14.62	15.50	1.225	-0.03	0.792	0.970
52	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9538	1907.6	2	14.62	15.50	1.225	-0.01	0.884	**1.083**
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	26140	1860	1	14.65	16.00	1.365	-0.08	0.648	0.884
53	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	26140	1860	2	14.65	16.00	1.365	-0.11	0.714	**0.974**
2300MHz																				
54	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 2	-	Reduced	27710	2310	1	19.28	20.50	1.324	-0.08	0.798	**1.057**
	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 2	-	Reduced	27710	2310	2	19.28	20.50	1.324	-0.01	0.752	0.996

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	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)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	20850	2510	1	18.49	19.50	1.262	-	-	-0.05	0.721	0.910
55	LTE Band 7	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	20850	2510	2	18.49	19.50	1.262	-	-	0.04	0.835	**1.054**
	LTE Band 38	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	37850	2580	1	20.18	21.50	1.355	62.9	1.006	-0.03	0.669	0.912
56	LTE Band 38	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	37850	2580	2	20.18	21.50	1.355	62.9	1.006	-0.03	0.933	**1.272**
	LTE Band 41	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	39750	2506	1	18.11	19.50	1.377	62.9	1.006	-0.08	0.434	0.601
	LTE Band 41	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	39750	2506	2	18.11	19.50	1.377	62.9	1.006	-0.1	0.510	0.707
	LTE Band 41_HPUE	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	39750	2506	1	21.24	22.50	1.337	42.9	1.009	0.09	0.607	0.819
57	LTE Band 41_HPUE	20M	QPSK	1	0	Back	5mm	Ant 2	-	Reduced	39750	2506	2	21.24	22.50	1.337	42.9	1.009	-0.07	0.668	**0.901**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	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)
2450MHz																		
58	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	-	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	-0.11	0.888	**1.291**
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	-	Full	6	2437	1	21.30	23.00	1.479	99.4	1.006	0.01	0.776	1.155
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	-	Full	11	2437	1	21.20	23.00	1.514	99.4	1.006	0.09	0.794	1.209
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	Headset	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	-0.09	0.764	1.111
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 5	-	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.13	0.747	1.086
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 5	-	Full	6	2437	1	21.30	23.00	1.479	99.4	1.006	0.09	0.735	1.094
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	-	Simultaneous	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.06	0.496	0.740
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 5	-	Simultaneous	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.09	0.417	0.622
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 5	-	Full	1	2412	2	21.40	23.00	1.445	99.4	1.006	0.02	0.759	1.104
59	Bluetooth	1Mbps	Front	5mm	Ant 5	-	Full	39	2441	1	9.20	9.50	1.072	76.95	1.300	0.03	0.011	**0.015**
	Bluetooth	1Mbps	Front	5mm	Ant 5	-	Full	39	2441	2	9.20	9.50	1.072	76.95	1.300	-0.05	0.006	0.008
5000MHz																		
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Reduced	58	5290	1	10.53	11.50	1.250	87.65	1.141	0.03	0.080	0.114
60	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	58	5290	1	10.53	11.50	1.250	87.65	1.141	-0.01	0.793	**1.131**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	19mm	Ant 6	-	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	-0.03	0.083	0.142
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	22mm	Ant 6	-	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.06	0.499	0.852
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	58	5290	1	8.93	10.50	1.435	87.65	1.141	0.09	0.042	0.069
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	58	5290	1	8.93	10.50	1.435	87.65	1.141	0.09	0.423	0.693
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	58	5290	2	10.53	11.50	1.250	87.65	1.141	0.01	0.740	1.056
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Reduced	122	5610	1	10.11	11.50	1.377	87.65	1.141	0.09	0.078	0.123
61	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	122	5610	1	10.11	11.50	1.377	87.65	1.141	0.02	0.742	**1.166**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	138	5690	1	10.02	11.50	1.406	87.65	1.141	-0.03	0.658	1.056
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	19mm	Ant 6	-	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	-0.09	0.054	0.083
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	22mm	Ant 6	-	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	-0.01	0.460	0.711
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	122	5610	1	9.07	10.50	1.390	87.65	1.141	0.09	0.031	0.049
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	122	5610	1	9.07	10.50	1.390	87.65	1.141	0.03	0.402	0.638
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	122	5610	2	10.11	11.50	1.377	87.65	1.141	-0.05	0.475	0.746
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Reduced	155	5775	1	9.78	11.50	1.486	87.65	1.141	0.16	0.100	0.170
62	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	155	5775	1	9.78	11.50	1.486	87.65	1.141	0.11	0.689	**1.168**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	155	5775	1	8.51	9.50	1.256	87.65	1.141	0.01	0.064	0.092
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	155	5775	1	8.51	9.50	1.256	87.65	1.141	-0.12	0.487	0.698
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	19mm	Ant 6	-	Full	155	5775	1	17.35	19.00	1.462	87.65	1.141	-0.09	0.073	0.122
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	22mm	Ant 6	-	Full	155	5775	1	17.35	19.00	1.462	87.65	1.141	0.01	0.610	1.018
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced	155	5775	2	9.78	11.50	1.486	87.65	1.141	0.06	0.541	0.917

14.4 Product Specific SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
750MHz																			
	LTE Band 13	10M	QPSK	1	0	-	Back	0mm	Ant 1	Full	23230	782	1	22.47	24.00	1.422	-0.05	0.74	1.048
63	LTE Band 13	10M	QPSK	1	0	-	Back	0mm	Ant 1	Full	23230	782	2	22.47	24.00	1.422	0.04	0.876	**1.246**
	LTE Band 14	10M	QPSK	1	0	-	Back	0mm	Ant 1	Full	23330	793	1	22.64	24.00	1.368	-0.02	0.653	0.893
64	LTE Band 14	10M	QPSK	1	0	-	Back	0mm	Ant 1	Full	23330	793	2	22.64	24.00	1.368	-0.02	0.803	**1.098**
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 1	Full	189	836.4	1	27.88	29.00	1.294	0.08	0.942	1.219
65	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 1	Full	189	836.4	2	27.88	29.00	1.294	0.09	1.050	**1.359**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Full	4132	826.4	1	22.72	24.00	1.343	0.01	1.200	1.611
66	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	Full	4132	826.4	2	22.72	24.00	1.343	-0.08	1.340	**1.799**
	LTE Band 26	15M	QPSK	1	0	-	Back	0mm	Ant 1	Full	26865	831.5	1	22.92	24.00	1.282	0.07	0.895	1.148
67	LTE Band 26	15M	QPSK	1	0	-	Back	0mm	Ant 1	Full	26865	831.5	2	22.92	24.00	1.282	0.14	1.110	**1.423**
1750MHz																			
68	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1513	1752.6	1	18.70	20.00	1.349	0.11	1.860	**2.509**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	1513	1752.6	2	18.70	20.00	1.349	-0.04	1.180	1.592
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 1	Reduced	132572	1770	1	18.65	20.00	1.365	-0.01	1.720	2.347
69	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 1	Reduced	132572	1770	2	18.65	20.00	1.365	-0.02	1.840	**2.511**
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	512	1850.2	1	24.07	25.50	1.390	-0.02	1.930	2.683
70	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 1	Reduced	512	1850.2	2	24.07	25.50	1.390	-0.02	2.270	**3.155**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9262	1852.4	1	19.27	20.50	1.327	0.07	2.000	2.655
71	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	Reduced	9262	1852.4	2	19.27	20.50	1.327	-0.09	2.110	**2.801**
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 1	Reduced	26140	1860	1	19.29	20.50	1.321	-0.03	1.900	2.510
72	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 1	Reduced	26140	1860	2	19.29	20.50	1.321	-0.16	2.300	**3.039**
2300MHz																			
	LTE Band 30	10M	QPSK	1	0	-	Back	0mm	Ant 2	Reduced	27710	2310	1	21.96	23.00	1.271	-0.03	2.210	2.808
73	LTE Band 30	10M	QPSK	1	0	-	Back	0mm	Ant 2	Reduced	27710	2310	2	21.96	23.00	1.271	-0.17	2.620	**3.329**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	Back	0mm	Ant 2	Reduced	20850	2510	1	21.01	22.00	1.256	-	-	-0.14	1.450	1.821
74	LTE Band 7	20M	QPSK	1	0	Back	0mm	Ant 2	Reduced	20850	2510	2	21.01	22.00	1.256	-	-	-0.07	1.460	**1.834**
	LTE Band 38	20M	QPSK	1	0	Back	0mm	Ant 2	Full	37850	2580	1	22.64	24.00	1.368	62.9	1.006	-0.08	0.750	1.032
75	LTE Band 38	20M	QPSK	1	0	Back	0mm	Ant 2	Full	37850	2580	2	22.64	24.00	1.368	62.9	1.006	0.01	1.480	**2.036**
	LTE Band 41	20M	QPSK	1	0	Bottom Side	0mm	Ant 2	Reduced	39750	2506	1	21.17	22.50	1.358	62.9	1.006	-0.04	0.720	0.984
	LTE Band 41	20M	QPSK	1	0	Bottom Side	0mm	Ant 2	Reduced	39750	2506	2	21.17	22.50	1.358	62.9	1.006	-0.10	0.883	1.207
76	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Side	0mm	Ant 2	Reduced	39750	2506	1	24.31	25.50	1.315	42.9	1.009	-0.04	1.020	**1.354**
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Side	0mm	Ant 2	Reduced	39750	2506	2	24.31	25.50	1.315	42.9	1.009	-0.02	0.760	1.009

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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)
2450MHz																	
77	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.07	2.190	**3.185**
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	Full	6	2437	1	21.30	23.00	1.479	99.4	1.006	0.03	2.100	3.125
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	Full	11	2437	1	21.20	23.00	1.514	99.4	1.006	0.03	1.970	3.000
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.01	1.220	1.774
	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.01	1.350	1.963
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	Simultaneous	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.03	0.813	1.213
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 5	Simultaneous	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.05	0.381	0.568
	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 5	Simultaneous	1	2412	1	17.29	19.00	1.483	99.4	1.006	0.01	0.511	0.762
	WLAN2.4GHz	802.11b 1Mbps	Front	0mm	Ant 5	Full	1	2412	2	21.40	23.00	1.445	99.4	1.006	-0.01	1.840	2.676
5000MHz																	
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	Full	38	5190	1	17.81	19.50	1.476	93.52	1.069	0.01	1.766	2.786
78	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	Full	46	5230	1	17.75	19.50	1.496	93.52	1.069	0.09	1.860	**2.975**
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 6	Full	46	5230	1	17.75	19.50	1.496	93.52	1.069	-0.06	0.917	1.467
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	Simultaneous	42	5210	1	9.70	10.50	1.202	87.65	1.141	0.03	0.221	0.303
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	Full	46	5230	2	17.75	19.50	1.496	93.52	1.069	-0.03	1.792	2.866
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	-0.06	0.314	0.536
79	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	-0.04	1.810	**3.090**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.03	0.065	0.111
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6	Full	58	5290	1	17.25	19.00	1.496	87.65	1.141	0.08	0.768	1.311
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Simultaneous	58	5290	1	8.93	10.50	1.435	87.65	1.141	0.04	0.211	0.346
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	58	5290	2	17.25	19.00	1.496	87.65	1.141	0.01	1.780	3.039
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.15	0.332	0.513
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.09	1.730	2.675
80	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	122	5610	1	18.11	19.50	1.377	87.65	1.141	-0.04	1.870	**2.939**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.02	0.055	0.085
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6	Full	138	5690	1	18.18	19.50	1.355	87.65	1.141	0.04	0.835	1.291
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6	Full	122	5610	1	18.11	19.50	1.377	87.65	1.141	0.08	1.190	1.870
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Simultaneous	122	5610	1	8.93	10.50	1.435	87.65	1.141	-0.04	0.233	0.382
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	122	5610	2	18.11	19.50	1.377	87.65	1.141	0.03	1.100	1.729
81	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	155	5775	1	17.35	19.00	1.462	87.65	1.141	-0.09	1.920	**3.203**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	155	5775	1	17.35	19.00	1.462	87.65	1.141	0.03	1.450	2.419
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6	Full	155	5775	1	17.35	19.00	1.462	87.65	1.141	0.01	0.534	0.891
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Simultaneous	155	5775	1	8.51	9.50	1.256	87.65	1.141	-0.04	0.336	0.482
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	Full	155	5775	2	17.35	19.00	1.462	87.65	1.141	0.11	1.280	2.135

14.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23230	782	2	22.47	24.00	1.422	-	-	-0.01	0.844	1	1.200
2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	Full	23230	782	2	22.47	24.00	1.422	-	-	0.07	0.801	1.054	1.139
1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	1	21.21	22.00	1.199	-	-	-0.03	1.050	1	1.259
2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	1	21.21	22.00	1.199	-	-	-0.09	0.984	1.067	1.180
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	1	13.71	15.00	1.346	-	-	-0.01	0.823	1	1.108
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	1	13.71	15.00	1.346	-	-	0.07	0.802	1.026	1.079
1st	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	661	1880	2	18.82	20.00	1.312	-	-	-0.02	0.977	1	1.282
2nd	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	661	1880	2	18.82	20.00	1.312	-	-	0.05	0.935	1.045	1.227
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Front	5mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	-0.11	0.888	1	1.291
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Front	5mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.1	0.851	1.043	1.237
1st	LTE Band 41_HPUE	-	QPSK	1	0	-	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	1	19.71	21.00	1.346	42.9	1.009	0.01	0.937	1	1.272
2nd	LTE Band 41_HPUE	-	QPSK	1	0	-	Bottom Side	5mm	Ant 2	Reduced	41055	2636.5	1	19.71	21.00	1.346	42.9	1.009	0.05	0.831	1.128	1.128

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	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 30	10M	QPSK	1	0	-	Back	0mm	Ant 2	Reduced	27710	2310	2	21.96	23.00	1.271	-	-	-0.17	2.620	1	3.329
2nd	LTE Band 30	10M	QPSK	1	0	-	Back	0mm	Ant 2	Reduced	27710	2310	2	21.96	23.00	1.271	-	-	0.05	2.480	1.056	3.151
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Front	0mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	0.07	2.190	1	3.185
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Front	0mm	Ant 5	Full	1	2412	1	21.40	23.00	1.445	99.4	1.006	-0.03	2.050	1.068	2.981
1st	LTE Band 25	10M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	Reduced	26140	1860	2	19.29	20.50	1.321	-	-	-0.16	2.300	1	3.039
2nd	LTE Band 25	10M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	Reduced	26140	1860	2	19.29	20.50	1.321	-	-	0.05	2.170	1.060	2.867

General Note:

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

15. Simultaneous Transmission Analysis

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

General Note:

1. Chose higher SAR between original application and verified to perform co-located SAR analysis.
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
3. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
5. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
6. WIFI 5.3/5.5GHz has no hotspot function.
7. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
8. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
9. According to the EUT characteristic, WLAN 5GHz and Bluetooth can't transmit simultaneously.
10. According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz can't transmit simultaneously.
11. The maximum SAR summation is calculated based on the same configuration and test position.
12. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
    ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. 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 ≤ 0.04 for 1g SAR and SPLSR≤ 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.
13. This is a variant report for XT2211-1, XT2211-2, XT2211DL. According to the change, WLAN full SAR testing and performed new measured power. And the other Bands were verified worse cases from original test report (Sporton Report Number FA181714). Chose higher SAR between original application and verified to perform co-located SAR analysis.

15.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	3	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 5	5GHz WLAN Ant 6	Bluetooth Ant 5			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
GSM850Ant 1	Right Cheek	0.474	0.190	0.253	0.065	0.66	0.73	0.54
	Right Tilted	0.228	0.190	0.253	0.065	0.42	0.48	0.29
	Left Cheek	0.419	0.190	0.253	0.065	0.61	0.67	0.48
	Left Tilted	0.243	0.190	0.253	0.065	0.43	0.50	0.31
GSM1900Ant 1	Right Cheek	0.033	0.190	0.253	0.065	0.22	0.29	0.10
	Right Tilted	0.024	0.190	0.253	0.065	0.21	0.28	0.09
	Left Cheek	0.061	0.190	0.253	0.065	0.25	0.31	0.13
	Left Tilted	0.026	0.190	0.253	0.065	0.22	0.28	0.09
WCDMA IIAnt 1	Right Cheek	0.081	0.190	0.253	0.065	0.27	0.33	0.15
	Right Tilted	0.068	0.190	0.253	0.065	0.26	0.32	0.13
	Left Cheek	0.144	0.190	0.253	0.065	0.33	0.40	0.21
	Left Tilted	0.080	0.190	0.253	0.065	0.27	0.33	0.15
WCDMA IVAnt 1	Right Cheek	0.117	0.190	0.253	0.065	0.31	0.37	0.18
	Right Tilted	0.082	0.190	0.253	0.065	0.27	0.34	0.15
	Left Cheek	0.146	0.190	0.253	0.065	0.34	0.40	0.21
	Left Tilted	0.109	0.190	0.253	0.065	0.30	0.36	0.17
WCDMA VAnt 1	Right Cheek	0.442	0.190	0.253	0.065	0.63	0.70	0.51
	Right Tilted	0.179	0.190	0.253	0.065	0.37	0.43	0.24
	Left Cheek	0.385	0.190	0.253	0.065	0.58	0.64	0.45
	Left Tilted	0.258	0.190	0.253	0.065	0.45	0.51	0.32
WCDMA VAnt 3	Right Cheek	1.332	0.190	0.253	0.065	1.52	1.59	1.40
	Right Tilted	0.839	0.190	0.253	0.065	1.03	1.09	0.90
	Left Cheek	1.325	0.190	0.253	0.065	1.52	1.58	1.39
	Left Tilted	0.878	0.190	0.253	0.065	1.07	1.13	0.94
LTE Band 7Ant 2	Right Cheek	0.197	0.190	0.253	0.065	0.39	0.45	0.26
	Right Tilted	0.195	0.190	0.253	0.065	0.39	0.45	0.26
	Left Cheek	0.471	0.190	0.253	0.065	0.66	0.72	0.54
	Left Tilted	0.183	0.190	0.253	0.065	0.37	0.44	0.25
LTE Band 12Ant 1	Right Cheek	0.276	0.190	0.253	0.065	0.47	0.53	0.34
	Right Tilted	0.111	0.190	0.253	0.065	0.30	0.36	0.18
	Left Cheek	0.266	0.190	0.253	0.065	0.46	0.52	0.33
	Left Tilted	0.123	0.190	0.253	0.065	0.31	0.38	0.19
LTE Band 12Ant 3	Right Cheek	1.111	0.190	0.253	0.065	1.30	1.36	1.18
	Right Tilted	0.774	0.190	0.253	0.065	0.96	1.03	0.84
	Left Cheek	1.070	0.190	0.253	0.065	1.26	1.32	1.14
	Left Tilted	0.659	0.190	0.253	0.065	0.85	0.91	0.72
LTE Band 13Ant 1	Right Cheek	0.329	0.190	0.253	0.065	0.52	0.58	0.39
	Right Tilted	0.144	0.190	0.253	0.065	0.33	0.40	0.21
	Left Cheek	0.287	0.190	0.253	0.065	0.48	0.54	0.35
	Left Tilted	0.161	0.190	0.253	0.065	0.35	0.41	0.23
LTE Band 13Ant 3	Right Cheek	0.855	0.190	0.253	0.065	1.05	1.11	0.92
	Right Tilted	0.524	0.190	0.253	0.065	0.71	0.78	0.59
	Left Cheek	0.715	0.190	0.253	0.065	0.91	0.97	0.78
	Left Tilted	0.472	0.190	0.253	0.065	0.66	0.73	0.54
LTE Band 14Ant 1	Right Cheek	0.358	0.190	0.253	0.065	0.55	0.61	0.42
	Right Tilted	0.163	0.190	0.253	0.065	0.35	0.42	0.23
	Left Cheek	0.310	0.190	0.253	0.065	0.50	0.56	0.38
	Left Tilted	0.126	0.190	0.253	0.065	0.32	0.38	0.19
LTE Band 14Ant 3	Right Cheek	0.798	0.190	0.253	0.065	0.99	1.05	0.86
	Right Tilted	0.505	0.190	0.253	0.065	0.70	0.76	0.57

	Left Cheek	0.708	0.190	0.253	0.065	0.90	0.96	0.77
	Left Tilted	0.453	0.190	0.253	0.065	0.64	0.71	0.52
LTE Band 25Ant 1	Right Cheek	0.080	0.190	0.253	0.065	0.27	0.33	0.15
	Right Tilted	0.063	0.190	0.253	0.065	0.25	0.32	0.13
	Left Cheek	0.135	0.190	0.253	0.065	0.33	0.39	0.20
	Left Tilted	0.088	0.190	0.253	0.065	0.28	0.34	0.15
LTE Band 26Ant 1	Right Cheek	0.340	0.190	0.253	0.065	0.53	0.59	0.41
	Right Tilted	0.136	0.190	0.253	0.065	0.33	0.39	0.20
	Left Cheek	0.314	0.190	0.253	0.065	0.50	0.57	0.38
	Left Tilted	0.144	0.190	0.253	0.065	0.33	0.40	0.21
LTE Band 26Ant 3	Right Cheek	1.217	0.190	0.253	0.065	1.41	1.47	1.28
	Right Tilted	0.835	0.190	0.253	0.065	1.03	1.09	0.90
	Left Cheek	1.175	0.190	0.253	0.065	1.37	1.43	1.24
	Left Tilted	0.725	0.190	0.253	0.065	0.92	0.98	0.79
LTE Band 30Ant 2	Right Cheek	0.170	0.190	0.253	0.065	0.36	0.42	0.24
	Right Tilted	0.149	0.190	0.253	0.065	0.34	0.40	0.21
	Left Cheek	0.350	0.190	0.253	0.065	0.54	0.60	0.42
	Left Tilted	0.194	0.190	0.253	0.065	0.38	0.45	0.26
LTE Band 66Ant 1	Right Cheek	0.116	0.190	0.253	0.065	0.31	0.37	0.18
	Right Tilted	0.075	0.190	0.253	0.065	0.27	0.33	0.14
	Left Cheek	0.123	0.190	0.253	0.065	0.31	0.38	0.19
	Left Tilted	0.083	0.190	0.253	0.065	0.27	0.34	0.15
LTE Band 71Ant 1	Right Cheek	0.346	0.190	0.253	0.065	0.54	0.60	0.41
	Right Tilted	0.133	0.190	0.253	0.065	0.32	0.39	0.20
	Left Cheek	0.305	0.190	0.253	0.065	0.50	0.56	0.37
	Left Tilted	0.135	0.190	0.253	0.065	0.33	0.39	0.20
LTE Band 71Ant 3	Right Cheek	0.440	0.190	0.253	0.065	0.63	0.69	0.51
	Right Tilted	0.281	0.190	0.253	0.065	0.47	0.53	0.35
	Left Cheek	0.358	0.190	0.253	0.065	0.55	0.61	0.42
	Left Tilted	0.243	0.190	0.253	0.065	0.43	0.50	0.31
LTE Band 41_HPUEAnt 2	Right Cheek	0.134	0.190	0.253	0.065	0.32	0.39	0.20
	Right Tilted	0.130	0.190	0.253	0.065	0.32	0.38	0.20
	Left Cheek	0.298	0.190	0.253	0.065	0.49	0.55	0.36
	Left Tilted	0.114	0.190	0.253	0.065	0.30	0.37	0.18
LTE Band 41Ant 2	Right Cheek	0.101	0.182	0.253	0.065	0.28	0.35	0.17
	Right Tilted	0.097	0.182	0.253	0.065	0.28	0.35	0.16
	Left Cheek	0.223	0.182	0.253	0.065	0.41	0.48	0.29
	Left Tilted	0.085	0.182	0.253	0.065	0.27	0.34	0.15
LTE Band 38Ant 2	Right Cheek	0.166	0.182	0.253	0.065	0.35	0.42	0.23
	Right Tilted	0.150	0.182	0.253	0.065	0.33	0.40	0.22
	Left Cheek	0.259	0.182	0.253	0.065	0.44	0.51	0.32
	Left Tilted	0.091	0.182	0.253	0.065	0.27	0.34	0.16

15.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 5 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 5 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	Case No.
GSM850Ant 1	Front	0.835	0.740	0.092	0.020	1.58	0.93	0.86	
	Back	1.369	0.622	0.698	0.020	**1.99**	**2.07**	1.39	**1&2**
	Left side	0.258			0.020	0.26	0.26	0.28	
	Right side	0.550	0.398	0.063	0.020	0.95	0.61	0.57	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.049			0.020	1.05	1.05	1.07	
GSM1900Ant 1	Front	0.579	0.740	0.092	0.020	1.32	0.67	0.60	
	Back	1.291	0.622	0.698	0.020	**1.91**	**1.99**	1.31	**3&4**
	Left side	0.066			0.020	0.07	0.07	0.09	
	Right side	0.027	0.398	0.063	0.020	0.43	0.09	0.05	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.350			0.020	1.35	1.35	1.37	
WCDMA IIAnt 1	Front	0.668	0.740	0.092	0.020	1.41	0.76	0.69	
	Back	1.384	0.622	0.698	0.020	**2.01**	**2.08**	1.40	**5&6**
	Left side	0.081			0.020	0.08	0.08	0.10	
	Right side	0.033	0.398	0.063	0.020	0.43	0.10	0.05	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.404			0.020	1.40	1.40	1.42	
WCDMA IVAnt 1	Front	0.683	0.740	0.092	0.020	1.42	0.78	0.70	
	Back	1.256	0.622	0.698	0.020	**1.88**	**1.95**	1.28	**7&8**
	Left side	0.073			0.020	0.07	0.07	0.09	
	Right side	0.044	0.398	0.063	0.020	0.44	0.11	0.06	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.304			0.020	1.30	1.30	1.32	
WCDMA VAnt 1	Front	0.926	0.740	0.092	0.020	**1.67**	1.02	0.95	**9**
	Back	1.391	0.622	0.698	0.020	**2.01**	**2.09**	1.41	**10&11**
	Left side	0.226			0.020	0.23	0.23	0.25	
	Right side	0.523	0.398	0.063	0.020	0.92	0.59	0.54	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.920			0.020	0.92	0.92	0.94	
WCDMA VAnt 3	Front	0.537	0.740	0.092	0.020	1.28	0.63	0.56	
	Back	0.852	0.622	0.698	0.020	1.47	1.55	0.87	
	Left side	0.136			0.020	0.14	0.14	0.16	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.381	0.683	0.285	0.020	1.06	0.67	0.40	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 7Ant 2	Front	0.991	0.740	0.092	0.020	**1.73**	1.08	1.01	**12**
	Back	1.238	0.622	0.698	0.020	**1.86**	**1.94**	1.26	**13&14**
	Left side	0.513			0.020	0.51	0.51	0.53	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.746			0.020	0.75	0.75	0.77	
LTE Band 12Ant 1	Front	0.735	0.740	0.092	0.020	1.48	0.83	0.76	
	Back	1.188	0.622	0.698	0.020	**1.81**	**1.89**	1.21	**15&16**
	Left side	0.301			0.020	0.30	0.30	0.32	
	Right side	0.492	0.398	0.063	0.020	0.89	0.56	0.51	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.660			0.020	0.66	0.66	0.68	
LTE Band 12Ant	Front	0.299	0.740	0.092	0.020	1.04	0.39	0.32	

3	Back	0.486	0.622	0.698	0.020	1.11	1.18	0.51	
	Left side	0.182			0.020	0.18	0.18	0.20	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.232	0.683	0.285	0.020	0.92	0.52	0.25	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 13Ant 1	Front	1.025	0.740	0.092	0.020	**1.77**	1.12	1.05	**17**
	Back	1.414	0.622	0.698	0.020	**2.04**	**2.11**	1.43	**18&19**
	Left side	0.289			0.020	0.29	0.29	0.31	
	Right side	0.587	0.398	0.063	0.020	0.99	0.65	0.61	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.822			0.020	0.82	0.82	0.84	
LTE Band 13Ant 3	Front	0.296	0.740	0.092	0.020	1.04	0.39	0.32	
	Back	0.424	0.622	0.698	0.020	1.05	1.12	0.44	
	Left side	0.171			0.020	0.17	0.17	0.19	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.216	0.683	0.285	0.020	0.90	0.50	0.24	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 14Ant 1	Front	1.134	0.740	0.092	0.020	**1.87**	1.23	1.15	**20**
	Back	1.436	0.622	0.698	0.020	**2.06**	**2.13**	**1.46**	**21&22**
	Left side	0.305			0.020	0.31	0.31	0.33	
	Right side	0.629	0.398	0.063	0.020	1.03	0.69	0.65	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.920			0.020	0.92	0.92	0.94	
LTE Band 14Ant 3	Front	0.302	0.740	0.092	0.020	1.04	0.39	0.32	
	Back	0.429	0.622	0.698	0.020	1.05	1.13	0.45	
	Left side	0.168			0.020	0.17	0.17	0.19	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.222	0.683	0.285	0.020	0.91	0.51	0.24	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 25Ant 1	Front	0.656	0.740	0.092	0.020	1.40	0.75	0.68	
	Back	1.249	0.622	0.698	0.020	**1.87**	**1.95**	1.27	**23&24**
	Left side	0.059			0.020	0.06	0.06	0.08	
	Right side	0.026	0.398	0.063	0.020	0.42	0.09	0.05	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.261			0.020	1.26	1.26	1.28	
LTE Band 26Ant 1	Front	0.817	0.740	0.092	0.020	1.56	0.91	0.84	
	Back	1.274	0.622	0.698	0.020	**1.90**	**1.97**	1.29	**25&26**
	Left side	0.159			0.020	0.16	0.16	0.18	
	Right side	0.374	0.398	0.063	0.020	0.77	0.44	0.39	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.653			0.020	0.65	0.65	0.67	
LTE Band 26Ant 3	Front	0.352	0.740	0.092	0.020	1.09	0.44	0.37	
	Back	0.530	0.622	0.698	0.020	1.15	1.23	0.55	
	Left side	0.104			0.020	0.10	0.10	0.12	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.330	0.683	0.285	0.020	1.01	0.62	0.35	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 30Ant 2	Front	0.891	0.740	0.092	0.020	**1.63**	0.98	0.91	**27**
	Back	1.200	0.622	0.698	0.020	**1.82**	**1.90**	1.22	**28&29**
	Left side	0.665			0.020	0.67	0.67	0.69	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.665			0.020	0.67	0.67	0.69	
LTE Band 66Ant 1	Front	0.643	0.740	0.092	0.020	1.38	0.74	0.66	
	Back	1.227	0.622	0.698	0.020	**1.85**	**1.93**	1.25	**30&31**
	Left side	0.046			0.020	0.05	0.05	0.07	

	Right side	0.033	0.398	0.063	0.020	0.43	0.10	0.05	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.267			0.020	1.27	1.27	1.29	
LTE Band 71Ant 1	Front	0.724	0.740	0.092	0.020	1.46	0.82	0.74	
	Back	0.981	0.622	0.698	0.020	**1.60**	**1.68**	1.00	**32&33**
	Left side	0.504			0.020	0.50	0.50	0.52	
	Right side	0.789	0.398	0.063	0.020	1.19	0.85	0.81	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.591			0.020	0.59	0.59	0.61	
LTE Band 71Ant 3	Front	0.130	0.740	0.092	0.020	0.87	0.22	0.15	
	Back	0.207	0.622	0.698	0.020	0.83	0.91	0.23	
	Left side	0.151			0.020	0.15	0.15	0.17	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side	0.104	0.683	0.285	0.020	0.79	0.39	0.12	
	Bottom side				0.020	0.00	0.00	0.02	
LTE Band 41_HPUEAnt 2	Front	1.020	0.740	0.092	0.020	**1.76**	1.11	1.04	**34**
	Back	1.260	0.622	0.698	0.020	**1.88**	**1.96**	1.28	**35&36**
	Left side	0.386			0.020	0.39	0.39	0.41	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.426			0.020	1.43	1.43	1.45	
LTE Band 41_Ant 2	Front	0.598	0.740	0.092	0.020	1.34	0.69	0.62	
	Back	0.848	0.622	0.698	0.020	1.47	1.55	0.87	
	Left side	0.252			0.020	0.25	0.25	0.27	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	0.989			0.020	0.99	0.99	1.01	
LTE Band 38_Ant 2	Front	0.967	0.740	0.092	0.020	**1.71**	1.06	0.99	**39**
	Back	1.299	0.622	0.698	0.020	**1.92**	**2.00**	1.32	**40&41**
	Left side	0.455			0.020	0.46	0.46	0.48	
	Right side		0.398	0.063	0.020	0.40	0.06	0.02	
	Top side		0.683	0.285	0.020	0.68	0.29	0.02	
	Bottom side	1.372			0.020	1.37	1.37	1.39	

15.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 5 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 5 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	SPLSR
GSM850Ant 1	Front	0.835	0.740	0.092	0.020	1.58	0.93	0.86	
	Back	1.369	0.622	0.698	0.020	**1.99**	**2.07**	1.39	**1&2**
GSM1900Ant 1	Front	0.579	0.740	0.092	0.020	1.32	0.67	0.60	
	Back	1.291	0.622	0.698	0.020	**1.91**	**1.99**	1.31	**3&4**
WCDMA IIAnt 1	Front	0.668	0.740	0.092	0.020	1.41	0.76	0.69	
	Back	1.384	0.622	0.698	0.020	**2.01**	**2.08**	1.40	**5&6**
WCDMA IVAnt 1	Front	0.683	0.740	0.092	0.020	1.42	0.78	0.70	
	Back	1.256	0.622	0.698	0.020	**1.88**	**1.95**	1.28	**7&8**
WCDMA VAnt 1	Front	0.926	0.740	0.092	0.020	**1.67**	1.02	0.95	**9**
	Back	1.391	0.622	0.698	0.020	**2.01**	**2.09**	1.41	**10&11**
WCDMA VAnt 3	Front	0.537	0.740	0.092	0.020	1.28	0.63	0.56	
	Back	0.852	0.622	0.698	0.020	1.47	1.55	0.87	
LTE Band 7Ant 2	Front	0.991	0.740	0.092	0.020	**1.73**	1.08	1.01	**12**
	Back	1.238	0.622	0.698	0.020	**1.86**	**1.94**	1.26	**13&14**
LTE Band 12Ant 1	Front	0.735	0.740	0.092	0.020	1.48	0.83	0.76	
	Back	1.188	0.622	0.698	0.020	**1.81**	**1.89**	1.21	**15&16**
LTE Band 12Ant 3	Front	0.299	0.740	0.092	0.020	1.04	0.39	0.32	
	Back	0.486	0.622	0.698	0.020	1.11	1.18	0.51	
LTE Band 13Ant 1	Front	1.025	0.740	0.092	0.020	**1.77**	1.12	1.05	**17**
	Back	1.414	0.622	0.698	0.020	**2.04**	**2.11**	1.43	**18&19**
LTE Band 13Ant 3	Front	0.296	0.740	0.092	0.020	1.04	0.39	0.32	
	Back	0.424	0.622	0.698	0.020	1.05	1.12	0.44	
LTE Band 14Ant 1	Front	1.134	0.740	0.092	0.020	**1.87**	1.23	1.15	**20**
	Back	1.436	0.622	0.698	0.020	**2.06**	**2.13**	1.46	**21&22**
LTE Band 14Ant 3	Front	0.302	0.740	0.092	0.020	1.04	0.39	0.32	
	Back	0.429	0.622	0.698	0.020	1.05	1.13	0.45	
LTE Band 25Ant 1	Front	0.656	0.740	0.092	0.020	1.40	0.75	0.68	
	Back	1.249	0.622	0.698	0.020	**1.87**	**1.95**	1.27	**23&24**
LTE Band 26Ant 1	Front	0.817	0.740	0.092	0.020	1.56	0.91	0.84	
	Back	1.274	0.622	0.698	0.020	**1.90**	**1.97**	1.29	**25&26**
LTE Band 26Ant 3	Front	0.352	0.740	0.092	0.020	1.09	0.44	0.37	
	Back	0.530	0.622	0.698	0.020	1.15	1.23	0.55	
LTE Band 30Ant 2	Front	0.891	0.740	0.092	0.020	**1.63**	0.98	0.91	**27**
	Back	1.200	0.622	0.698	0.020	**1.82**	**1.90**	1.22	**28&29**
LTE Band 66Ant 1	Front	0.643	0.740	0.092	0.020	1.38	0.74	0.66	
	Back	1.227	0.622	0.698	0.020	**1.85**	**1.93**	1.25	**30&31**
LTE Band 71Ant 1	Front	0.724	0.740	0.092	0.020	1.46	0.82	0.74	
	Back	0.981	0.622	0.698	0.020	**1.60**	**1.68**	1.00	**32&33**
LTE Band 71Ant 3	Front	0.130	0.740	0.092	0.020	0.87	0.22	0.15	
	Back	0.207	0.622	0.698	0.020	0.83	0.91	0.23	
LTE Band 41_HPUEAnt 2	Front	1.020	0.740	0.092	0.020	**1.76**	1.11	1.04	**34**
	Back	1.260	0.622	0.698	0.020	**1.88**	**1.96**	1.28	**35&36**
LTE Band 41_Ant 2	Front	0.598	0.740	0.092	0.020	1.34	0.69	0.62	
	Back	0.848	0.622	0.698	0.020	1.47	1.55	0.87	
LTE Band 38_Ant 2	Front	0.967	0.740	0.092	0.020	**1.71**	1.06	0.99	**39**
	Back	1.299	0.622	0.698	0.020	**1.92**	**2.00**	1.32	**40&41**

<Sensor off>

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)	Case No.
		WWAN	2.4GHz WLAN Ant 5	5GHz WLAN Ant 6	Bluetooth Ant 5				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM850Ant 1	Front at 19mm	0.347	0.715	0.139	0.020	1.06	0.49	0.37	
	Back at 22mm	0.321	0.601	1.010	0.020	0.92	1.33	0.34	
GSM1900Ant 1	Front at 19mm	0.320	0.715	0.139	0.020	1.04	0.46	0.34	
	Back at 22mm	0.439	0.601	1.010	0.020	1.04	1.45	0.46	
WCDMA IIAnt 1	Front at 19mm	0.639	0.715	0.139	0.020	1.35	0.78	0.66	
	Back at 22mm	0.993	0.601	1.010	0.020	**1.59**	**2.00**	1.01	**37**
WCDMA IVAnt 1	Front at 19mm	0.660	0.715	0.139	0.020	1.38	0.80	0.68	
	Back at 22mm	0.438	0.601	1.010	0.020	1.04	1.45	0.46	
WCDMA VAnt 1	Front at 19mm	0.395	0.715	0.139	0.020	1.11	0.53	0.42	
	Back at 22mm	0.301	0.601	1.010	0.020	0.90	1.31	0.32	
LTE Band 7Ant 2	Front at 19mm	0.459	0.715	0.139	0.020	1.17	0.60	0.48	
	Back at 22mm	0.486	0.601	1.010	0.020	1.09	1.50	0.51	
LTE Band 25Ant 1	Front at 19mm	0.521	0.715	0.139	0.020	1.24	0.66	0.54	
	Back at 22mm	0.825	0.601	1.010	0.020	1.43	**1.84**	0.85	**38**
LTE Band 26Ant 1	Front at 19mm	0.331	0.715	0.139	0.020	1.05	0.47	0.35	
	Back at 22mm	0.354	0.601	1.010	0.020	0.96	1.36	0.37	
LTE Band 30Ant 2	Front at 19mm	0.213	0.715	0.139	0.020	0.93	0.35	0.23	
	Back at 22mm	0.169	0.601	1.010	0.020	0.77	1.18	0.19	
LTE Band 66Ant 1	Front at 19mm	0.541	0.715	0.139	0.020	1.26	0.68	0.56	
	Back at 22mm	0.395	0.601	1.010	0.020	1.00	1.41	0.42	
LTE Band 41_HPUEAnt 2	Front at 19mm	0.387	0.715	0.139	0.020	1.10	0.53	0.41	
	Back at 22mm	0.351	0.601	1.010	0.020	0.95	1.36	0.37	
LTE Band 41_Ant 2	Front at 19mm	0.374	0.715	0.139	0.020	1.09	0.51	0.39	
	Back at 22mm	0.327	0.601	1.010	0.020	0.93	1.34	0.35	
LTE Band 38Ant 2	Front at 19mm	0.274	0.715	0.139	0.020	0.99	0.41	0.29	
	Back at 22mm	0.262	0.601	1.010	0.020	0.86	1.27	0.28	

15.4 Product Specific Exposure Conditions

WWAN Band	Exposure Position	1 WWAN 10g SAR (W/kg)	2 2.4GHz WLAN Ant 5 10g SAR (W/kg)	3 5GHz WLAN Ant 6 10g SAR (W/kg)	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)	Case No.
GSM850Ant 1	Front	1.734	1.213	0.482	2.95	2.22	
	Back	1.708	0.568	0.482	2.28	2.19	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	0.950			0.95	0.95	
GSM1900Ant 1	Front	2.683	1.213	0.482	3.90	3.17	
	Back	2.558	0.568	0.482	3.13	3.04	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	3.551			3.55	3.55	
WCDMA IIAnt 1	Front	2.442	1.213	0.482	3.66	2.92	
	Back	2.515	0.568	0.482	3.08	3.00	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	3.411			3.41	3.41	
WCDMA IVAnt 1	Front	2.185	1.213	0.482	3.40	2.67	
	Back	2.765	0.568	0.482	3.33	3.25	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	3.521			3.52	3.52	
WCDMA VAnt 1	Front	2.189	1.213	0.482	3.40	2.67	
	Back	1.818	0.568	0.482	2.39	2.30	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	1.911			1.91	1.91	
LTE Band 7Ant 2	Front	2.525	1.213	0.482	3.74	3.01	
	Back	2.700	0.568	0.482	3.27	3.18	
	Left side	1.842			1.84	1.84	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	2.244			2.24	2.24	
LTE Band 13Ant 1	Front		1.213	0.482	1.21	0.48	
	Back	1.565	0.568	0.482	2.13	2.05	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side				0.00	0.00	
LTE Band 14Ant 1	Front		1.213	0.482	1.21	0.48	
	Back	1.305	0.568	0.482	1.87	1.79	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side				0.00	0.00	
LTE Band 25Ant 1	Front	2.748	1.213	0.482	3.96	3.23	

	Back	2.662	0.568	0.482	3.23	3.14	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	3.541			3.54	3.54	
LTE Band 26Ant 1	Front		1.213	0.482	1.21	0.48	
	Back	1.949	0.568	0.482	2.52	2.43	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side				0.00	0.00	
LTE Band 30Ant 2	Front	2.643	1.213	0.482	3.86	3.13	
	Back	3.418	0.568	0.482	**3.99**	**3.90**	
	Left side	2.236			2.24	2.24	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	2.312			2.31	2.31	
LTE Band 66Ant 1	Front	1.920	1.213	0.482	3.13	2.40	
	Back	2.565	0.568	0.482	3.13	3.05	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	3.439			3.44	3.44	
LTE Band 38Ant 2	Front	1.624	1.213	0.482	2.84	2.11	
	Back	2.229	0.568	0.482	2.80	2.71	
	Left side	1.885			1.89	1.89	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	1.913			1.91	1.91	
LTE Band 41_HPUEAnt 2	Front	1.275	1.213	0.482	2.49	1.76	
	Back	1.439	0.568	0.482	2.01	1.92	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	1.884			1.88	1.88	
LTE Band 41_Ant 2	Front	1.248	1.213	0.482	2.46	1.73	
	Back	1.406	0.568	0.482	1.97	1.89	
	Left side				0.00	0.00	
	Right side			0.482	0.00	0.48	
	Top side		0.762	0.482	0.76	0.48	
	Bottom side	1.831			1.83	1.83	

Remark:

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

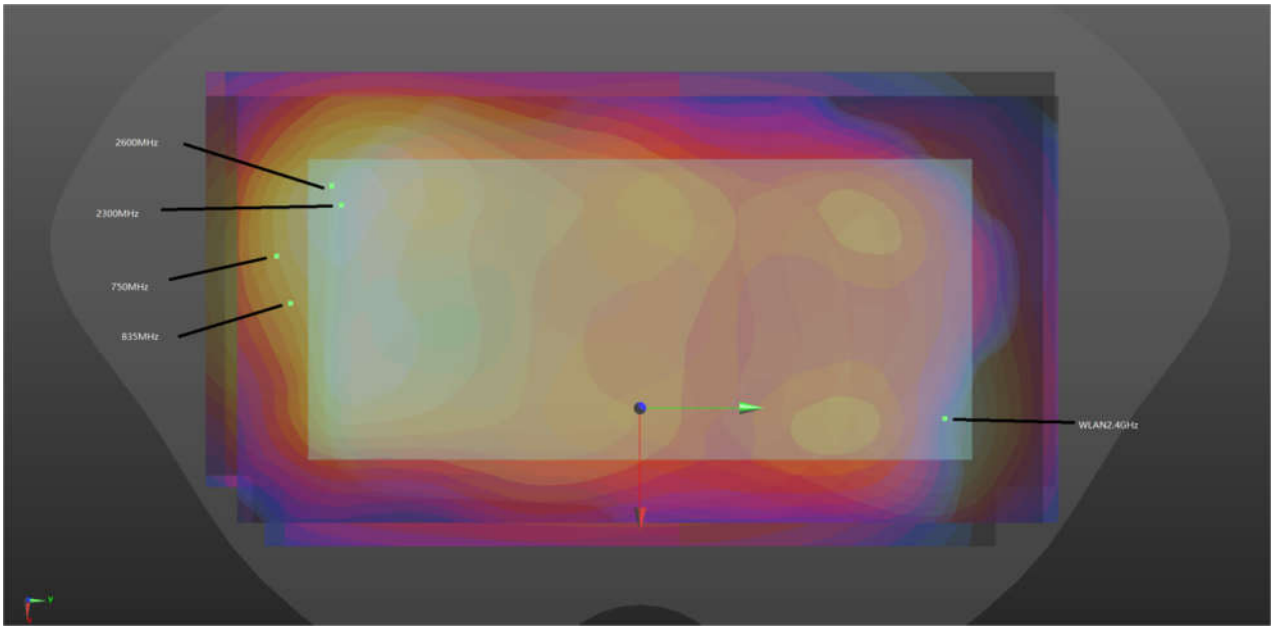
<Sensor off>

WWAN Band	Exposure Position	1 WWAN 10g SAR (W/kg)	2 2.4GHz WLAN Ant 5 10g SAR (W/kg)	3 5GHz WLAN Ant 6 10g SAR (W/kg)	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)
GSM1900Ant 1	Front at 9mm	0.639	1.213	0.482	1.85	1.12
	Back at 14mm	0.662	0.568	0.482	1.23	1.14
	Bottom side at 10mm	1.513			1.51	1.51
WCDMA IIAnt 1	Front at 9mm	1.326	1.129	0.482	2.46	1.81
	Back at 14mm	0.643	0.557	0.482	1.20	1.13
	Bottom side at 10mm	2.606			2.61	2.61
WCDMA IVAnt 1	Front at 9mm	1.310	1.129	0.482	2.44	1.79
	Back at 14mm	1.206	0.557	0.482	1.76	1.69
	Bottom side at 10mm	2.407			2.41	2.41
LTE Band 7Ant 2	Front at 2mm	2.316	1.129	0.482	3.45	2.80
	Back at 4mm	2.316	0.557	0.482	2.87	2.80
	Left side at 5mm	0.923			0.92	0.92
	Bottom side at 6mm	1.442			1.44	1.44
LTE Band 25Ant 1	Front at 9mm	1.041	1.129	0.482	2.17	1.52
	Back at 14mm	1.065	0.557	0.482	1.62	1.55
	Bottom side at 10mm	2.528			2.53	2.53
LTE Band 30Ant 2	Front at 2mm	1.570	1.129	0.482	2.70	2.05
	Back at 4mm	1.318	0.557	0.482	1.88	1.80
	Left side at 5mm	0.569			0.57	0.57
	Bottom side at 6mm	0.506			0.51	0.51
LTE Band 66Ant 1	Front at 9mm	1.034	1.129	0.482	2.16	1.52
	Back at 14mm	0.954	0.557	0.482	1.51	1.44
	Bottom side at 10mm	1.841			1.84	1.84
LTE Band 41_HPUEAnt 2	Front at 2mm	1.116	1.129	0.482	2.25	1.60
	Back at 4mm	1.039	0.557	0.482	1.60	1.52
	Bottom side at 6mm	1.389			1.39	1.39
LTE Band 41_Ant 2	Front at 2mm	0.963	1.129	0.482	2.09	1.45
	Back at 4mm	0.845	0.557	0.482	1.40	1.33
	Bottom side at 6mm	1.139			1.14	1.14

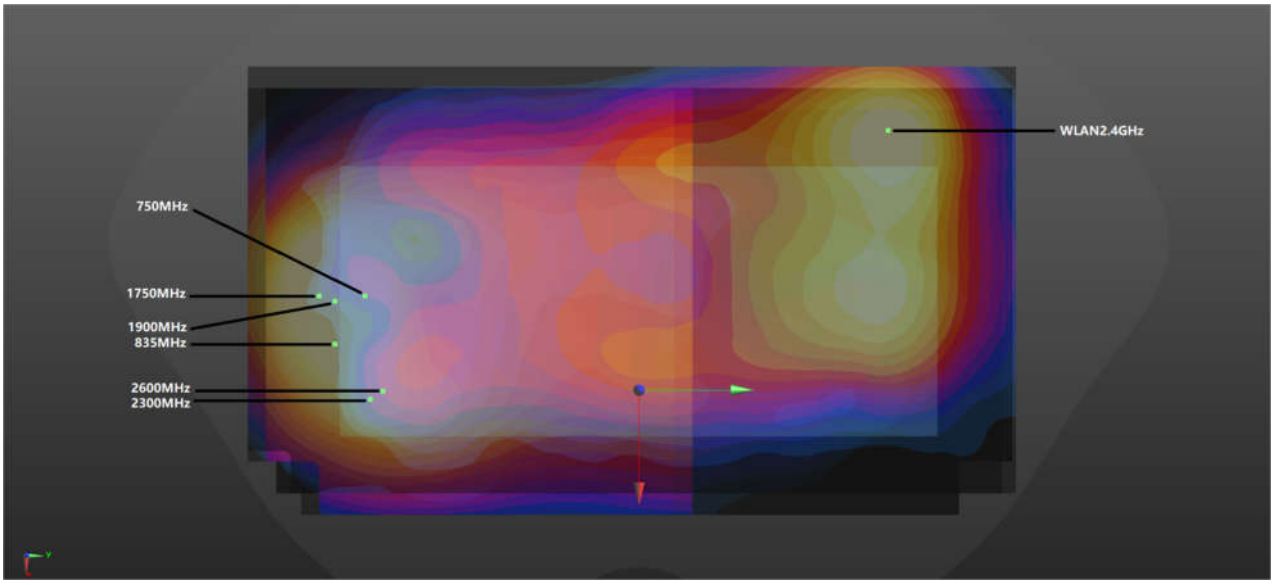
15.5 SPLSR Evaluation and Analysis

General Note:

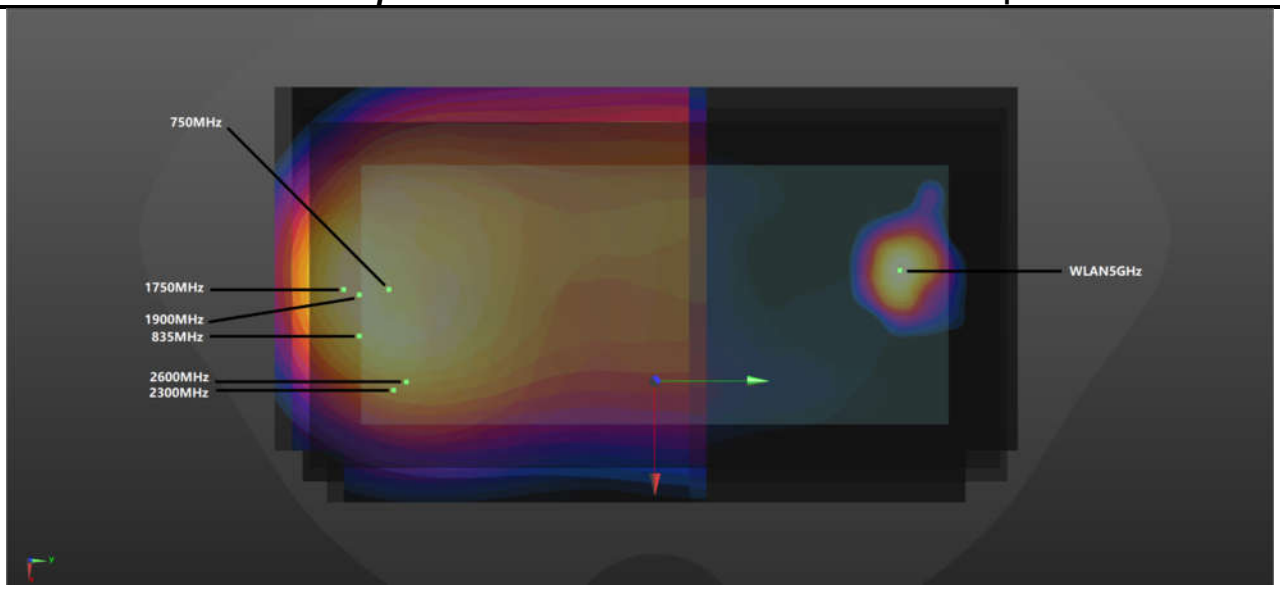
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as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



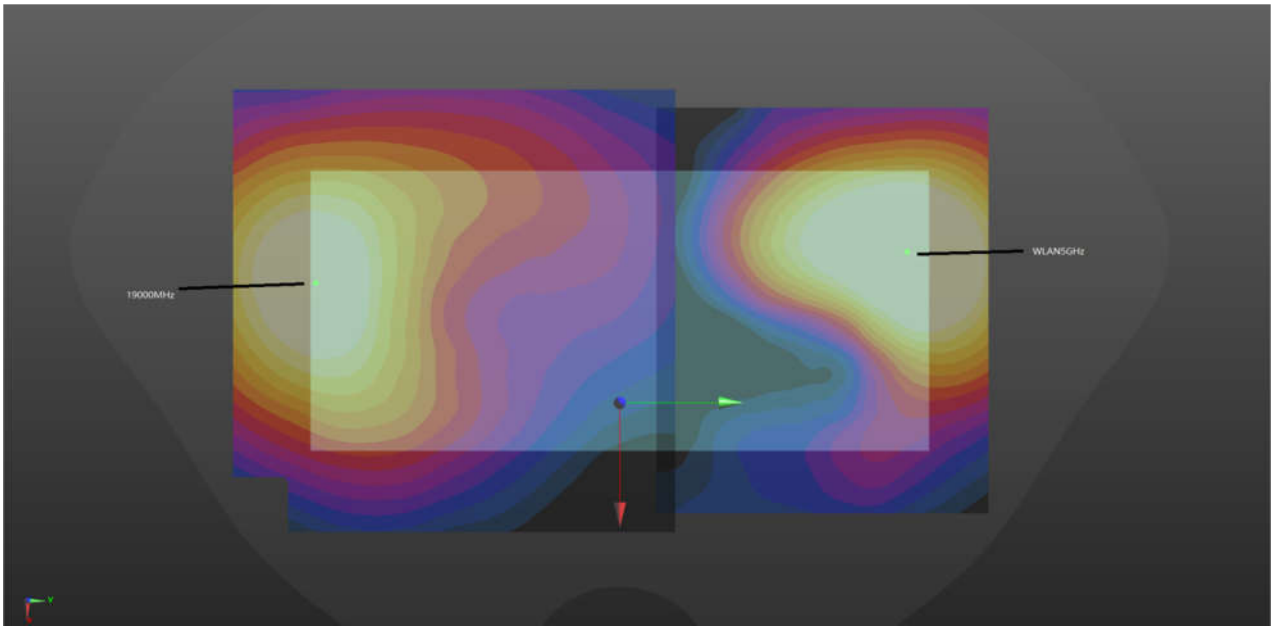
WWAN+WLAN2.4GHz_Front 5mm



WWAN+WLAN2.4GHz_Back 5mm



WWAN+WLAN5GHz_Back 5mm



WWAN+WLAN5GHz_Back 22mm

For Hotspot & Body-worn

Case NO.	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 1	GSM850	Back	1.369	5mm	13.5	-87	0.81	167.0	1.99	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 2	GSM850	Back	1.369	5mm	13.5	-87	0.81	159.5	2.07	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 3	GSM1900	Back	1.291	5mm	7.7	-85.4	0.77	163.5	1.91	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 4	GSM1900	Back	1.291	5mm	13.5	-87	0.81	159.5	1.99	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 5	WCDMA II	Back	1.384	5mm	2.9	-84	0.75	160.6	2.01	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 6	WCDMA II	Back	1.384	5mm	2.9	-84	0.75	155.4	2.08	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 7	WCDMA IV	Back	1.256	5mm	3	-85.4	0.75	162.0	1.88	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 8	WCDMA IV	Back	1.256	5mm	3	-85.4	0.75	156.8	1.95	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 9	WCDMA V	Front	0.926	5mm	-7.9	-88.5	0.81	159.5	1.67	0.01	Not required
	WLAN2.4GHz		0.74	5mm	-8.6	71	0.71				
Case 10	WCDMA V	Back	1.391	5mm	13.6	-87	0.84	167.0	2.01	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 11	WCDMA V	Back	1.391	5mm	13.6	-87	0.84	159.6	2.09	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 12	LTE Band 7	Front	0.991	5mm	-33.2	-82	0.68	166.5	1.73	0.01	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 13	LTE Band 7	Back	1.238	5mm	25.2	-72	0.82	158.0	1.86	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 14	LTE Band 7	Back	1.238	5mm	25.2	-72	0.82	146.9	1.94	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 15	LTE Band 12	Back	1.188	5mm	4.9	-77	0.71	154.6	1.81	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 16	LTE Band 12	Back	1.188	5mm	4.9	-77	0.71	148.6	1.89	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 17	LTE Band 13	Front	1.025	5mm	-13.5	-92	0.72	169.8	1.77	0.01	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 18	LTE Band 13	Back	1.414	5mm	-1.5	-83.4	0.68	158.8	2.04	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 19	LTE Band 13	Back	1.414	5mm	-1.5	-83.4	0.68	154.6	2.11	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 20	LTE Band 14	Front	1.134	5mm	-13.5	-92	0.72	169.8	1.87	0.02	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 21	LTE Band 14	Back	1.436	5mm	-1.5	-83.4	0.66	158.8	2.06	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 22	LTE Band 14	Back	1.436	5mm	-1.5	-83.4	0.66	154.6	2.13	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 23	LTE Band 25	Back	1.249	5mm	-8.8	-79.9	0.61	153.5	1.87	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 24	LTE Band 25	Back	1.249	5mm	-8.8	-79.9	0.61	150.9	1.95	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 25	LTE Band 26	Back	1.274	5mm	-1.5	-85	0.64	160.3	1.90	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				

Case 26	LTE Band 26	Back	1.274	5mm	-1.5	-85	0.64	156.2	1.97	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 27	LTE Band 30	Front	0.891	5mm	-26.4	-78.6	0.75	160.9	1.63	0.01	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 28	LTE Band 30	Back	1.2	5mm	29.6	-72.2	0.9	160.2	1.82	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 29	LTE Band 30	Back	1.2	5mm	29.6	-72.2	0.9	148.2	1.90	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 30	LTE Band 66	Back	1.227	5mm	-3.1	-84	0.7	158.9	1.85	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 31	LTE Band 66	Back	1.227	5mm	-3.1	-84	0.7	155.1	1.93	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 32	LTE Band 71	Back	0.981	5mm	-1.5	-81.9	0.69	157.3	1.60	0.01	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 33	LTE Band 71	Back	0.981	5mm	-1.5	-81.9	0.69	153.1	1.68	0.01	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 34	LTE Band 41(HPUE)	Front	1.02	5mm	-27.4	-79.8	0.84	162.3	1.76	0.01	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 35	LTE Band 41(HPUE)	Back	1.26	5mm	26.2	-73.2	0.87	159.5	1.88	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 36	LTE Band 41(HPUE)	Back	1.26	5mm	26.2	-73.2	0.87	148.3	1.96	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				
Case 39	LTE Band 41(HPUE)	Front	0.967	5mm	-29.3	-81.3	0.71	164.4	1.71	0.01	Not required
	WLAN2.4GHz		0.74	5mm	29.6	72.2	0.82				
Case 40	LTE Band 41(HPUE)	Back	1.299	5mm	25.6	-78.5	0.85	164.0	1.92	0.02	Not required
	WLAN2.4GHz		0.622	5mm	-46	69	0.66				
Case 41	LTE Band 41(HPUE)	Back	1.299	5mm	25.6	-78.5	0.85	153.4	2.00	0.02	Not required
	WLAN5GHz		0.698	5mm	-8.6	71	0.71				

For Sensor off

Case NO.	Band	Position	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				(mm)	X	Y	Z				
Case 37	WCDMA II	Back	0.993	22mm	-7.5	-82.5	0.69	163.0	2.00	0.02	Not required
	WLAN5Ghz		1.01	22mm	-14.4	80.4	0.89				
Case 38	LTE Band 25	Back	0.825	22mm	-7.5	-88.9	0.69	169.4	1.84	0.01	Not required
	WLAN5Ghz		1.01	22mm	-14.4	80.4	0.89				

Test Engineer : Nick Hu, Seven Xu, Bruce Li

16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 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.

17. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.

[7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[11] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[12] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[13] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

------THE END------

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.11.25

System Check_Head_750MHz

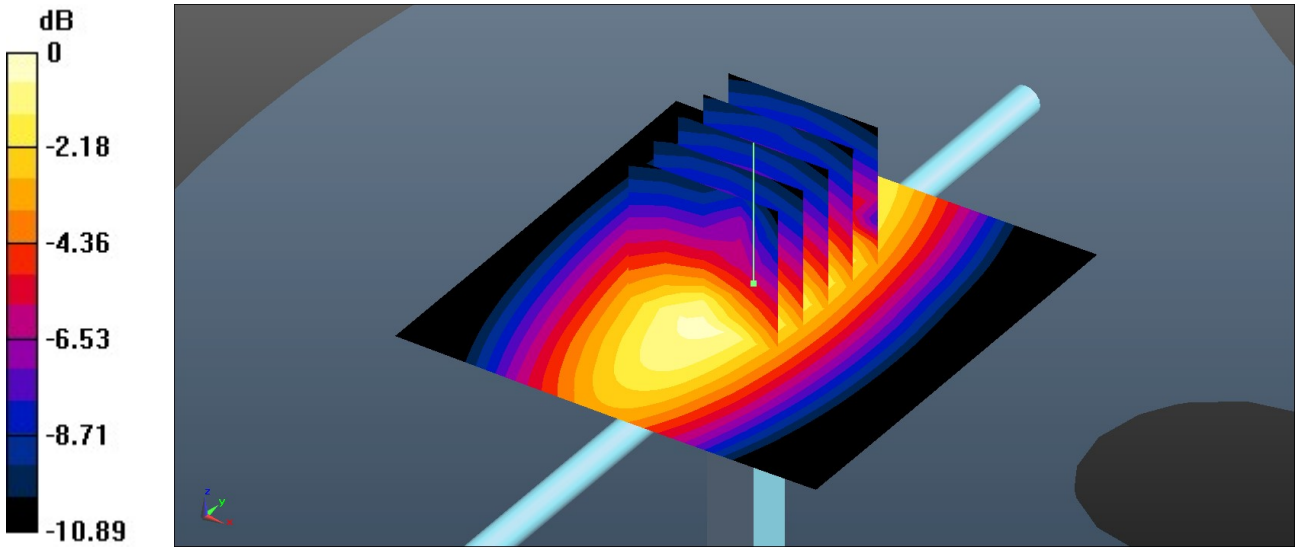
DUT: D750V3 - SN:1087

Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.909 S/m; ε_r = 43.498; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7630; ConvF(10.38, 10.38, 10.38); Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.562 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.81 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.559 W/kg



0 dB = 0.559 W/kg = -2.53 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.11.25

System Check_Head_835MHz

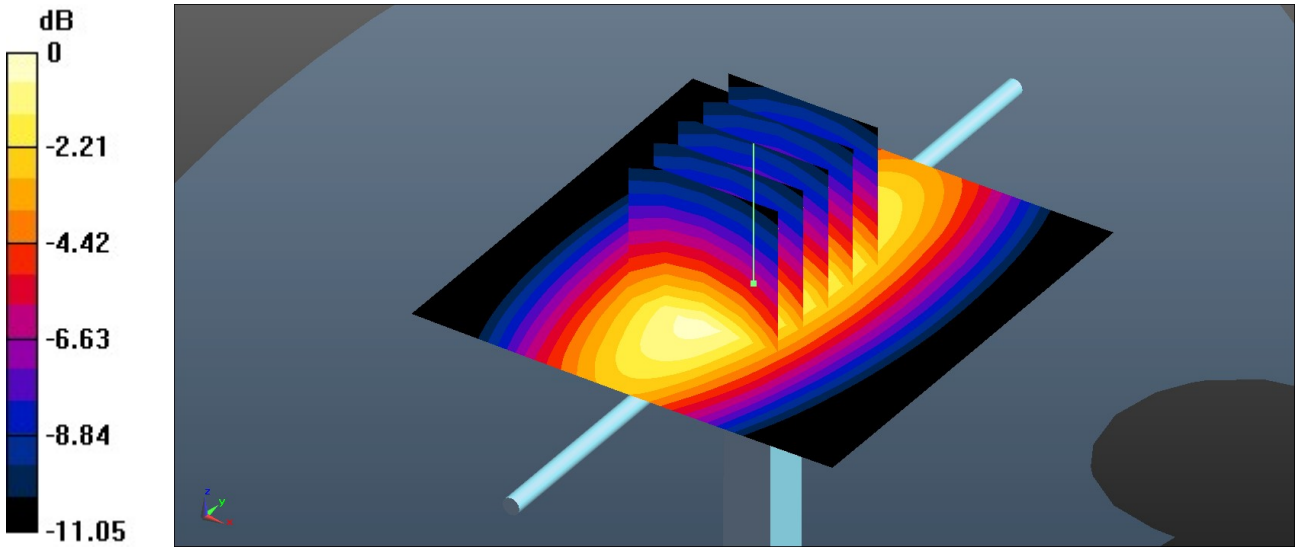
DUT: D835V2 - SN:4d258

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835 Medium parameters used: f = 835 MHz; σ = 0.934 S/m; ε_r = 41.804; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7630; ConvF(10.24, 10.24, 10.24); Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.685 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.10 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.329 W/kg
Maximum value of SAR (measured) = 0.690 W/kg



0 dB = 0.690 W/kg = -1.61 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.11.25

System Check_Head_1750MHz

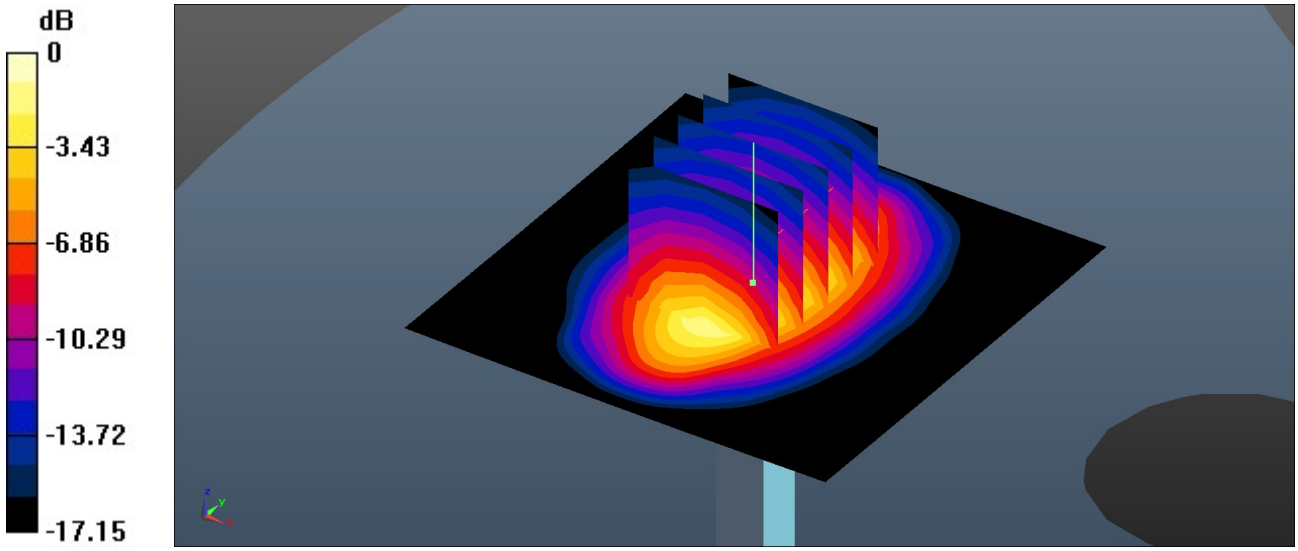
DUT: D1750V2 - SN:1090

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.37 S/m; ε_r = 41.286; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7630; ConvF(8.86, 8.86, 8.86); Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.90 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.55 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.978 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.11.25

System Check_Head_1900MHz

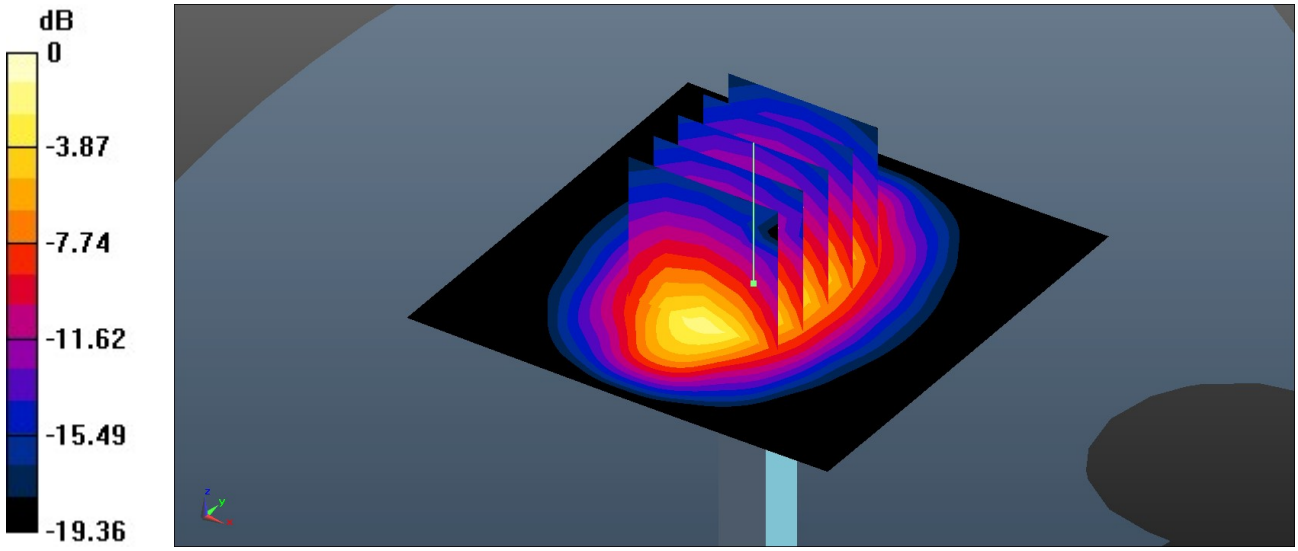
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.434 S/m; ε_r = 39.914; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7630; ConvF(8.56, 8.56, 8.56); Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.24 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.65 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 3.99 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.06 W/kg
Maximum value of SAR (measured) = 3.31 W/kg



0 dB = 3.31 W/kg = 5.20 dBW/kg