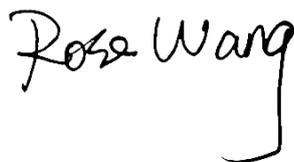


# FCC SAR Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2052-1, XT2052-5, XT2052DL,  
XT2052-6  
FCC ID : IHDT56YQ1  
STANDARD : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2013

The product was received on Dec. 21, 2019 and testing was started from Mar. 15, 2020 and completed on Mar. 28, 2020. We, Sporton International (Kunshan) Inc, would like to declare that the tested sample has been evaluated in accordance with the procedures and had 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.



Reviewed by: Rose Wang / Supervisor



Approved by: Kat Yin / Manager



**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
FA9D2102	Rev. 01	Initial issue of report	Apr. 03, 2020



### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2052-1, XT2052-5, XT2052DL, XT2052-6**, 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	0.42	1.39	1.39	1.58
		GSM1900	<0.10	1.25	1.25	
	WCDMA	Band II	<0.10	1.29	1.29	
		Band IV	0.08	1.25	1.21	
		Band V	0.52	1.23	1.23	
	CDMA	BC10	0.39	1.07	1.16	
		BC0	0.49	1.34	1.35	
		BC1	0.11	1.39	1.31	
	LTE	Band 7	0.51	1.39	1.39	
		Band 12/Band 17	0.39	0.82	0.82	
		Band 13	0.38	1.34	1.21	
		Band 25/Band 2	<0.10	1.33	1.33	
		Band 26/Band 5	0.44	1.28	1.28	
		Band 66/Band 4	0.11	1.38	1.38	
		Band 71	0.31	1.00	0.75	
		Band 41/Band 38	0.72	<b>1.41</b>	<b>1.41</b>	
DTS	WLAN	2.4GHz WLAN	<b>1.20</b>	1.00	1.00	1.58
NII		5GHz WLAN	0.18	1.34	1.34	1.54
DSS	Bluetooth	2.4GHz Bluetooth	0.26	0.11	0.11	1.54
Highest 10g SAR Summary						
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)		Highest Simultaneous Transmission 10g SAR (W/kg)	
Licensed	GSM	GSM850	0.60		3.91	
		GSM1900	2.53			
	WCDMA	Band II	3.23			
		Band IV	3.39			
		Band V	3.39			
	CDMA	BC0	1.35			
		BC1	3.38			
	LTE	Band 7	<b>3.51</b>			
		Band 13	2.90			
		Band 26/Band 5	1.55			
		Band 25/Band 2	3.42			
Band 66/Band 4		3.37				
		Band 41/Band 38	3.47			
DTS	WLAN	2.4GHz WLAN	2.65		3.91	
NII		5GHz WLAN	3.30		3.83	
Date of Testing:			2020/3/15~2020/3/28			



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

**Declaration of Conformity:**

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

**Comments and Explanations:**

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

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



### 2. Administration Data

Sporton International (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.	FCC Designation No.	FCC Test Firm Registration No.
	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	XT2052-1, XT2052-5, XT2052DL, XT2052-6
FCC ID	IHDT56YQ1
IMEI Code	351636110020043
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz CDMA2000 BC0: 824.7 MHz ~ 848.31 MHz CDMA 2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA 2000 BC10: 817.9 MHz ~ 823.1 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) CDMA2000 : 1xRTT/1xEv-Do(Rev.0)/1xEv-Do(Rev.A) LTE: QPSK, 16QAM, 64QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth BR/EDR/LE
HW Version	DVT2
SW Version	QPG30.69
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:	<ol style="list-style-type: none"> <li>802.11n-HT40 is not supported in 2.4GHz WLAN.</li> <li>This device supports VoIP in GPRS, EGPRS, CDMA, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.</li> <li>This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.</li> <li>This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).</li> </ol>



5. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
6. This device supports HPUE for LTE band 41 with class 2 power level, so HPUE SAR has been performed.
7. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN2.4GHz.
8. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. When front or back body worn condition is detected, GSM850/GSM1900, WCDMA band II/IV/V, CDMA BC1, LTE band 2/4/5/7/25/26/66/38/41/41HPUE and WLAN2.4GHz/WLAN5.2GHz/5.3GHz/5.5GHz/5.8GHz reduced power will be active.
9. P-sensor can detect handheld state, WCDMA band II/IV, CDMA BC1 and LTE B2/4/7/25/66/38/41/41HPUE for front/back/left sides/bottom sides of product specific 10g SAR condition reduced powers will be active.
10. When handheld state, when WWAN transmit simultaneous with WLAN/Bluetooth, for WLAN5.2GHz/5.3GHz/5.8GHz, product specific 10g SAR condition reduced powers will be active for back side. Other faces full power can be tested pass, so reduced power no need to be evaluated.
11. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM850/GSM1900, WCDMA band II/IV/V, CDMA BC1, LTE band 2/4/5/7/13/25/26/66/38/41/41HPUE and 2.4GHz /WLAN/5.2GHz/WLAN/5.8GHz.
12. For P-sensor reduced power level is higher than hotspot reduced power for GSM1900, WCDMA band II/IV, LTE band 2/4/5/7/25/26/66/38/41/41HPUE, so for front/back P-sensor SAR can represent conservatively for front/back hotspot SAR.
13. This device has two WWAN transmitter antennas. WWAN antenna 1 is located at the right of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include GSM850/1900, WCDMA Band II/IV/V, CDMA2000 BC0/BC1/BC10, and LTE Band 2/4/5/12/13/17/25/26/66/71, WWAN antenna 2 frequency band include LTE Band 7/38/41.
14. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the WCDMA, CDMA and LTE modes of WWAN antenna 1. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner and supplemental data for additional information on section16.



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56YQ1																																																														
Equipment Name	Mobile Cellular Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz LTE Band 71: 665.5 MHz ~ 695.5 MHz																																																														
Channel Bandwidth	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R12, Cat7																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						MPR (dB)																																																								
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz																																																									
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64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																								
256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes 1. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. When front or back body worn condition is detected, LTE band 2/4/5/7/25/26/66/38/41/41HPUE reduced power will be active. (P-sensor can't work at detecting presence of the user's body at the four edges of the device.) 2. P-sensor can detect handheld state, LTE B2/4/7/25/66/38/41/41HPUE for front/back/bottom sides of product specific 10g SAR condition reduced powers will be active. 3. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of LTE band 2/4/5/7/13/25/26/66/38/41/41HPUE.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for LTE B41C 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 uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.



Transmission (H, M, L) channel numbers and frequencies in each LTE band																
LTE Band 2																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860				
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880				
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900				
LTE Band 4																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720				
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5				
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745				
LTE Band 5																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844				
LTE Band 7																
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	21350	2560				
LTE Band 12																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711				
LTE Band 13																
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782		23230		782		23230		782	
M	23230		782		23230		782		23230		782		23230		782	
H	23255		784.5		23230		782		23230		782		23230		782	
LTE Band 17																
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz			
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23755		706.5		23780		709		23780		709		23780		709	
M	23790		710		23790		710		23790		710		23790		710	
H	23825		713.5		23800		711		23800		711		23800		711	
LTE Band 25																
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860				
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880				
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905				

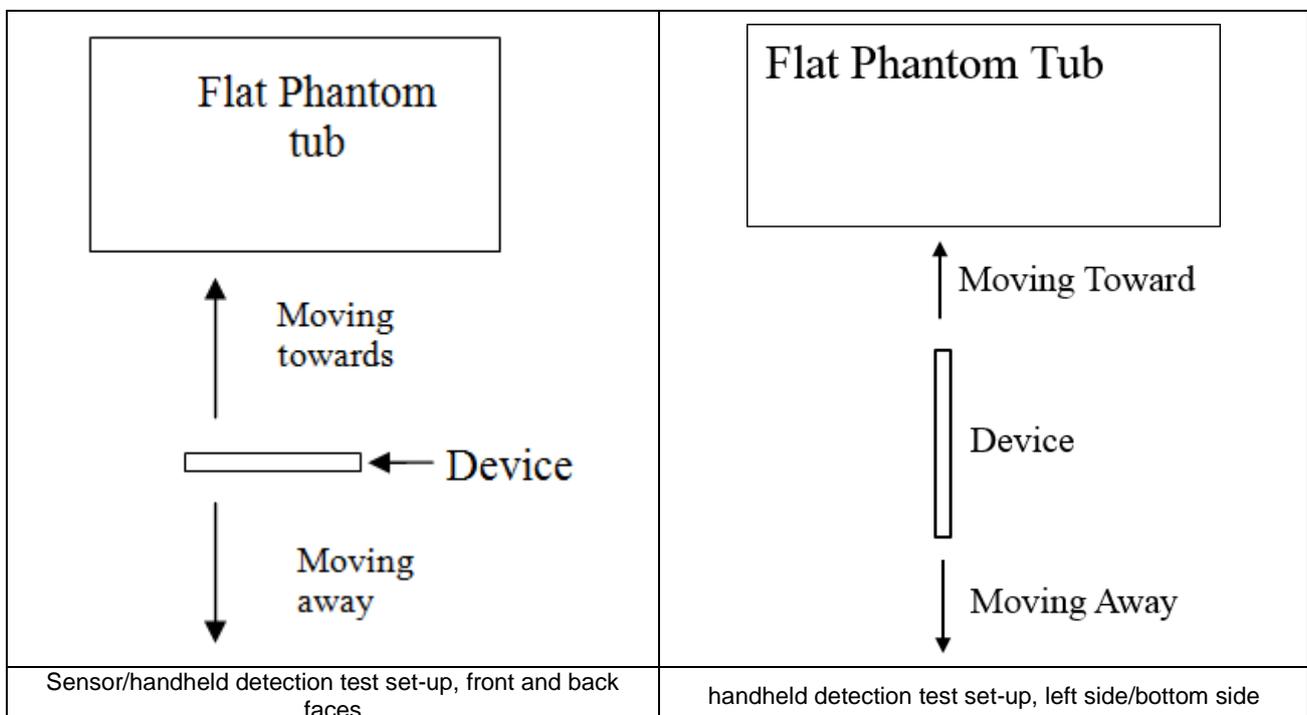


LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
M	26865	831.5	26865	831.5	26865	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 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

### 5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

- 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 (5825MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
- Capacitive proximity sensor placed coincident with antenna elements at the bottom end of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back or bottom or left side surface of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
- When the proximity sensor is active, GSM850/GSM1900, WCDMA band II/IV/V, CDMA BC1, LTE band 2/4/5/7/25/26/66/38/41/41HPUE and WLAN2.4GHz/WLAN5.2GHz/5.3GHz/5.5GHz/5.8GHz reduced power will be active for front/ back body worn SAR.
- P-sensor can detect handheld state, WCDMA band II/IV, CDMA BC1 and LTE B2/4/7/25/66/38/41/41HPUE for front/back/left sides/bottom sides of product specific 10g SAR condition reduced powers will be active for handheld SAR.
- The proximity sensors used to detect the proximity of the user's body at the front or back or left side or bottom side surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:  
Front: [15 mm](#)  
Back: [19 mm](#)
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for handheld:  
Front: [5 mm](#)  
Back: [9 mm](#)  
bottom side: [11 mm](#)  
left side: [5 mm](#)





<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	17	25	20	34

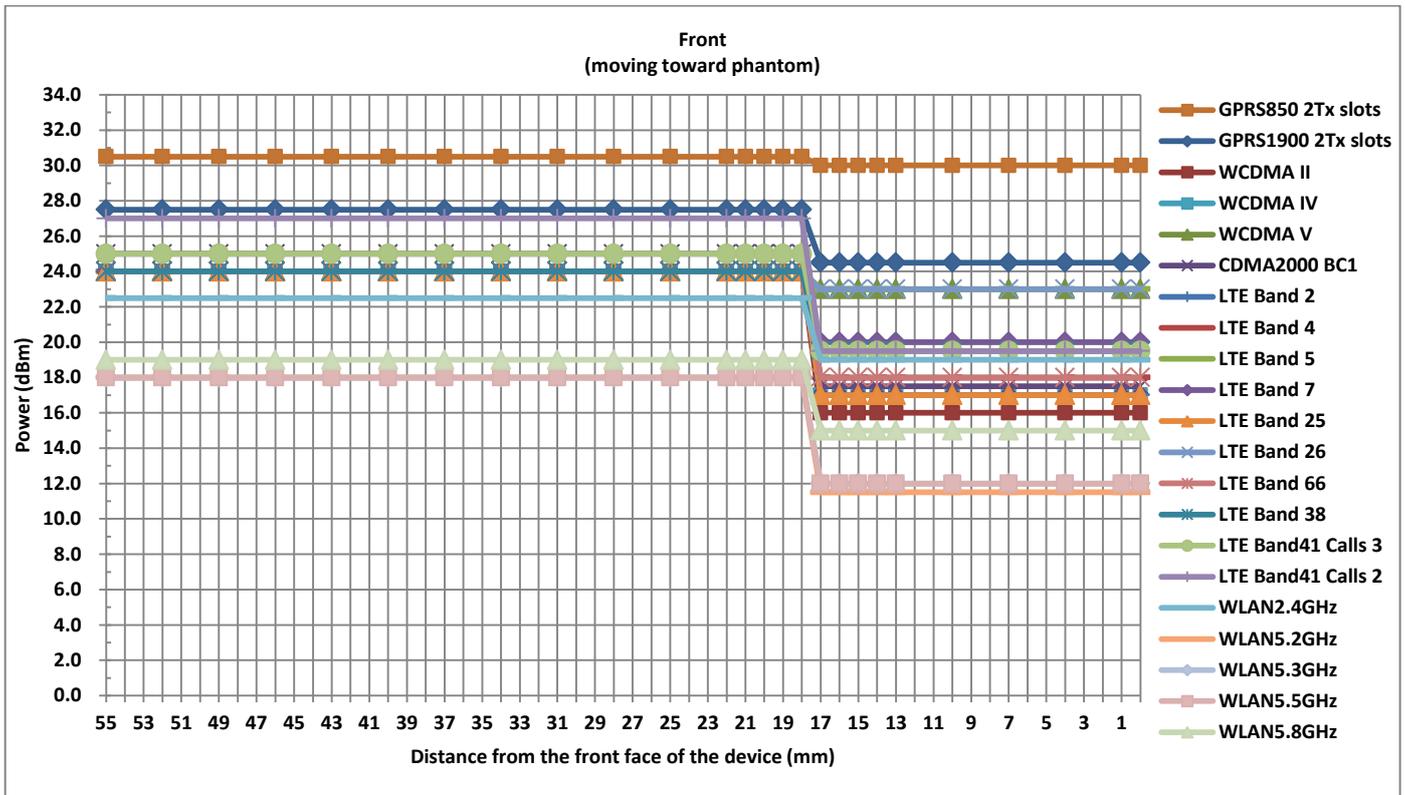
TX. Band	Proximity Sensor Triggering Power (dBm)		
	Full	Reduced	power reduction (dB)
	max. tune up limit (dBm)	max. tune up limit(dBm)	
GPRS850 2 Tx slots	30.5	30	0.5
GPRS1900 2 Tx slots	27.5	24.5	3
WCDMA Band II	24	16	8
WCDMA Band IV	24	17	7
WCDMA Band V	24	23	1
CDMA BC1	25	17.5	7.5
LTE Band 2	24	17	7
LTE Band 4	24	18	6
LTE Band 5	24	23	1
LTE Band 7	24	20	4
LTE Band 25	24	17	7
LTE Band 26	24	23	1
LTE Band 66	24	18	6
LTE Band 38	24	19.5	4.5
LTE Band 41 PL3	25	19.5	5.5
LTE Band 41 PL2	27	19.5	7.5
WLAN2.4GHz	22.5	19	3.5
WLAN5.2GHz	18	11.5	6.5
WLAN5.3GHz	18	12	6
WLAN5.5GHz	18	12	6
WLAN5.8GHz	19	15	4



Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)

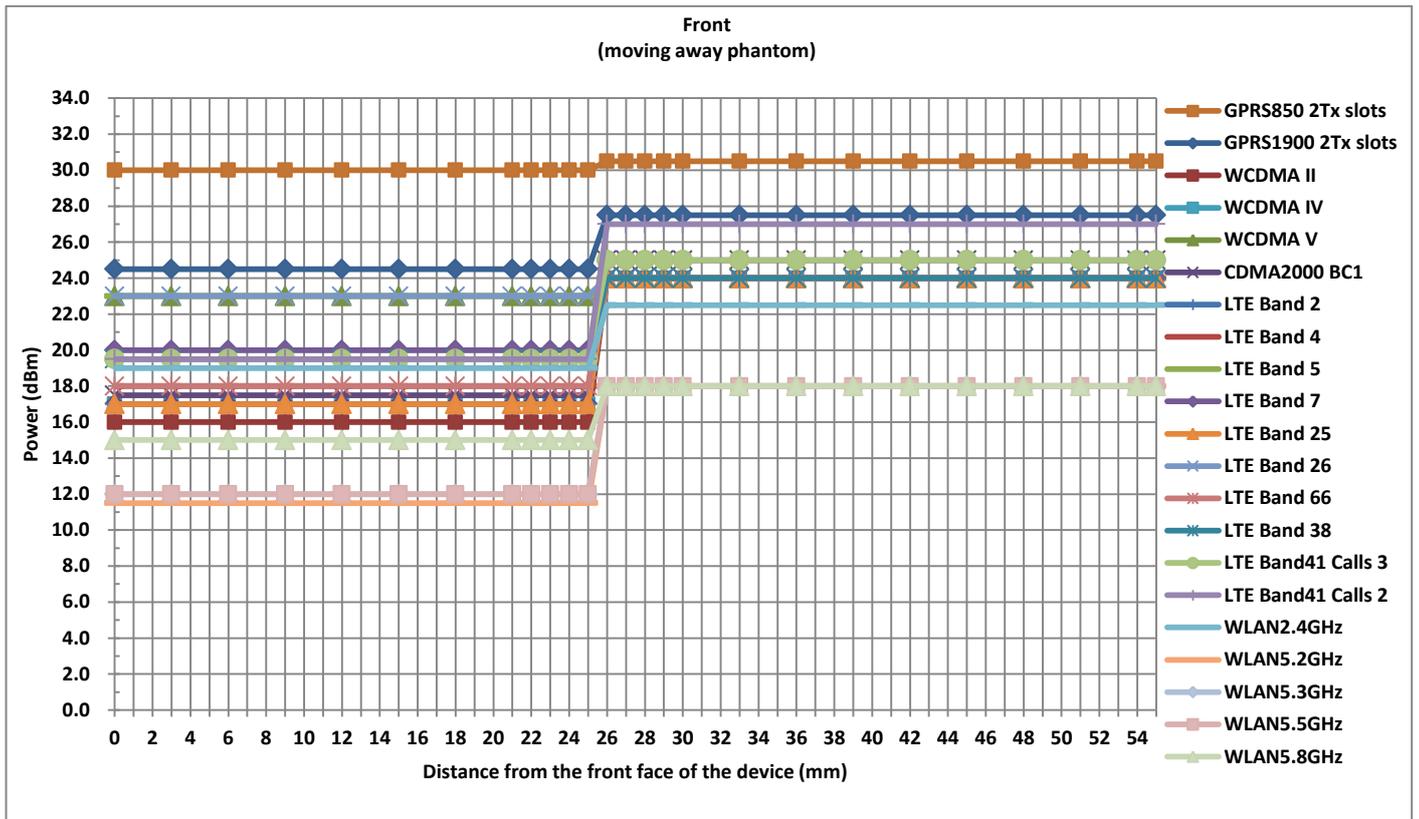
Front

Distance	55	52	49	46	43	40	37	34	31	28	25	22	21	20	19	18	17	16	15	14	13	10	7	4	1	0
GPRS850 2 Tx slots	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30	30	30	30	30	30	30	30	30	30
GPRS1900 2 Tx slots	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
WCDMA Band II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	16	16	16	16	16	16	16	16	16	16
WCDMA Band IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17
WCDMA Band V	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
LTE Band 2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17
LTE Band 4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18
LTE Band 5	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23
LTE Band 7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	20	20	20	20	20	20	20	20	20
LTE Band 25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17
LTE Band 26	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23
LTE Band 66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18
LTE Band 38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
WLAN2.4GHz	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	19	19	19	19	19	19	19	19	19	19
WLAN5.2GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
WLAN5.3GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12
WLAN5.5GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12
WLAN5.8GHz	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	15	15	15	15	15	15	15	15	15



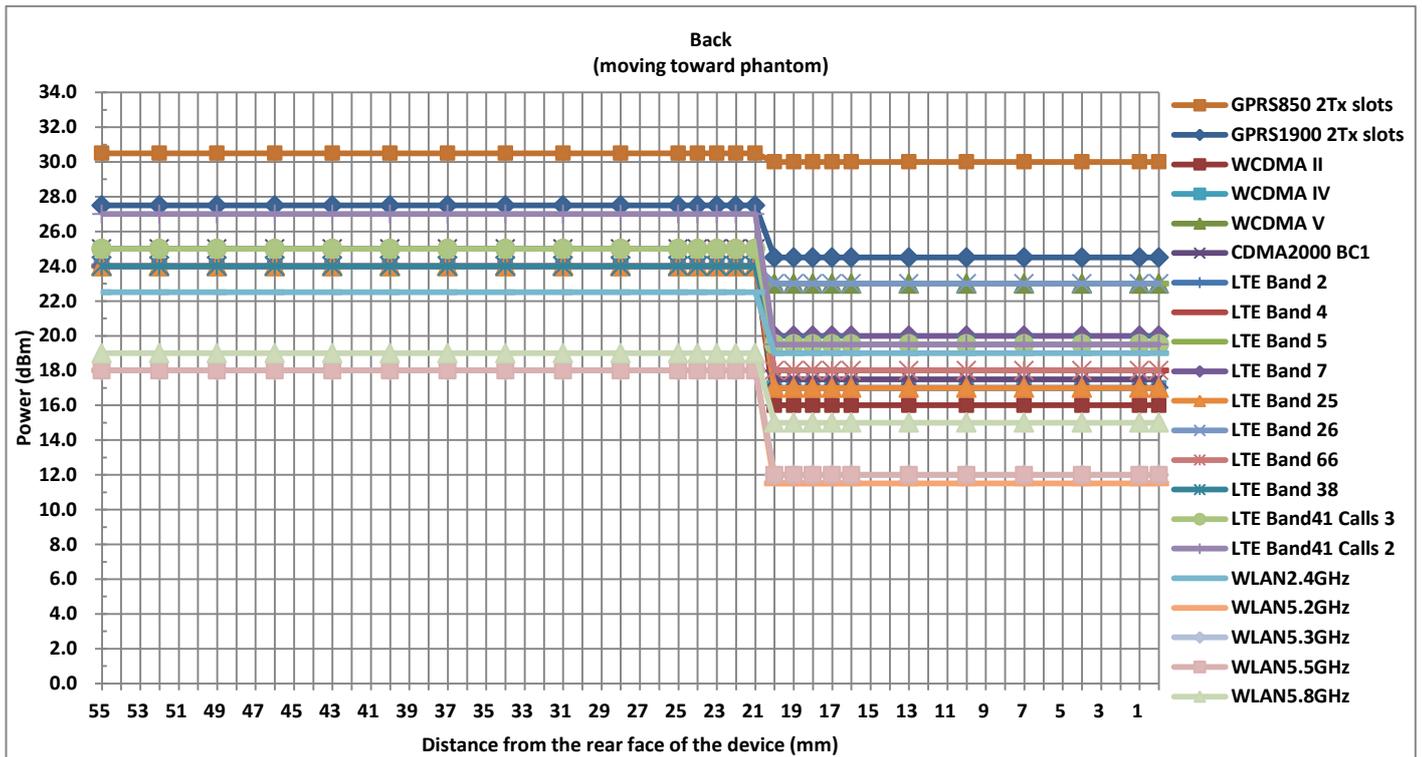


Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																										
Front																										
Distance	55	54	51	48	45	42	39	36	33	30	29	28	27	26	25	24	23	22	21	18	15	12	9	6	3	0
GPRS850 2 Tx slots	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30	30	30	30	30	30	30	30	30	30	30	30
GPRS1900 2 Tx slots	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
WCDMA Band II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	16	16	16	16	16	16	16	16	16	16	16	16
WCDMA Band IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17
WCDMA Band V	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
LTE Band 2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17
LTE Band 4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18	18
LTE Band 5	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23
LTE Band 7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	20	20	20	20	20	20	20	20	20	20	20
LTE Band 25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17
LTE Band 26	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23
LTE Band 66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18	18
LTE Band 38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
WLAN2.4GHz	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	19	19	19	19	19	19	19	19	19	19	19	19
WLAN5.2GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
WLAN5.3GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12	12
WLAN5.5GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12	12
WLAN5.8GHz	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	15	15	15	15	15	15	15	15	15	15	15



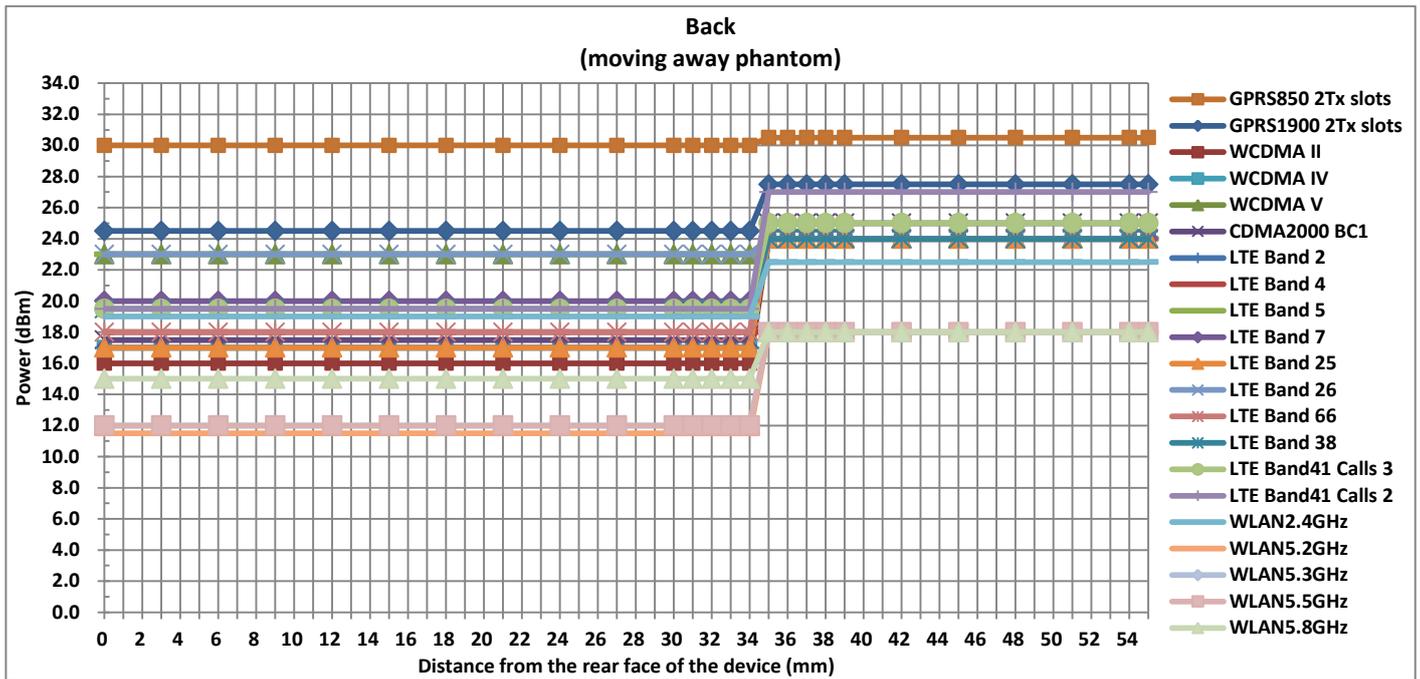


Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																										
Back																										
Distance	55	52	49	46	43	40	37	34	31	28	25	24	23	22	21	20	19	18	17	16	13	10	7	4	1	0
GPRS850 2 Tx slots	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30	30	30	30	30	30	30	30	30	30	30
GPRS1900 2 Tx slots	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
WCDMA Band II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	16	16	16	16	16	16	16	16	16	16	16
WCDMA Band IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17
WCDMA Band V	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
LTE Band 2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17
LTE Band 4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18
LTE Band 5	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23
LTE Band 7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20	20	20	20	20	20	20	20	20	20	20
LTE Band 25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17
LTE Band 26	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23
LTE Band 66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18
LTE Band 38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
WLAN2.4GHz	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	19	19	19	19	19	19	19	19	19	19	19
WLAN5.2GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
WLAN5.3GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12
WLAN5.5GHz	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12
WLAN5.8GHz	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	15	15	15	15	15	15	15	15	15	15	15





Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																										
Back																										
Distance	55	54	51	48	45	42	39	38	37	36	35	34	33	32	31	30	27	24	21	18	15	12	9	6	3	0
GPRS850 2 Tx slots	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30.5	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
GPRS1900 2 Tx slots	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5
WCDMA Band II	24	24	24	24	24	24	24	24	24	24	24	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
WCDMA Band IV	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
WCDMA Band V	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
LTE Band 2	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
LTE Band 4	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
LTE Band 5	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
LTE Band 7	24	24	24	24	24	24	24	24	24	24	24	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
LTE Band 25	24	24	24	24	24	24	24	24	24	24	24	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
LTE Band 26	24	24	24	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
LTE Band 66	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
LTE Band 38	24	24	24	24	24	24	24	24	24	24	24	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
WLAN2.4GHz	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
WLAN5.2GHz	18	18	18	18	18	18	18	18	18	18	18	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
WLAN5.3GHz	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
WLAN5.5GHz	18	18	18	18	18	18	18	18	18	18	18	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
WLAN5.8GHz	19	19	19	19	19	19	19	19	19	19	19	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

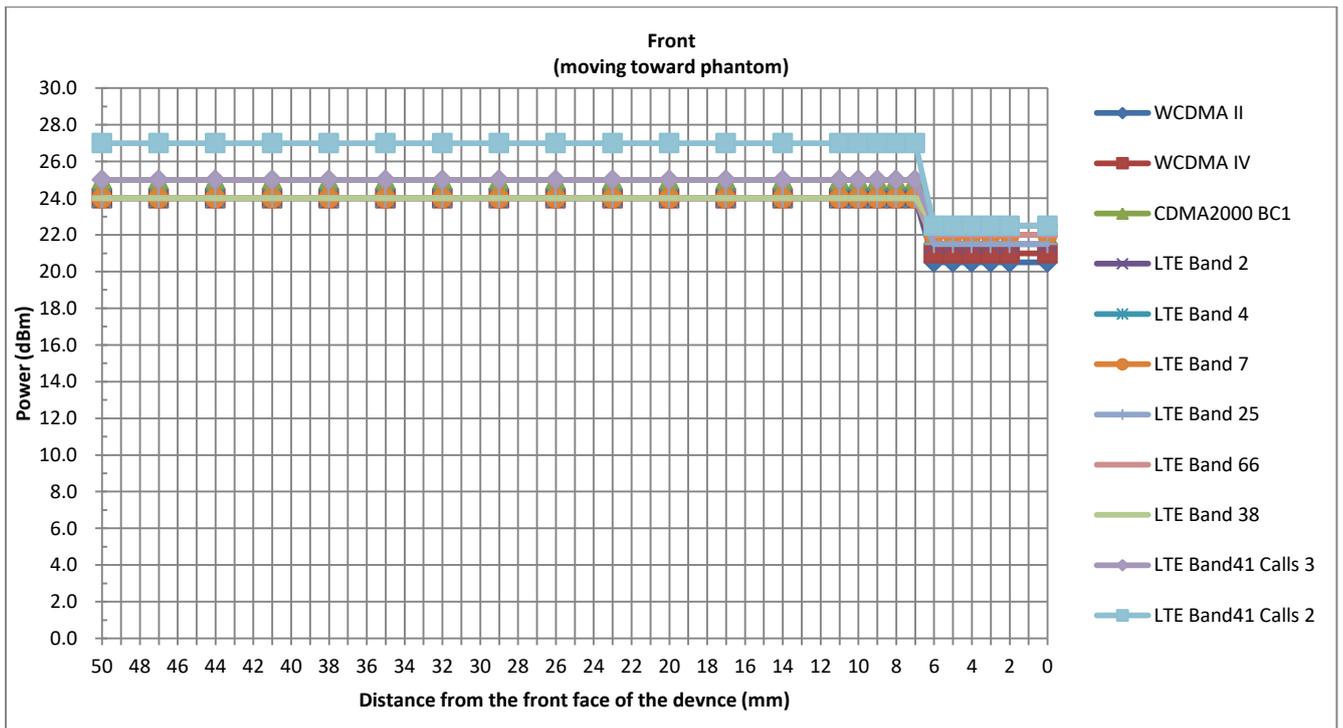


**<Handheld>**

Position	Front		Back		Bottom Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	15	12	17	12	16	6	16

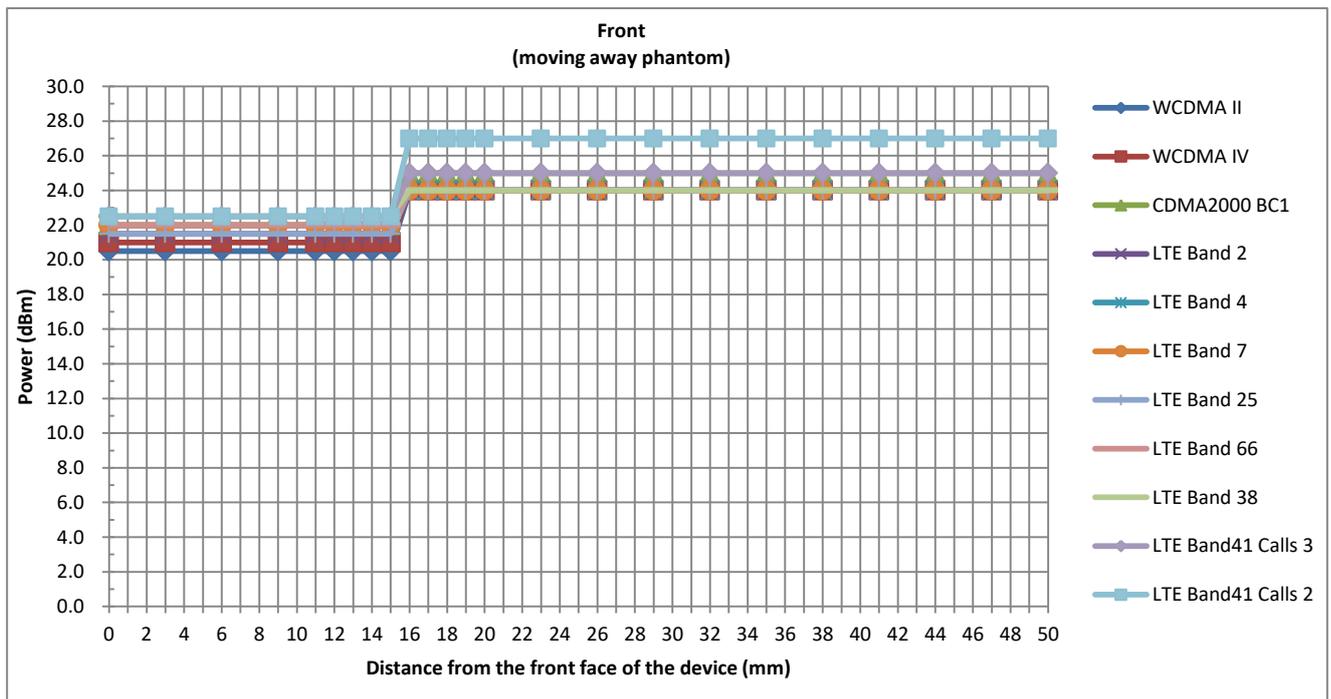
TX. Band	Handheld Triggering Power (dBm)		
	Full	Reduced	power reduction (dB)
	max. tune up limit (dBm)	max. tune up limit(dBm)	
WCDMA II	24	20.5	3.5
WCDMA IV	24	21	3
CDMA BC1	25	22	3
LTE Band2	24	21.5	2.5
LTE Band4	24	22	2
LTE Band7	24	22	2
LTE Band25	24	21.5	2.5
LTE Band66	24	22	2
LTE Band38	24	22.5	1.5
LTE Band 41 PL3	25	22.5	2.5
LTE Band 41 PL2	27	22.5	4.5

Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Front																								
Distance	50	47	44	41	38	35	32	29	26	23	20	17	14	11	10	9	8	7	6	5	4	3	2	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5



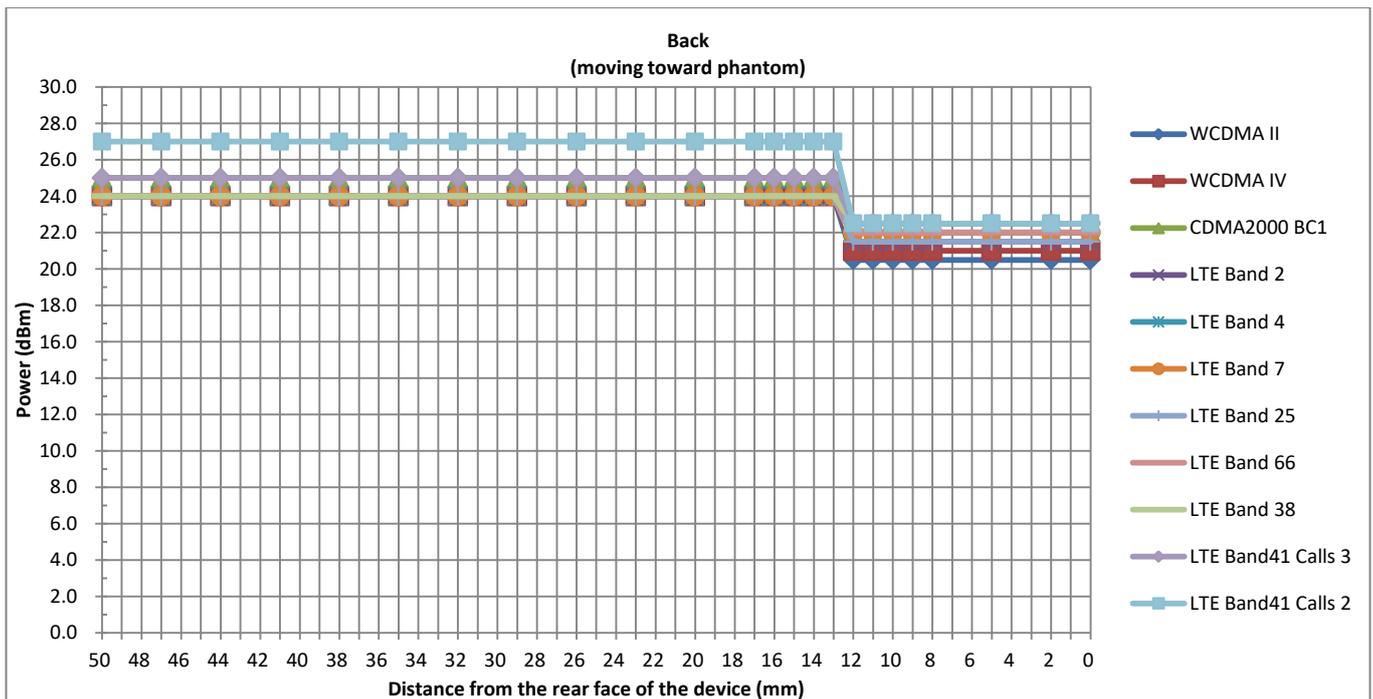


Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Front																								
Distance	50	47	44	41	38	35	32	29	26	23	20	19	18	17	16	15	14	13	12	11	9	6	3	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5





Handheld Triggering Distance (mm) and Triggering Power (dBm)																						
Back																						
Distance	50	47	44	41	38	35	32	29	26	23	20	17	14	13	12	11	10	9	8	5	2	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5

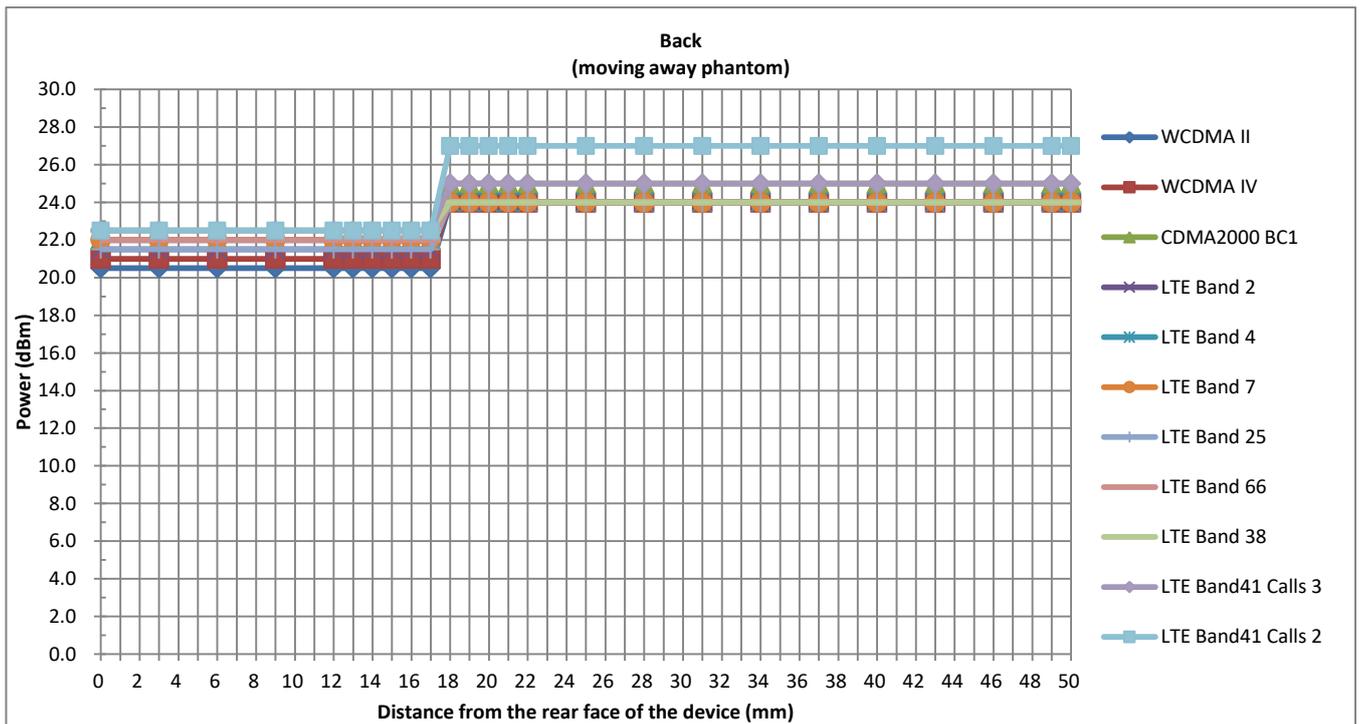




Handheld Triggering Distance (mm) and Triggering Power (dBm)

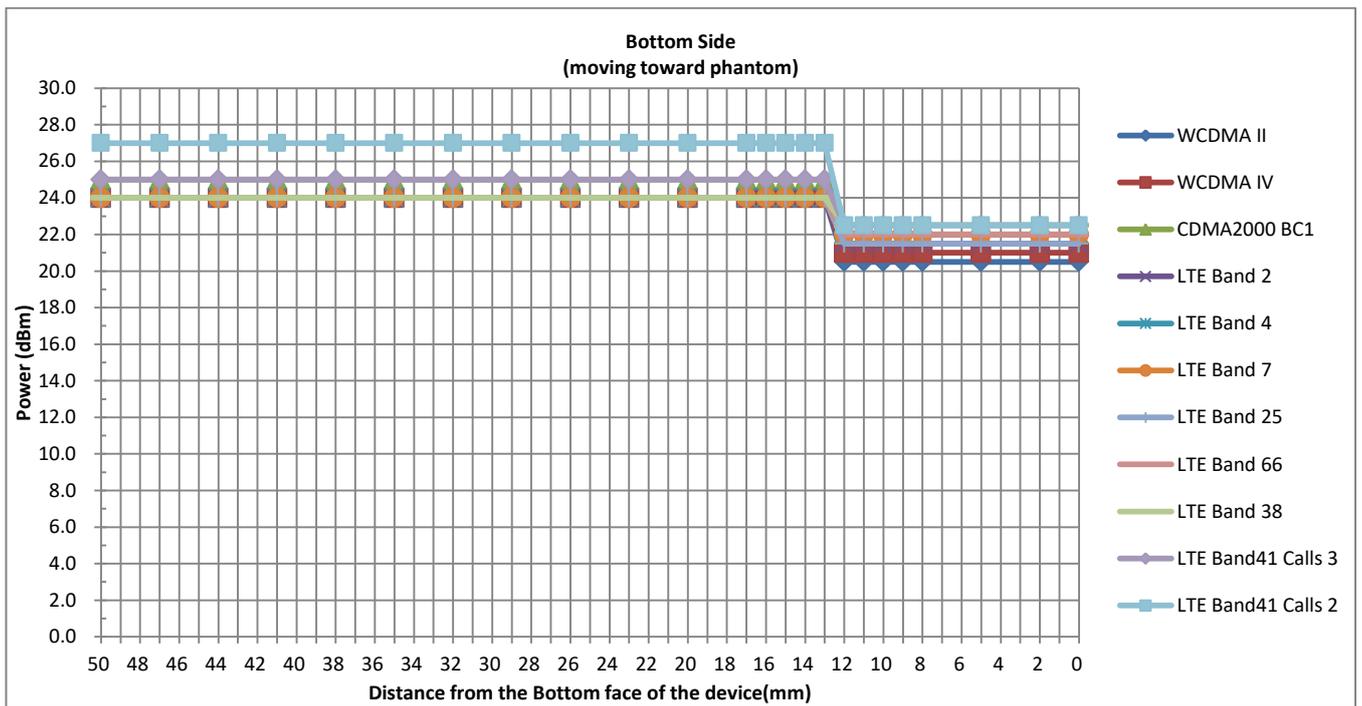
Back

Distance	50	49	46	43	40	37	34	31	28	25	22	21	20	19	18	17	16	15	14	13	12	9	6	3	0	
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5



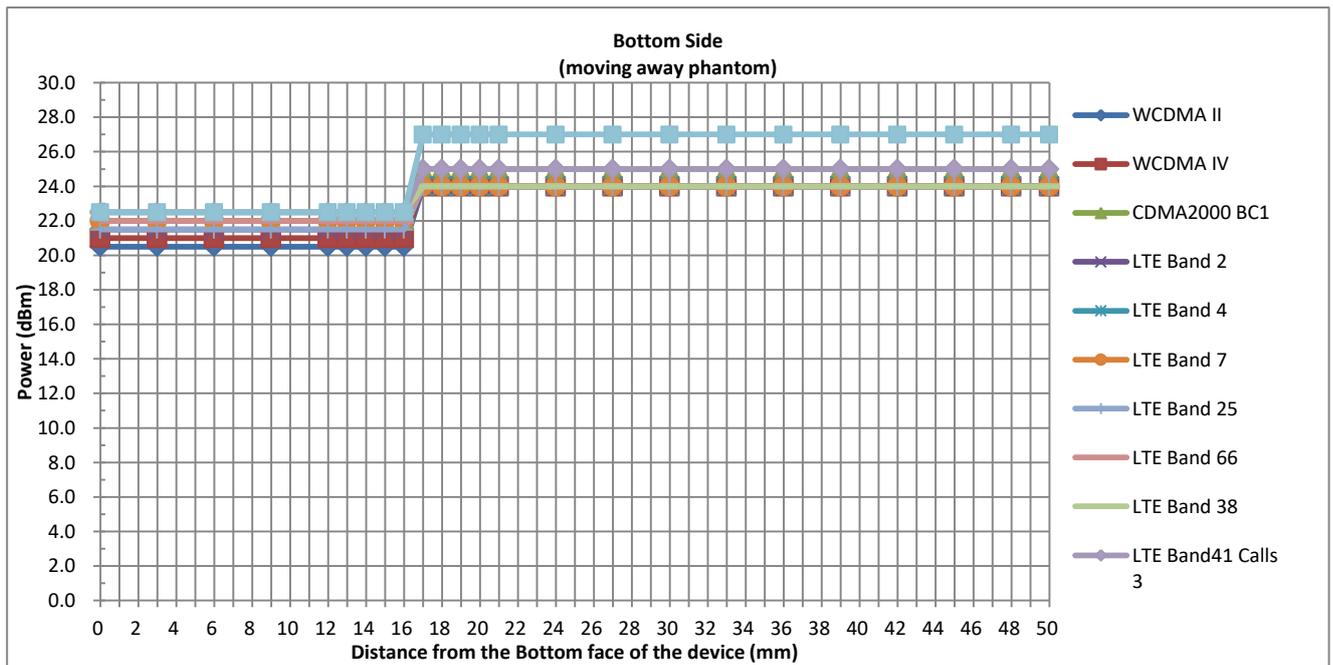


Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Bottom Side																								
Distance	50	47	44	41	38	35	32	29	26	23	20	17	16	15	14	13	12	11	10	9	8	5	2	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5



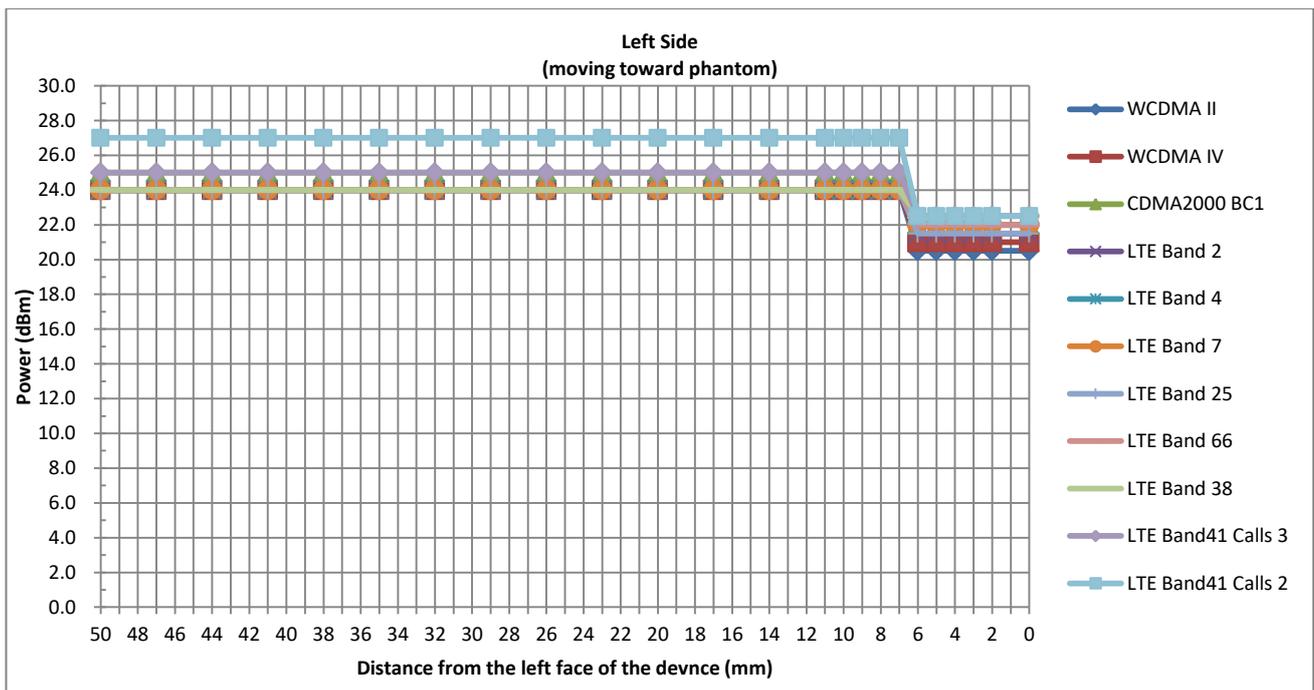


Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Bottom Side																								
Distance	50	48	45	42	39	36	33	30	27	24	21	20	19	18	17	16	15	14	13	12	9	6	3	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5



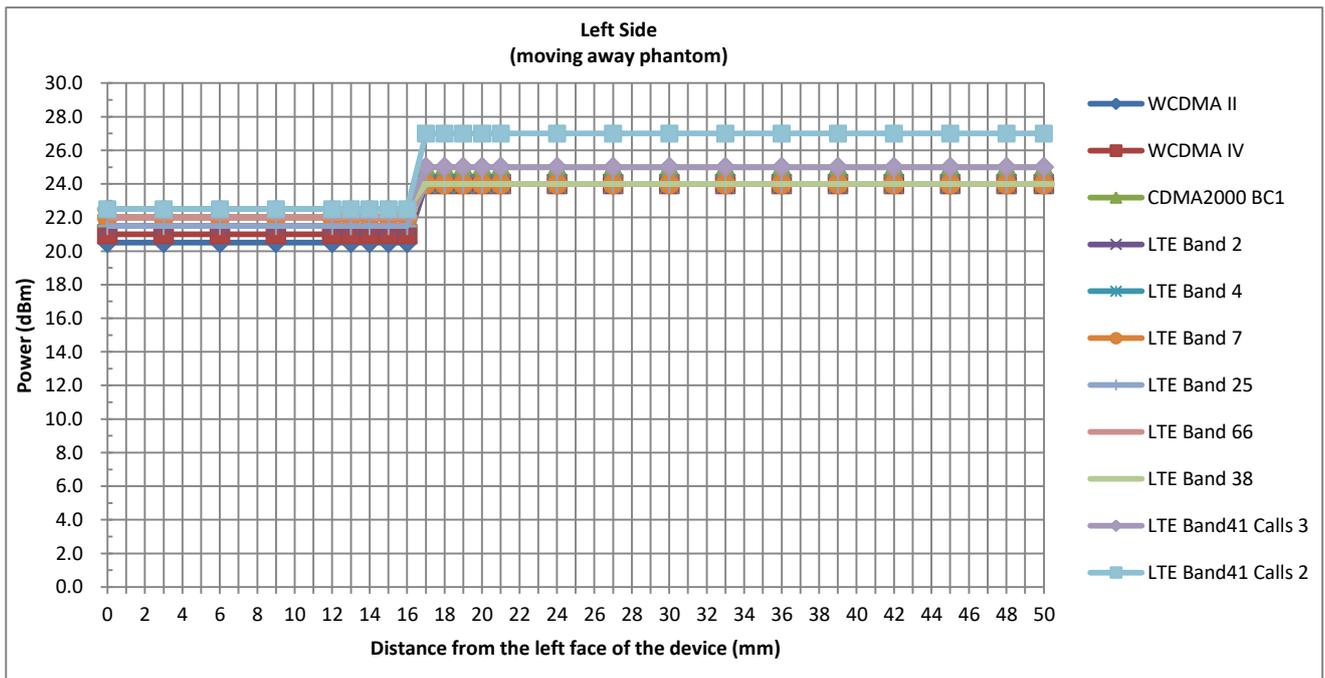


Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Left Side																								
Distance	50	47	44	41	38	35	32	29	26	23	20	17	14	11	10	9	8	7	6	5	4	3	2	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5





Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Left Side																								
Distance	50	48	45	42	39	36	33	30	27	24	21	20	19	18	17	16	15	14	13	12	9	6	3	0
WCDMA II	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
WCDMA IV	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21	21	21	21	21	21	21	21	21
CDMA BC1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22	22	22	22	22	22	22	22	22
LTE Band2	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band4	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band7	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
LTE Band66	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22	22	22	22	22	22	22	22	22
LTE Band38	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
LTE Band 41 PL2	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5



## 6. RF Exposure Limits

### 6.1 Uncontrolled Environment

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

### 6.2 Controlled Environment

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

**Limits for Occupational/Controlled Exposure (W/kg)**

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

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

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

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

## 7. Specific Absorption Rate (SAR)

### 7.1 Introduction

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

### 7.2 SAR Definition

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

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

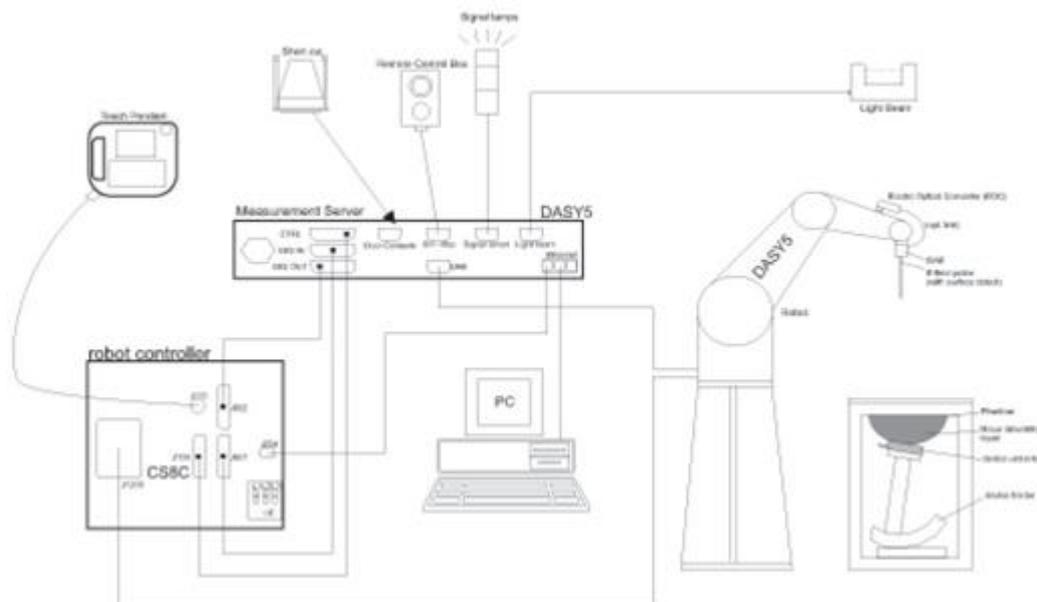
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

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

The 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>**

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

**<ES3DV3 Probe>**

<b>Construction</b>	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz – 4 GHz; Linearity: ±0.2 dB (30 MHz – 4 GHz)	
<b>Directivity</b>	±0.2 dB in TSL (rotation around probe axis) ±0.3 dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 µW/g – >100 mW/g; Linearity: ±0.2 dB	
<b>Dimensions</b>	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

**8.2 Data Acquisition Electronics (DAE)**

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

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



**Photo of DAE**

**8.3 Phantom**

**<SAM Twin Phantom>**

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

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

**<ELI Phantom>**

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

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

## 8.4 Device Holder

### <Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

## 9. Measurement Procedures

The measurement procedures are as follows:

### <Conducted power measurement>

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

### <SAR measurement>

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

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

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

### 9.1 Spatial Peak SAR Evaluation

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

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

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

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

**9.2 Power Reference Measurement**

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

**9.3 Area Scan**

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

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

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

### 9.4 Zoom Scan

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

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

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

### 9.5 Volume Scan Procedures

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

### 9.6 Power Drift Monitoring

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



### 10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2019/3/27	2020/3/26
SPEAG	835MHz System Validation Kit	D835V2	4d151	2019/3/27	2020/3/26
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2020/3/26
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2020/3/25
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2020/3/24
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2018/12/7	2021/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2020/9/23
SPEAG	Data Acquisition Electronics	DAE4	1338	2019/11/20	2020/11/19
SPEAG	Dosimetric E-Field Probe	ES3DV3	3293	2019/11/25	2020/11/24
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2019/5/27	2020/5/26
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1503	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1839	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2019/4/17	2020/4/16
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2019/4/17	2020/4/16
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2019/4/17	2020/4/16
SPEAG	Dielectric Probe Kit	DAK-3.5	1071	2019/10/28	2020/10/27
Anritsu	Vector Signal Generator	MG3710A	6201682672	2020/1/8	2021/1/7
Rohde & Schwarz	Power Meter	NRVD	102081	2019/8/15	2020/8/14
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2019/8/14	2020/8/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2019/8/14	2020/8/13
R&S	CBT BLUETOOTH TESTER	CBT	101641	2020/1/8	2021/1/7
EXA	Spectrum Analyzer	FSV7	101631	2020/1/8	2021/1/7
Testo	Hygrometer	608-H1	1241332088	2020/1/8	2021/1/7
FLUKE	DIGITAC THERMOMETER	51II	97240029	2019/8/15	2020/8/14
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note	
ARRA	Power Divider	A3200-2	N/A	Note	
MCL	Attenuation1	BW-S10W5+	N/A	Note	
MCL	Attenuation2	BW-S10W5+	N/A	Note	
MCL	Attenuation3	BW-S10W5+	N/A	Note	
Agilent	Dual Directional Coupler	778D	20500	Note	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note	

**Note:**

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

## 11. System Verification

### 11.1 Tissue Simulating Liquids

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

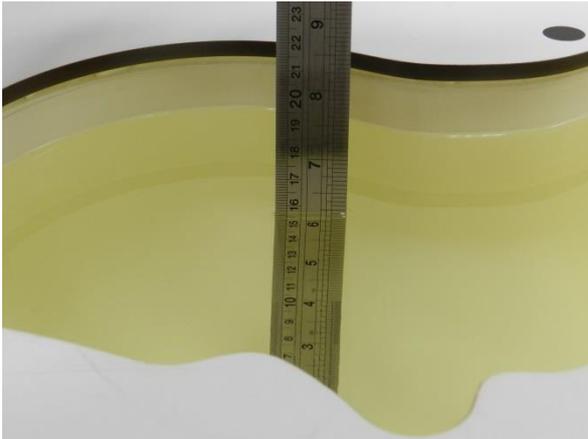


Fig 11.1 Photo of Liquid Height for Head SAR

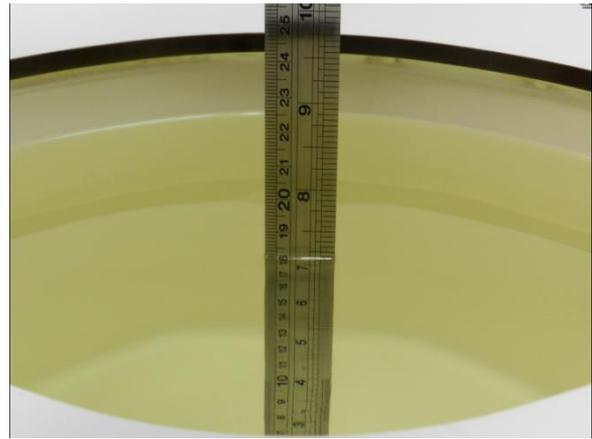


Fig 11.2 Photo of Liquid Height for Body SAR



**11.2 Tissue Verification**

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )
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, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

**Simulating Liquid for 5GHz, Manufactured by SPEAG**

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

**<Tissue Dielectric Parameter Check Results>**

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )	Conductivity Target (σ)	Permittivity Target (ε <sub>r</sub> )	Delta (σ) (%)	Delta (ε <sub>r</sub> ) (%)	Limit (%)	Date
750	Head	22.9	0.895	41.699	0.89	41.9	0.56	-0.48	±5	2020.3.19
750	Head	22.9	0.911	43.213	0.89	41.9	2.36	3.13	±5	2020.3.20
835	Head	22.8	0.902	41.239	0.9	41.5	0.22	-0.63	±5	2020.3.18
835	Head	22.8	0.908	42.809	0.9	41.5	0.89	3.15	±5	2020.3.19
1750	Head	22.6	1.357	39.059	1.37	40.1	-0.95	-2.60	±5	2020.3.19
1750	Head	22.6	1.352	40.502	1.37	40.1	-1.31	1.00	±5	2020.3.20
1750	Head	22.6	1.371	40.674	1.37	40.1	0.07	1.43	±5	2020.3.21
1900	Head	22.8	1.397	39.034	1.4	40	-0.21	-2.42	±5	2020.3.21
1900	Head	22.8	1.404	40.048	1.4	40	0.29	0.12	±5	2020.3.22
1900	Head	22.8	1.395	39.648	1.4	40	-0.36	-0.88	±5	2020.3.23
2450	Head	22.7	1.86	38.535	1.8	39.2	3.33	-1.70	±5	2020.3.15
2600	Head	22.9	2.027	37.857	1.96	39	3.42	-2.93	±5	2020.3.20
2600	Head	22.9	2.036	38.304	1.96	39	3.88	-1.78	±5	2020.3.25
2600	Head	22.9	2.053	38.089	1.96	39	4.74	-2.34	±5	2020.3.27
2600	Head	22.9	2.052	38.095	1.96	39	4.69	-2.32	±5	2020.3.28
5250	Head	22.7	4.601	36.381	4.71	35.9	-2.31	1.34	±5	2020.3.20
5600	Head	22.6	4.99	35.802	5.07	35.5	-1.58	0.85	±5	2020.3.22
5750	Head	22.7	5.166	35.55	5.22	35.4	-1.03	0.42	±5	2020.3.26

### 11.3 System Performance Check Results

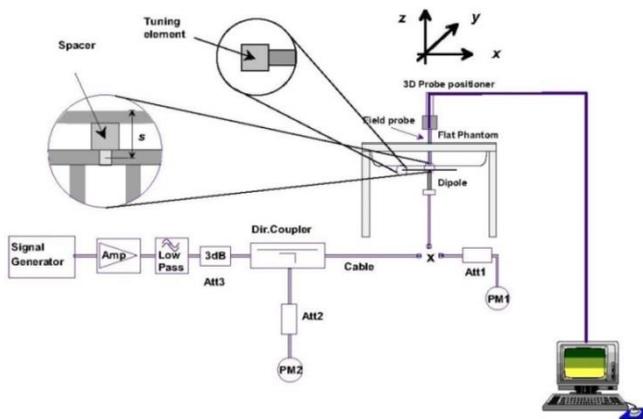
Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the 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 (%)
2020.3.19	750	Head	250	1087	3293	1338	2.14	8.36	8.56	2.39
2020.3.20	750	Head	250	4d151	3293	1338	2.21	9.3	8.84	-4.95
2020.3.18	835	Head	250	4d151	3293	1338	2.38	9.3	9.52	2.37
2020.3.19	835	Head	250	4d151	3293	1338	2.41	9.3	9.64	3.66
2020.3.19	1750	Head	250	1090	3293	1338	9.22	36.4	36.88	1.32
2020.3.20	1750	Head	250	1090	3293	1338	9.21	36.4	36.84	1.21
2020.3.21	1750	Head	250	1090	3293	1338	9.34	36.4	37.36	2.64
2020.3.21	1900	Head	250	5d170	3293	1338	10.3	39	41.2	5.64
2020.3.22	1900	Head	250	5d170	3293	1338	10	39	40	2.56
2020.3.23	1900	Head	250	5d170	3293	1338	9.98	39	39.92	2.36
2020.3.15	2450	Head	250	908	3293	1338	13.8	52.8	55.2	4.55
2020.3.20	2600	Head	250	1061	3293	1338	14.8	57.7	59.2	2.60
2020.3.25	2600	Head	250	1061	3293	1338	14.8	57.7	59.2	2.60
2020.3.27	2600	Head	250	1061	3293	1338	15	57.7	60	3.99
2020.3.28	2600	Head	250	1061	3293	1338	15	57.7	60	3.99
2020.3.20	5250	Head	100	1113	3857	1338	8.01	80.5	80.1	-0.50
2020.3.22	5600	Head	100	1113	3857	1338	8.3	83.4	83	-0.48
2020.3.26	5750	Head	100	1113	3857	1338	7.61	80	76.1	-4.87

**<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 (%)
2020.3.19	750	Head	250	1087	3293	1338	1.43	5.65	5.72	1.24
2020.3.18	835	Head	250	4d151	3293	1338	1.55	6.16	6.2	0.65
2020.3.19	835	Head	250	4d151	3293	1338	1.58	6.16	6.32	2.60
2020.3.19	1750	Head	250	1090	3293	1338	4.89	19.2	19.56	1.88
2020.3.21	1750	Head	250	1090	3293	1338	4.95	19.2	19.8	3.13
2020.3.21	1900	Head	250	5d170	3293	1338	5.24	20.3	20.96	3.25
2020.3.23	1900	Head	250	5d170	3293	1338	5.09	20.3	20.36	0.30
2020.3.15	2450	Head	250	908	3293	1338	6.35	24.2	25.4	4.96
2020.3.25	2600	Head	250	1061	3293	1338	6.55	25.9	26.2	1.16
2020.3.28	2600	Head	250	1061	3293	1338	6.6	25.9	26.4	1.93
2020.3.20	5250	Head	100	1113	3857	1338	2.32	23.1	23.2	0.43
2020.3.22	5600	Head	100	1113	3857	1338	2.37	23.8	23.7	-0.42
2020.3.26	5750	Head	100	1113	3857	1338	2.17	22.8	21.7	-4.82



**Fig 11.3.1 System Performance Check Setup**



**Fig 11.3.2 Setup Photo**

## 12. RF Exposure Positions

### 12.1 Ear and handset reference point

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

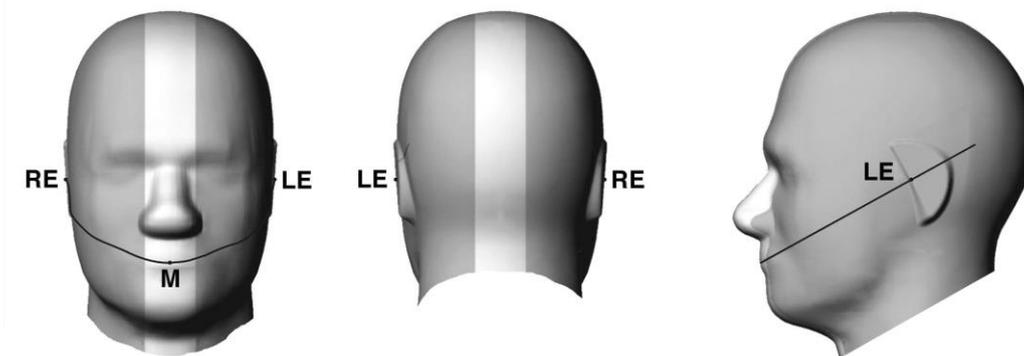


Fig 12.1.1 Front, back, and side views of SAM twin phantom

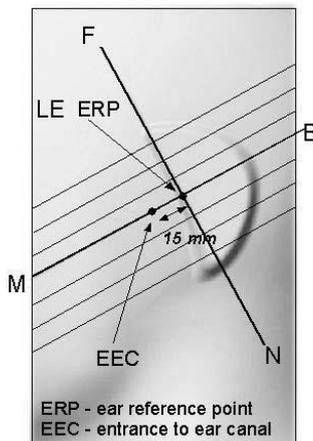


Fig 12.1.2 Close-up side view of phantom showing the ear region.

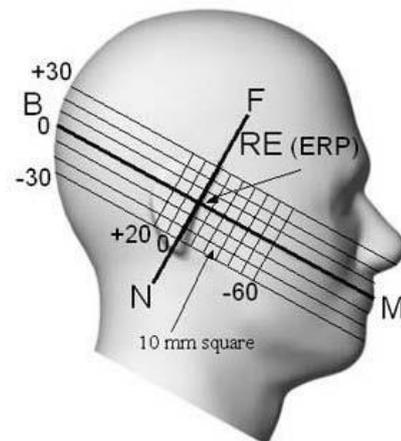


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

## 12.2 Definition of the cheek position

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

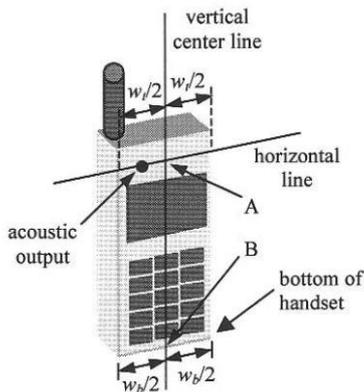


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

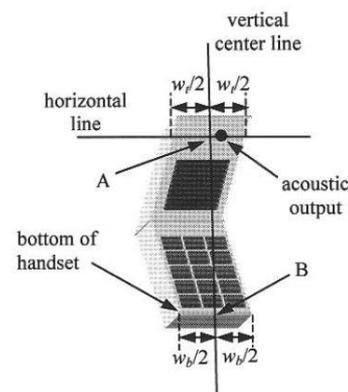


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

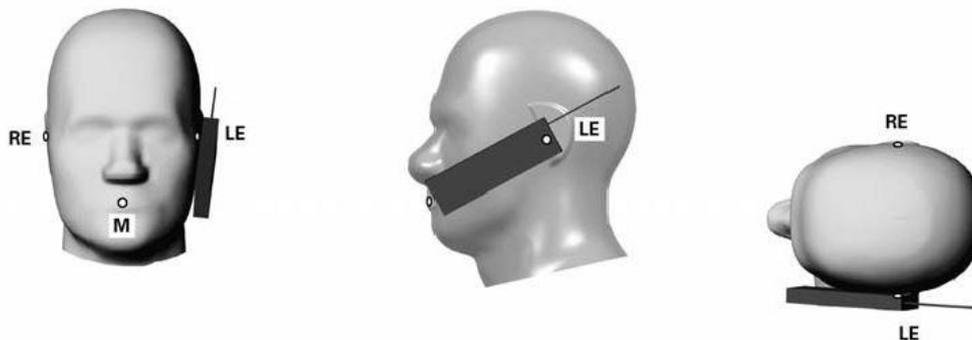


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

### 12.3 Definition of the tilt position

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

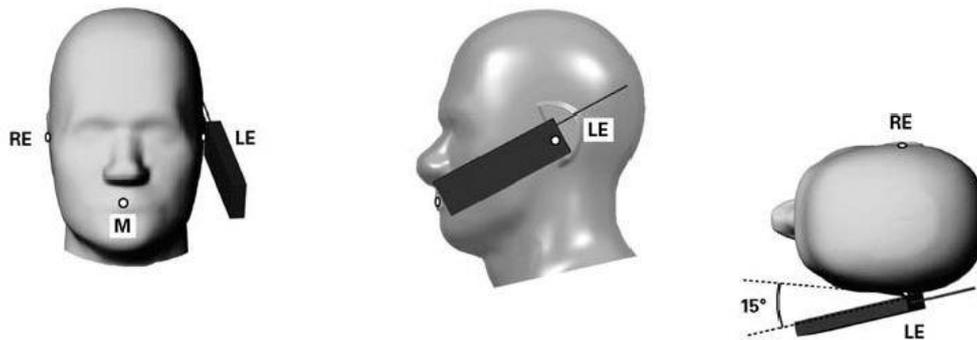


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

### 12.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is  $> 1.2 \text{ W/kg}$ , the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

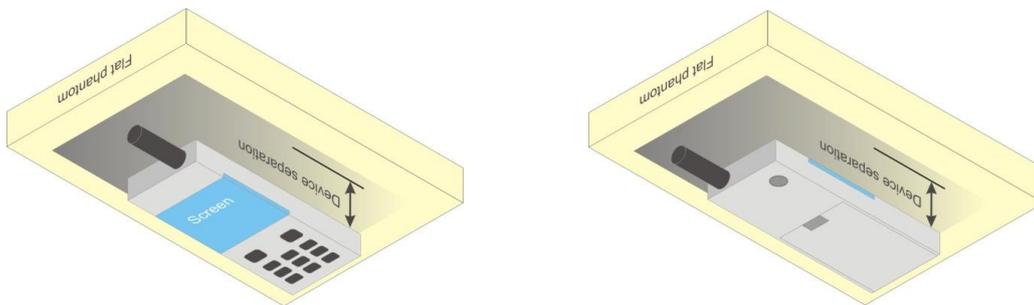


Fig 12.4 Body Worn Position

**12.5 Product Specific 10g SAR Exposure**

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

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

**12.6 Wireless Router**

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L 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 from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

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

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna 1	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN Antenna 2	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm	≤ 25mm
2.4GHz WLAN & BT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm
5GHz WLAN	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Antenna 1	Yes	Yes	No	Yes	Yes	Yes
WWAN Antenna 2	Yes	Yes	No	Yes	No	Yes
2.4GHz WLAN & BT	Yes	Yes	Yes	No	Yes	No
5GHz WLAN	Yes	Yes	Yes	No	Yes	No

Note:

1. This device has two WWAN transmitter antennas. WWAN antenna 1 is located at the right of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include GSM850/1900, WCDMA Band II/IV/V, CDMA2000 BC0/BC1/BC10, and LTE Band 2/4/5/12/13/17/25/26/66/71, WWAN antenna 2 frequency band include LTE Band 7/38/41.
2. 2.4GHz WLAN & BT Antenna is located at the Right-top of the device
3. 5GHz WLAN Antenna is located at the Right-top of the device

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

The detailed conducted power table can refer to Appendix E.

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

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 2Tx slots for GSM850/GSM1900 are considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq 1/4$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

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

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

A summary of these settings are illustrated below:

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

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

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

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

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

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

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

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

**Setup Configuration**

**HSUPA Setup Configuration:**

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

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

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

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

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

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

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

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

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

**Setup Configuration**

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

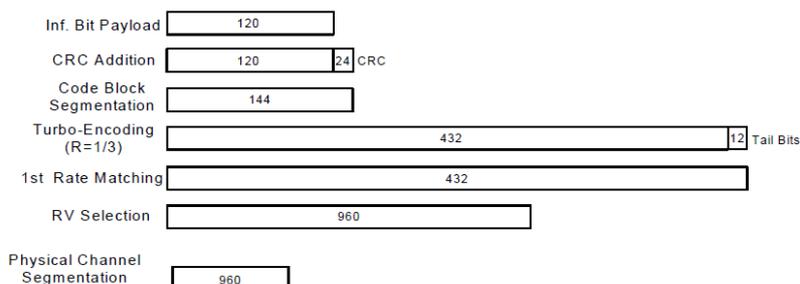
- a. The EUT was connected to Base Station referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm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

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

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

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

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



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

**Setup Configuration**

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

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

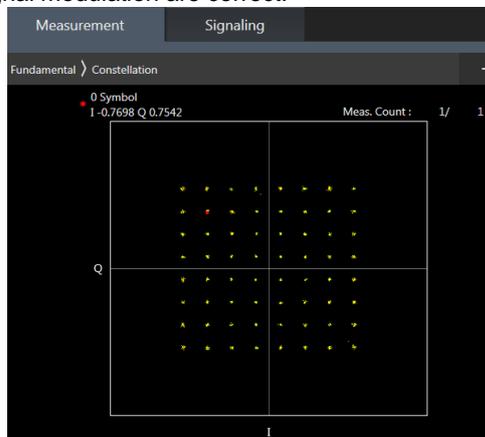
**<CDMA2000 Conducted Power>****General Note:**

1. Per KDB 941225 D01v03r01, SAR for head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

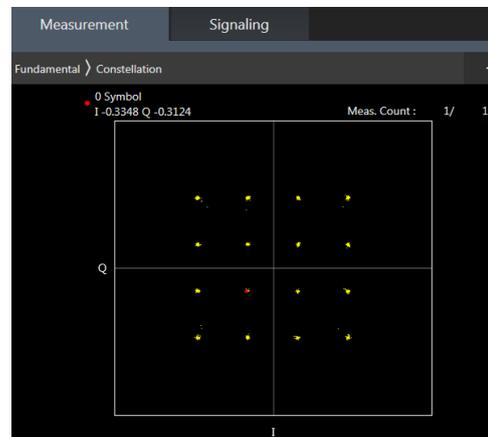
**<LTE Conducted Power>**

**General Note:**

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B17 / B2 / B5 / B4 / B38 SAR test was covered by B12 / B25 / B26 / B66 /B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. the maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion
  - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



**64QAM**



**16QAM**

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

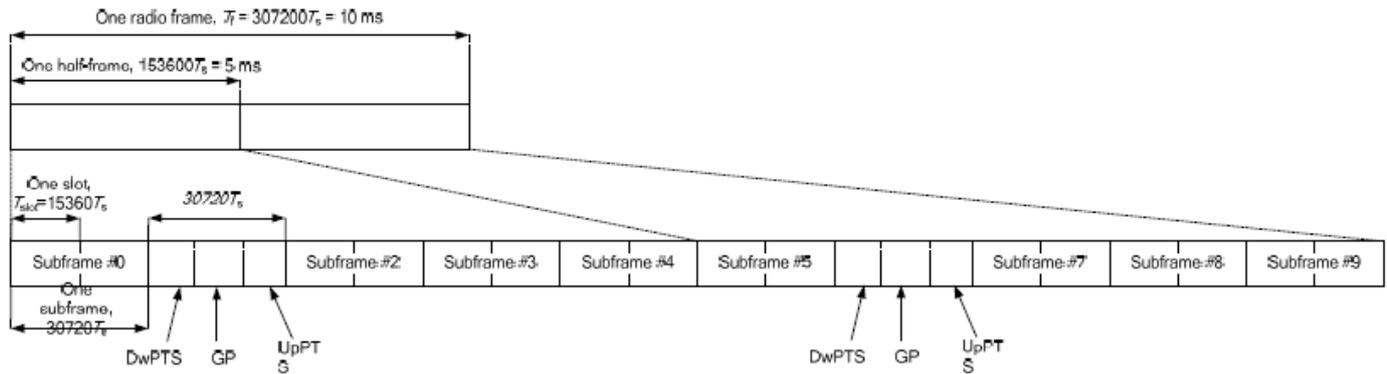


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE Band 41 Power class 2

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

For LTE Band 41 Power class 3

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

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

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

**<LTE Carrier Aggregation>**

**General Note:**

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.

Index	2CC	Index	2CC
2CC #1	CA_2A-7A	2CC #7	CA_2C
2CC #2	CA_5A-7A	2CC #8	CA_5B
2CC #3	CA_7A-12A	2CC #9	CA_7C
2CC #4	CA_25A-26A	2CC #10	CA_12B
2CC #5	CA_25A-41A	2CC #11	CA_38C
2CC #6	CA_26A-41A	2CC #12	CA_41C
		2CC #13	CA_66B
		2CC #14	CA_66C
		2CC #15	CA_2A-2A
		2CC #16	CA_4A-4A
		2CC #17	CA_7A-7A
		2CC #18	CA_25A-25A
		2CC #19	CA_41A-41A
		2CC #20	CA_66A-66A

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

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

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

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

1. This device supports uplink carrier aggregation for LTE CA\_41C with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. For the non-contiguously allocated resource blocks which the MPR level is determined by various RB separation and RB sizes requirement, and the allowed MPR levels, settings and the conducted powers are permanently implemented in this device per the 3GPP 36.36.101 section 6.2.3A.1.3 requirements.
2. According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
3. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs
4. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05. The required test channel should be associated with the UL PCC. For channels at the ends of a frequency band, the SCC and subsequent CCs are added to the side within the transmission band. Otherwise, the CCs should be added alternatively to either side of the PCC.



**<WLAN Conducted Power>**

**General Note:**

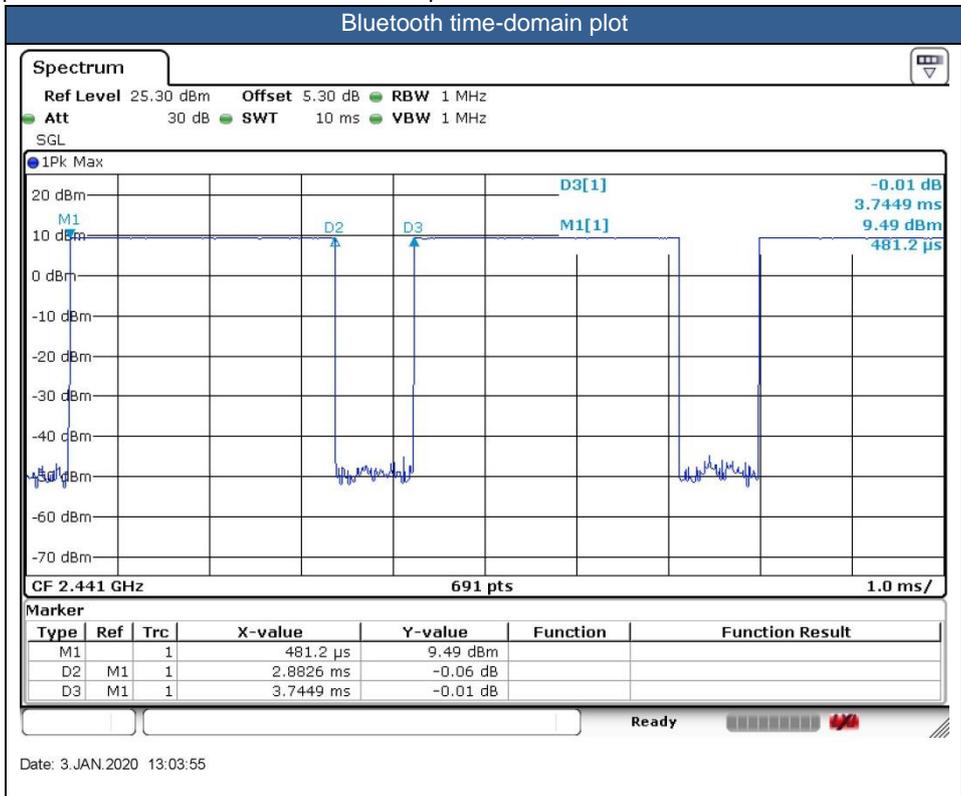
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements.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



<2.4GHz Bluetooth>

General Note:

- 1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
- 2. The Bluetooth duty cycle is 76.99 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation





## **14. SAR Test Results**

### **General Note:**

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
  - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $63.3\%/62.9\% = 1.006$  is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or  $2.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or  $1.5$  W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or  $1.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is  $\geq 0.8$ W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. Pre KDB648474 D04v01r03, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset. When headset SAR is less than or equal than without headset SAR, no need to verify the remaining channels for headset SAR.
5. When the phone is in talking mode and receiver worked, then power reduction will be implemented immediately at WLAN2.4GHz.
6. The device employs proximity sensors that detect the presence of the user's body at the front or back faces of the device. When front or back body worn condition is detected, GSM850/GSM1900, WCDMA band II/IV/V, CDMA BC1, LTE band 2/4/5/7/12/13/17/25/26/66/38/41/41HPUE and WLAN2.4GHz/WLAN5.2GHz/5.3GHz/5.5GHz/5.8GHz reduced power will be active.
7. P-sensor can detect handheld state, WCDMA band II/IV, CDMA BC1 and LTE B2/4/7/25/66/38/41/41HPUE for front/back/left sides/bottom sides of product specific 10g SAR condition reduced powers will be active.
8. When handheld state, when WWAN transmit simultaneous with WLAN/Bluetooth, for WLAN5.2GHz/5.3GHz/5.8GHz, product specific 10g SAR condition reduced powers will be active for back side. Other faces full power can be tested pass, so reduced power no need to be evaluated.
9. When hotspot mode is enabled, power reduction will be activated to limit the maximum power of GSM850/GSM1900, WCDMA band II/IV/V, CDMA BC1, LTE band 2/4/5/7/13/25/26/66/38/41/41HPUE and 2.4GHz /WLAN/5.2GHz/ WLAN/5.8GHz.
10. For P-sensor reduced power level is higher than hotspot reduced power for GSM1900, WCDMA band II/IV, LTE band 2/4/5/7/12/13/17/25/26/66/38/41/41HPUE, so for front/back P-sensor SAR can represent conservatively for front/back hotspot SAR.
11. This device has two WWAN transmitter antennas. WWAN antenna 1 is located at the right of bottom edge of the device and WWAN antenna 2 is located at the left side of bottom edge of the device which can refer to antenna location chapter. WWAN antenna 1 frequency bands include GSM850/1900, WCDMA Band II/IV/V, CDMA2000 BC0/BC1/BC10, and LTE Band 2/4/5/12/13/17/25/26/66/71, WWAN antenna 2 frequency band include LTE Band 7/38/41.
12. 2.4GHz WLAN & BT Antenna is located at the Right-top of the device
13. 5GHz WLAN Antenna is located at the Right-top of the device
14. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR  $> 1.2$  W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power (for handheld on state, the maximum full power means reduced power), including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
  - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/GSM1900, WCDMA Band II/IV/V, CDMA BC0/ BC1, LTE Band 2/4/5/7/13/25/26/66/38/41/41HPUE, and WLAN 5.2/5.8GHz therefore product specific 10g SAR is necessary.
  - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.



- c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
15. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:  
Front: [15 mm](#)  
Back: [19 mm](#)
16. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for handheld:  
Front: [5 mm](#)  
Back: [9 mm](#)  
bottom side: [11 mm](#)  
left side: [5 mm](#)

**GSM Note:**

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 2Tx slots for GSM850/GSM1900 are considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

**WCDMA Note:**

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

**CDMA Note:**

1. Per KDB 941225 D01v03r01, SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55.
2. Per KDB 941225 D01v03r01, in Hotspot mode EUT is treated as data device and SAR is tested with Ev-Do Rev 0 (RTAP 153.6kbps) as the primary mode.
3. Per KDB 941225 D01v03r01, for Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCH), with FCH only as the primary mode.

**LTE Note:**

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. This device supports HPUE for LTE band 41 with class 2 level, so HPUE SAR has been performed.
7. For LTE B4 / B5 / B12 / B17 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
8. LTE B2 / B4 / B5 / B17 / B38 SAR test was covered by LTE B25 / B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. the maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion
  - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

**WLAN/Bluetooth Note:**

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is  $\leq 1.2$  W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is  $> 0.4$  W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is  $\leq 0.8$  W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is  $> 0.8$  W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. Based on WLAN 2.4GHz and Bluetooth share the same antenna, so Bluetooth RF exposure evaluation chose the worst position of WLAN 2.4GHz Ant to perform Bluetooth SAR test, and used this Bluetooth SAR value conservatively represent other position do co-located analysis with WWAN.
7. Bluetooth distance body SAR performed to do co-located analysis with WWAN analysis.



14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 2 Tx slots	Right Cheek	Full	251	848.8	29.61	30.50	1.227	-0.02	0.255	0.313
	GSM850	GPRS 2 Tx slots	Right Tilted	Full	251	848.8	29.61	30.50	1.227	0.01	0.127	0.156
	GSM850	GPRS 2 Tx slots	Left Cheek	Full	251	848.8	29.61	30.50	1.227	0.1	0.212	0.260
	GSM850	GPRS 2 Tx slots	Left Tilted	Full	251	848.8	29.61	30.50	1.227	0.09	0.131	0.161
01	GSM850	GPRS 2 Tx slots	Right Cheek	Full	128	824.2	29.47	30.50	1.268	0.06	0.329	0.417
	GSM850	GPRS 2 Tx slots	Right Cheek	Full	189	836.4	29.53	30.50	1.250	0.02	0.316	0.395
	GSM1900	GPRS 2 Tx slots	Right Cheek	Full	810	1909.8	27.15	27.50	1.084	0.03	0.015	0.016
	GSM1900	GPRS 2 Tx slots	Right Tilted	Full	810	1909.8	27.15	27.50	1.084	0.06	0.004	0.004
	GSM1900	GPRS 2 Tx slots	Left Cheek	Full	810	1909.8	27.15	27.50	1.084	0.01	0.011	0.012
	GSM1900	GPRS 2 Tx slots	Left Tilted	Full	810	1909.8	27.15	27.50	1.084	0.09	0.006	0.006
02	GSM1900	GPRS 2 Tx slots	Right Cheek	Full	512	1850.2	26.75	27.50	1.189	0.02	0.029	0.035
	GSM1900	GPRS 2 Tx slots	Right Cheek	Full	661	1880	27.10	27.50	1.096	0.1	0.022	0.024

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Right Cheek	Full	9538	1907.6	23.54	24.00	1.112	-0.09	0.038	0.043
	WCDMA II	RMC 12.2Kbps	Right Tilted	Full	9538	1907.6	23.54	24.00	1.112	0.03	0.017	0.019
	WCDMA II	RMC 12.2Kbps	Left Cheek	Full	9538	1907.6	23.54	24.00	1.112	0.01	0.029	0.032
	WCDMA II	RMC 12.2Kbps	Left Tilted	Full	9538	1907.6	23.54	24.00	1.112	0.02	0.013	0.014
03	WCDMA II	RMC 12.2Kbps	Right Cheek	Full	9262	1852.4	23.50	24.00	1.122	0.09	0.079	0.088
	WCDMA II	RMC 12.2Kbps	Right Cheek	Full	9400	1880	23.41	24.00	1.146	0.02	0.062	0.071
	WCDMA IV	RMC 12.2Kbps	Right Cheek	Full	1513	1752.6	23.56	24.00	1.107	0.02	0.050	0.055
	WCDMA IV	RMC 12.2Kbps	Right Tilted	Full	1513	1752.6	23.56	24.00	1.107	0.08	0.047	0.052
	WCDMA IV	RMC 12.2Kbps	Left Cheek	Full	1513	1752.6	23.56	24.00	1.107	-0.13	0.059	0.065
	WCDMA IV	RMC 12.2Kbps	Left Tilted	Full	1513	1752.6	23.56	24.00	1.107	0.05	0.043	0.047
	WCDMA IV	RMC 12.2Kbps	Left Cheek	Full	1312	1712.4	23.32	24.00	1.169	0.01	0.064	0.075
04	WCDMA IV	RMC 12.2Kbps	Left Cheek	Full	1413	1732.6	23.34	24.00	1.164	0.03	0.066	0.077
	WCDMA V	RMC 12.2Kbps	Right Cheek	Full	4233	846.6	23.18	24.00	1.208	-0.16	0.387	0.467
	WCDMA V	RMC 12.2Kbps	Right Tilted	Full	4233	846.6	23.18	24.00	1.208	0.07	0.188	0.227
	WCDMA V	RMC 12.2Kbps	Left Cheek	Full	4233	846.6	23.18	24.00	1.208	0.02	0.351	0.424
	WCDMA V	RMC 12.2Kbps	Left Tilted	Full	4233	846.6	23.18	24.00	1.208	0.06	0.189	0.228
	WCDMA V	RMC 12.2Kbps	Right Cheek	Full	4132	826.4	23.16	24.00	1.213	0.06	0.414	0.502
05	WCDMA V	RMC 12.2Kbps	Right Cheek	Full	4182	836.4	23.06	24.00	1.242	0.03	0.420	0.521



<CDMA SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
06	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	684	823.1	24.28	25.00	1.180	0.02	0.328	<b>0.387</b>
	CDMA2000 BC10	RC3 SO55	Right Tilted	Full	684	823.1	24.28	25.00	1.180	0.03	0.170	0.201
	CDMA2000 BC10	RC3 SO55	Left Cheek	Full	684	823.1	24.28	25.00	1.180	0.02	0.268	0.316
	CDMA2000 BC10	RC3 SO55	Left Tilted	Full	684	823.1	24.28	25.00	1.180	0.06	0.160	0.189
	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	476	817.9	24.24	25.00	1.191	0.02	0.283	0.337
	CDMA2000 BC10	RC3 SO55	Right Cheek	Full	580	820.5	24.17	25.00	1.211	-0.01	0.285	0.345
07	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	1013	824.7	24.31	25.00	1.172	-0.06	0.415	<b>0.486</b>
	CDMA2000 BC0	RC3 SO55	Right Tilted	Full	1013	824.7	24.31	25.00	1.172	0.01	0.203	0.238
	CDMA2000 BC0	RC3 SO55	Left Cheek	Full	1013	824.7	24.31	25.00	1.172	0.01	0.371	0.435
	CDMA2000 BC0	RC3 SO55	Left Tilted	Full	1013	824.7	24.31	25.00	1.172	0.03	0.040	0.047
	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	384	836.52	24.21	25.00	1.199	0.01	0.403	0.483
	CDMA2000 BC0	RC3 SO55	Right Cheek	Full	777	848.31	24.19	25.00	1.205	-0.02	0.363	0.437
	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	1175	1908.75	24.63	25.00	1.089	0.01	0.040	0.043
	CDMA2000 BC1	RC3 SO55	Right Tilted	Full	1175	1908.75	24.63	25.00	1.089	0.09	0.010	0.011
	CDMA2000 BC1	RC3 SO55	Left Cheek	Full	1175	1908.75	24.63	25.00	1.089	0.02	0.036	0.039
	CDMA2000 BC1	RC3 SO55	Left Tilted	Full	1175	1908.75	24.63	25.00	1.089	0.01	0.020	0.021
08	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	25	1851.25	24.40	25.00	1.148	-0.17	0.099	<b>0.114</b>
	CDMA2000 BC1	RC3 SO55	Right Cheek	Full	600	1880	24.51	25.00	1.119	0.08	0.065	0.073

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 7	20M	QPSK	1	99	Right Cheek	Full	21100	2535	23.82	24.00	1.042	0.1	0.461	0.481
	LTE Band 7	20M	QPSK	1	99	Right Cheek	Full	20850	2510	23.70	24.00	1.072	0.05	0.447	0.479
09	LTE Band 7	20M	QPSK	1	99	Right Cheek	Full	21350	2560	23.61	24.00	1.094	0.01	0.469	<b>0.513</b>
	LTE Band 7	20M	QPSK	50	0	Right Cheek	Full	21100	2535	22.86	23.00	1.033	-0.12	0.265	0.274
	LTE Band 7	20M	QPSK	1	99	Right Tilted	Full	21100	2535	23.82	24.00	1.042	0.03	0.432	0.450
	LTE Band 7	20M	QPSK	50	0	Right Tilted	Full	21100	2535	22.86	23.00	1.033	0.05	0.282	0.291
	LTE Band 7	20M	QPSK	1	99	Left Cheek	Full	21100	2535	23.82	24.00	1.042	-0.14	0.206	0.215
	LTE Band 7	20M	QPSK	50	0	Left Cheek	Full	21100	2535	22.86	23.00	1.033	0.1	0.202	0.209
	LTE Band 7	20M	QPSK	1	99	Left Tilted	Full	21100	2535	23.82	24.00	1.042	0.11	0.078	0.081
	LTE Band 7	20M	QPSK	50	0	Left Tilted	Full	21100	2535	22.86	23.00	1.033	0.02	0.079	0.081
	LTE Band 12	10M	QPSK	1	49	Right Cheek	Full	23095	707.5	23.51	24.00	1.119	-0.11	0.300	0.336
	LTE Band 12	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	22.33	23.00	1.167	-0.07	0.168	0.196
	LTE Band 12	10M	QPSK	1	49	Right Tilted	Full	23095	707.5	23.51	24.00	1.119	0.03	0.188	0.210
	LTE Band 12	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	22.33	23.00	1.167	0.09	0.102	0.119
10	LTE Band 12	10M	QPSK	1	49	Left Cheek	Full	23095	707.5	23.51	24.00	1.119	0.09	0.346	<b>0.387</b>
	LTE Band 12	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	22.33	23.00	1.167	0.01	0.176	0.205
	LTE Band 12	10M	QPSK	1	49	Left Tilted	Full	23095	707.5	23.51	24.00	1.119	-0.02	0.193	0.216
	LTE Band 12	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	22.33	23.00	1.167	0.05	0.098	0.114
11	LTE Band 13	10M	QPSK	1	0	Right Cheek	Full	23230	782	23.88	24.00	1.028	0.05	0.369	<b>0.379</b>
	LTE Band 13	10M	QPSK	25	12	Right Cheek	Full	23230	782	22.62	23.00	1.091	0.05	0.187	0.204
	LTE Band 13	10M	QPSK	1	0	Right Tilted	Full	23230	782	23.88	24.00	1.028	0.07	0.191	0.196
	LTE Band 13	10M	QPSK	25	12	Right Tilted	Full	23230	782	22.62	23.00	1.091	0.02	0.100	0.109
	LTE Band 13	10M	QPSK	1	0	Left Cheek	Full	23230	782	23.88	24.00	1.028	0.09	0.321	0.330
	LTE Band 13	10M	QPSK	25	12	Left Cheek	Full	23230	782	22.62	23.00	1.091	0.03	0.169	0.184
	LTE Band 13	10M	QPSK	1	0	Left Tilted	Full	23230	782	23.88	24.00	1.028	0.06	0.188	0.193
	LTE Band 13	10M	QPSK	25	12	Left Tilted	Full	23230	782	22.62	23.00	1.091	0.08	0.105	0.115



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 25	20M	QPSK	1	49	Right Cheek	Full	26590	1905	23.87	24.00	1.030	0.05	0.037	0.038
12	LTE Band 25	20M	QPSK	1	49	Right Cheek	Full	26140	1860	23.63	24.00	1.089	-0.04	0.081	0.088
	LTE Band 25	20M	QPSK	1	49	Right Cheek	Full	26340	1880	23.61	24.00	1.094	0.05	0.079	0.086
	LTE Band 25	20M	QPSK	50	0	Right Cheek	Full	26590	1905	22.74	23.00	1.062	0.07	0.023	0.024
	LTE Band 25	20M	QPSK	1	49	Right Tilted	Full	26590	1905	23.87	24.00	1.030	-0.07	0.008	0.008
	LTE Band 25	20M	QPSK	50	0	Right Tilted	Full	26590	1905	22.74	23.00	1.062	0.08	0.006	0.007
	LTE Band 25	20M	QPSK	1	49	Left Cheek	Full	26590	1905	23.87	24.00	1.030	0.05	0.033	0.034
	LTE Band 25	20M	QPSK	50	0	Left Cheek	Full	26590	1905	22.74	23.00	1.062	0.08	0.026	0.027
	LTE Band 25	20M	QPSK	1	49	Left Tilted	Full	26590	1905	23.87	24.00	1.030	0.09	0.024	0.025
	LTE Band 25	20M	QPSK	50	0	Left Tilted	Full	26590	1905	22.74	23.00	1.062	0.02	0.014	0.015
13	LTE Band 26	15M	QPSK	1	74	Right Cheek	Full	26865	831.5	23.84	24.00	1.038	0.03	0.420	0.436
	LTE Band 26	15M	QPSK	36	0	Right Cheek	Full	26865	831.5	22.77	23.00	1.054	-0.14	0.196	0.207
	LTE Band 26	15M	QPSK	1	74	Right Tilted	Full	26865	831.5	23.84	24.00	1.038	0.1	0.107	0.111
	LTE Band 26	15M	QPSK	36	0	Right Tilted	Full	26865	831.5	22.77	23.00	1.054	0.11	0.075	0.079
	LTE Band 26	15M	QPSK	1	74	Left Cheek	Full	26865	831.5	23.84	24.00	1.038	0.02	0.330	0.342
	LTE Band 26	15M	QPSK	36	0	Left Cheek	Full	26865	831.5	22.77	23.00	1.054	0.06	0.181	0.191
	LTE Band 26	15M	QPSK	1	74	Left Tilted	Full	26865	831.5	23.84	24.00	1.038	0.01	0.181	0.188
	LTE Band 26	15M	QPSK	36	0	Left Tilted	Full	26865	831.5	22.77	23.00	1.054	0.07	0.090	0.095
14	LTE Band 66	20M	QPSK	1	99	Right Cheek	Full	132572	1770	23.80	24.00	1.047	-0.01	0.105	0.110
	LTE Band 66	20M	QPSK	1	99	Right Cheek	Full	132072	1720	23.72	24.00	1.067	-0.01	0.060	0.064
	LTE Band 66	20M	QPSK	1	99	Right Cheek	Full	132322	1745	23.77	24.00	1.054	-0.01	0.051	0.053
	LTE Band 66	20M	QPSK	50	50	Right Cheek	Full	132572	1770	22.53	23.00	1.114	0.04	0.064	0.072
	LTE Band 66	20M	QPSK	1	99	Right Tilted	Full	132572	1770	23.80	24.00	1.047	-0.01	0.057	0.059
	LTE Band 66	20M	QPSK	50	50	Right Tilted	Full	132572	1770	22.53	23.00	1.114	0.06	0.031	0.034
	LTE Band 66	20M	QPSK	1	99	Left Cheek	Full	132572	1770	23.80	24.00	1.047	0.06	0.093	0.097
	LTE Band 66	20M	QPSK	50	50	Left Cheek	Full	132572	1770	22.53	23.00	1.114	0.01	0.049	0.054
	LTE Band 66	20M	QPSK	1	99	Left Tilted	Full	132572	1770	23.80	24.00	1.047	0.07	0.062	0.065
	LTE Band 66	20M	QPSK	50	50	Left Tilted	Full	132572	1770	22.53	23.00	1.114	-0.03	0.035	0.039
15	LTE Band 71	20M	QPSK	1	49	Right Cheek	Full	133322	683	22.94	24.00	1.276	0.07	0.240	0.306
	LTE Band 71	20M	QPSK	50	50	Right Cheek	Full	133322	683	22.32	23.00	1.169	-0.01	0.140	0.164
	LTE Band 71	20M	QPSK	1	49	Right Tilted	Full	133322	683	22.94	24.00	1.276	0.05	0.119	0.152
	LTE Band 71	20M	QPSK	50	50	Right Tilted	Full	133322	683	22.32	23.00	1.169	0.08	0.067	0.079
	LTE Band 71	20M	QPSK	1	49	Left Cheek	Full	133322	683	22.94	24.00	1.276	0.07	0.204	0.26
	LTE Band 71	20M	QPSK	50	50	Left Cheek	Full	133322	683	22.32	23.00	1.169	0.06	0.124	0.145
	LTE Band 71	20M	QPSK	1	49	Left Tilted	Full	133322	683	22.94	24.00	1.276	0.06	0.107	0.137
	LTE Band 71	20M	QPSK	50	50	Left Tilted	Full	133322	683	22.32	23.00	1.169	0.01	0.067	0.078



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Right Cheek	Full	41055	2636.5	23.82	25.00	1.312	62.9	1.006	-0.02	0.210	0.277
	LTE Band 41	20M	QPSK	50	24	Right Cheek	Full	41055	2636.5	23.20	24.00	1.202	62.9	1.006	-0.03	0.208	0.252
	LTE Band 41	20M	QPSK	1	49	Right Tilted	Full	41055	2636.5	23.82	25.00	1.312	62.9	1.006	0.05	0.202	0.267
	LTE Band 41	20M	QPSK	50	24	Right Tilted	Full	41055	2636.5	23.20	24.00	1.202	62.9	1.006	0.16	0.183	0.221
16	LTE Band 41	20M	QPSK	1	49	Left Cheek	Full	41055	2636.5	23.82	25.00	1.312	62.9	1.006	0.06	0.461	0.609
	LTE Band 41C	20M	QPSK	1	49	Left Cheek	Full	41055+41253	2636.5+2656.3	23.01	25.00	1.581	62.9	1.006	0.08	0.273	0.434
	LTE Band 41	20M	QPSK	50	24	Left Cheek	Full	41055	2636.5	23.20	24.00	1.202	62.9	1.006	0.04	0.222	0.269
	LTE Band 41	20M	QPSK	1	49	Left Tilted	Full	41055	2636.5	23.82	25.00	1.312	62.9	1.006	0.03	0.284	0.375
	LTE Band 41	20M	QPSK	50	24	Left Tilted	Full	41055	2636.5	23.20	24.00	1.202	62.9	1.006	0.05	0.328	0.397
	LTE Band 41	20M	QPSK	1	49	Left Cheek	Full	39750	2506	23.56	25.00	1.393	62.9	1.006	-0.03	0.284	0.398
	LTE Band 41	20M	QPSK	1	49	Left Cheek	Full	40185	2549.5	23.54	25.00	1.400	62.9	1.006	0.05	0.351	0.494
	LTE Band 41	20M	QPSK	1	49	Left Cheek	Full	40620	2593	23.69	25.00	1.352	62.9	1.006	-0.02	0.277	0.377
	LTE Band 41	20M	QPSK	1	49	Left Cheek	Full	41490	2680	23.74	25.00	1.337	62.9	1.006	0.09	0.142	0.191
17	LTE Band 41-HPUE	20M	QPSK	1	49	Left Cheek	Full	41055	2636.5	25.46	27.00	1.426	42.9	1.009	-0.08	0.502	0.722
	LTE Band 41-HPUE	20M	QPSK	1	49	Left Cheek	Full	39750	2506	25.34	27.00	1.466	42.9	1.009	0.06	0.423	0.626
	LTE Band 41-HPUE	20M	QPSK	1	49	Left Cheek	Full	40185	2549.5	25.21	27.00	1.510	42.9	1.009	0.06	0.471	0.718
	LTE Band 41-HPUE	20M	QPSK	1	49	Left Cheek	Full	40620	2593	25.40	27.00	1.445	42.9	1.009	0.08	0.491	0.716
	LTE Band 41-HPUE	20M	QPSK	1	49	Left Cheek	Full	41490	2680	25.34	27.00	1.466	42.9	1.009	0.08	0.469	0.694



<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Reduced	11	2462	14.63	16.50	1.538	97.59	1.025	-0.01	0.342	0.539
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Reduced	11	2462	14.63	16.50	1.538	97.59	1.025	0.1	0.353	0.557
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Reduced	11	2462	14.63	16.50	1.538	97.59	1.025	0.15	0.689	1.086
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Reduced	11	2462	14.63	16.50	1.538	97.59	1.025	0.03	0.519	0.818
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Reduced	1	2412	14.17	16.00	1.524	97.59	1.025	0.09	0.595	0.929
18	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Reduced	6	2437	14.58	16.50	1.556	97.59	1.025	0.05	0.750	1.196

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Left Cheek	Full	0	2402	7.96	9.50	1.426	76.99	1.082	0.09	0.114	0.176
19	Bluetooth	1Mbps	Left Cheek	Full	39	2441	7.92	9.50	1.439	76.99	1.082	0.06	0.164	0.255
	Bluetooth	1Mbps	Left Cheek	Full	78	2480	9.44	9.50	1.014	76.99	1.082	0.02	0.142	0.156

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.01	0.068	0.110
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	Full	60	5300	16.53	18.00	1.403	87.04	1.149	-0.04	0.098	0.158
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.01	0.044	0.071
	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.02	0.072	0.116
20	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	Full	52	5260	16.52	18.00	1.406	87.04	1.149	0.09	0.112	0.181
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	Full	64	5320	16.50	18.00	1.413	87.04	1.149	0.01	0.057	0.092
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	Full	116	5580	16.46	18.00	1.426	87.04	1.149	-0.09	0.056	0.092
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	Full	116	5580	16.46	18.00	1.426	87.04	1.149	-0.03	0.084	0.137
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	Full	116	5580	16.46	18.00	1.426	87.04	1.149	-0.09	0.047	0.077
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	Full	116	5580	16.46	18.00	1.426	87.04	1.149	0.09	0.082	0.133
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	Full	100	5500	15.55	16.00	1.109	87.04	1.149	0.01	0.085	0.108
21	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	Full	140	5700	16.31	18.00	1.476	87.04	1.149	0.09	0.087	0.147
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	Full	165	5825	17.97	19.00	1.267	87.04	1.149	-0.08	0.090	0.131
22	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	Full	165	5825	17.97	19.00	1.267	87.04	1.149	0.03	0.123	0.179
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	Full	157	5785	17.75	19.00	1.334	87.04	1.149	-0.02	0.114	0.175
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	Full	149	5745	17.44	19.00	1.432	87.04	1.149	0.01	0.103	0.169
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	Full	165	5825	17.97	19.00	1.267	87.04	1.149	-0.03	0.078	0.114
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	Full	165	5825	17.97	19.00	1.267	87.04	1.149	-0.04	0.096	0.140



14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 2 Tx slots	Front	5mm	Reduced	251	848.8	28.86	30.00	1.300	0.03	0.800	1.040
	GSM850	GPRS 2 Tx slots	Front	5mm	Reduced	128	824.2	28.75	30.00	1.334	0.09	1.040	1.387
23	GSM850	GPRS 2 Tx slots	Front	5mm	Reduced	189	836.4	28.82	30.00	1.312	0.04	1.060	1.391
	GSM850	GPRS 2 Tx slots	Back	5mm	Reduced	251	848.8	28.86	30.00	1.300	0.01	0.797	1.036
	GSM850	GPRS 2 Tx slots	Back	5mm	Reduced	128	824.2	28.75	30.00	1.334	0.09	1.000	1.334
	GSM850	GPRS 2 Tx slots	Back	5mm	Reduced	189	836.4	28.82	30.00	1.312	-0.03	1.040	1.365
	GSM850	GPRS 2 Tx slots	Left Side	5mm	Reduced	251	848.8	28.86	30.00	1.300	0.02	0.175	0.228
	GSM850	GPRS 2 Tx slots	Right Side	5mm	Reduced	251	848.8	28.86	30.00	1.300	0.08	0.440	0.572
	GSM850	GPRS 2 Tx slots	Bottom Side	5mm	Reduced	251	848.8	28.86	30.00	1.300	0.02	0.610	0.793
	GSM1900	GPRS 2 Tx slots	Front	5mm	Reduced	810	1909.8	23.73	24.50	1.194	0.03	0.802	0.958
	GSM1900	GPRS 2 Tx slots	Front	5mm	Reduced	512	1850.2	23.52	24.50	1.253	0.06	0.826	1.035
	GSM1900	GPRS 2 Tx slots	Front	5mm	Reduced	661	1880	23.63	24.50	1.222	0.04	0.810	0.990
	GSM1900	GPRS 2 Tx slots	Back	5mm	Reduced	810	1909.8	23.73	24.50	1.194	0.06	0.990	1.182
	GSM1900	GPRS 2 Tx slots	Back	5mm	Reduced	512	1850.2	23.52	24.50	1.253	0.05	0.958	1.201
24	GSM1900	GPRS 2 Tx slots	Back	5mm	Reduced	661	1880	23.63	24.50	1.222	0.03	1.020	1.246
	GSM1900	GPRS 2 Tx slots	Left Side	5mm	Reduced	810	1909.8	21.95	22.50	1.135	0.05	0.024	0.027
	GSM1900	GPRS 2 Tx slots	Right Side	5mm	Reduced	810	1909.8	21.95	22.50	1.135	0.03	0.019	0.021
	GSM1900	GPRS 2 Tx slots	Bottom Side	5mm	Reduced	810	1909.8	21.95	22.50	1.135	-0.04	0.996	1.130
	GSM1900	GPRS 2 Tx slots	Bottom Side	5mm	Reduced	512	1850.2	21.70	22.50	1.202	0.04	0.947	1.139
	GSM1900	GPRS 2 Tx slots	Bottom Side	5mm	Reduced	661	1880	21.56	22.50	1.242	0.08	0.971	1.206



<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	5mm	Reduced	9538	1907.6	15.31	16.00	1.172	-0.18	0.783	0.918
	WCDMA II	RMC 12.2Kbps	Front	5mm	Reduced	9262	1852.4	15.20	16.00	1.202	-0.05	0.856	1.029
	WCDMA II	RMC 12.2Kbps	Front	5mm	Reduced	9400	1880	15.16	16.00	1.213	0.01	0.831	1.008
	WCDMA II	RMC 12.2Kbps	Back	5mm	Reduced	9538	1907.6	15.31	16.00	1.172	0.03	1.030	1.207
	WCDMA II	RMC 12.2Kbps	Back	5mm	Reduced	9262	1852.4	15.20	16.00	1.202	0.06	1.040	1.250
25	WCDMA II	RMC 12.2Kbps	Back	5mm	Reduced	9400	1880	15.16	16.00	1.213	0.04	1.060	1.286
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	Reduced	9538	1907.6	12.83	14.50	1.469	-0.06	0.011	0.016
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	Reduced	9538	1907.6	12.83	14.50	1.469	-0.07	0.016	0.024
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9538	1907.6	12.83	14.50	1.469	0.07	0.815	1.197
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9262	1852.4	12.80	14.50	1.479	0.09	0.856	1.266
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Reduced	9400	1880	12.76	14.50	1.493	0.06	0.837	1.249
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Reduced	1513	1752.6	16.45	17.00	1.135	0.06	0.877	0.995
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Reduced	1312	1712.4	16.36	17.00	1.159	0.18	0.913	1.058
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Reduced	1413	1732.6	16.43	17.00	1.140	0.03	0.861	0.982
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Reduced	1513	1752.6	16.45	17.00	1.135	0.17	0.994	1.128
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Reduced	1312	1712.4	16.36	17.00	1.159	0.04	1.040	1.205
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Reduced	1413	1732.6	16.43	17.00	1.140	0.19	0.960	1.095
	WCDMA IV	RMC 12.2Kbps	Left Side	5mm	Reduced	1513	1752.6	14.48	15.50	1.265	0.04	0.027	0.035
	WCDMA IV	RMC 12.2Kbps	Right Side	5mm	Reduced	1513	1752.6	14.48	15.50	1.265	0.06	0.033	0.041
26	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1513	1752.6	14.48	15.50	1.265	0.08	0.988	1.250
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1312	1712.4	14.47	15.50	1.268	0.05	0.848	1.075
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Reduced	1413	1732.6	14.42	15.50	1.282	0.08	0.870	1.116
	WCDMA V	RMC 12.2Kbps	Front	5mm	Reduced	4233	846.6	22.08	23.00	1.236	0.09	0.933	1.153
	WCDMA V	RMC 12.2Kbps	Front	5mm	Reduced	4132	826.4	21.97	23.00	1.268	-0.04	0.954	1.209
	WCDMA V	RMC 12.2Kbps	Front	5mm	Reduced	4182	836.4	22.02	23.00	1.253	0.02	0.951	1.192
	WCDMA V	RMC 12.2Kbps	Back	5mm	Reduced	4233	846.6	22.08	23.00	1.236	0.07	0.831	1.027
	WCDMA V	RMC 12.2Kbps	Back	5mm	Reduced	4132	826.4	21.97	23.00	1.268	0.02	0.849	1.076
	WCDMA V	RMC 12.2Kbps	Back	5mm	Reduced	4182	836.4	22.02	23.00	1.253	0.05	0.862	1.080
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	Reduced	4233	846.6	22.08	23.00	1.236	-0.14	0.200	0.247
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	Reduced	4233	846.6	22.08	23.00	1.236	0.04	0.574	0.709
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4233	846.6	22.08	23.00	1.236	0.06	0.928	1.147
27	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4132	826.4	21.97	23.00	1.268	0.08	0.969	1.228
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Reduced	4182	836.4	22.02	23.00	1.253	0.05	0.978	1.226



<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC10	RTAP 153.6Kbps	Front	5mm	Full	684	823.1	24.21	25.00	1.199	0.07	0.859	1.030
28	CDMA2000 BC10	RTAP 153.6Kbps	Front	5mm	Full	476	817.9	24.13	25.00	1.222	0.09	0.872	1.065
	CDMA2000 BC10	RTAP 153.6Kbps	Front	5mm	Full	580	820.5	24.15	25.00	1.216	0.06	0.849	1.033
	CDMA2000 BC10	RTAP 153.6Kbps	Back	5mm	Full	684	823.1	24.21	25.00	1.199	0.05	0.867	1.040
	CDMA2000 BC10	RTAP 153.6Kbps	Back	5mm	Full	476	817.9	24.13	25.00	1.222	0.17	0.798	0.975
	CDMA2000 BC10	RTAP 153.6Kbps	Back	5mm	Full	580	820.5	24.15	25.00	1.216	-0.14	0.787	0.957
	CDMA2000 BC10	RTAP 153.6Kbps	Left Side	5mm	Full	684	823.1	24.21	25.00	1.199	0.19	0.208	0.249
	CDMA2000 BC10	RTAP 153.6Kbps	Right Side	5mm	Full	684	823.1	24.21	25.00	1.199	-0.14	0.467	0.560
	CDMA2000 BC10	RTAP 153.6Kbps	Bottom Side	5mm	Full	684	823.1	24.21	25.00	1.199	0.04	0.817	0.980
	CDMA2000 BC10	RTAP 153.6Kbps	Bottom Side	5mm	Full	476	817.9	24.13	25.00	1.222	0.06	0.653	0.798
	CDMA2000 BC10	RTAP 153.6Kbps	Bottom Side	5mm	Full	580	820.5	24.15	25.00	1.216	-0.06	0.621	0.755
	CDMA2000 BC0	RTAP 153.6Kbps	Front	5mm	Full	1013	824.7	24.29	25.00	1.178	0.06	1.140	1.342
29	CDMA2000 BC0	RTAP 153.6Kbps	Front	5mm	Full	384	836.52	24.17	25.00	1.211	-0.06	1.110	1.344
	CDMA2000 BC0	RTAP 153.6Kbps	Front	5mm	Full	777	848.31	24.26	25.00	1.186	-0.07	1.030	1.221
	CDMA2000 BC0	RTAP 153.6Kbps	Back	5mm	Full	1013	824.7	24.29	25.00	1.178	0.07	1.050	1.236
	CDMA2000 BC0	RTAP 153.6Kbps	Back	5mm	Full	384	836.52	24.17	25.00	1.211	0.09	1.030	1.247
	CDMA2000 BC0	RTAP 153.6Kbps	Back	5mm	Full	777	848.31	24.26	25.00	1.186	0.01	0.979	1.161
	CDMA2000 BC0	RTAP 153.6Kbps	Left Side	5mm	Full	1013	824.7	24.29	25.00	1.178	0.03	0.297	0.350
	CDMA2000 BC0	RTAP 153.6Kbps	Right Side	5mm	Full	1013	824.7	24.29	25.00	1.178	0.04	0.627	0.738
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	5mm	Full	1013	824.7	24.29	25.00	1.178	-0.03	0.969	1.141
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	5mm	Full	384	836.52	24.17	25.00	1.211	0.06	0.815	0.987
	CDMA2000 BC0	RTAP 153.6Kbps	Bottom Side	5mm	Full	777	848.31	24.26	25.00	1.186	0.02	0.778	0.923
	CDMA2000 BC1	RTAP 153.6Kbps	Front	5mm	Reduced	1175	1908.75	15.77	16.00	1.054	0.03	0.927	0.977
	CDMA2000 BC1	RTAP 153.6Kbps	Front	5mm	Reduced	25	1851.25	15.73	16.00	1.064	0.01	1.070	1.139
	CDMA2000 BC1	RTAP 153.6Kbps	Front	5mm	Reduced	600	1880	15.93	16.00	1.016	-0.01	0.991	1.007
	CDMA2000 BC1	RTAP 153.6Kbps	Back	5mm	Reduced	1175	1908.75	15.77	16.00	1.054	0.02	1.170	1.234
	CDMA2000 BC1	RTAP 153.6Kbps	Back	5mm	Reduced	25	1851.25	15.73	16.00	1.064	0.03	1.250	1.330
	CDMA2000 BC1	RTAP 153.6Kbps	Back	5mm	Reduced	600	1880	15.93	16.00	1.016	0.01	1.220	1.240
	CDMA2000 BC1	RTAP 153.6Kbps	Left Side	5mm	Reduced	600	1880	15.93	16.00	1.016	0.15	0.019	0.019
	CDMA2000 BC1	RTAP 153.6Kbps	Right Side	5mm	Reduced	600	1880	15.93	16.00	1.016	0.02	0.031	0.032
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	5mm	Reduced	1175	1908.75	15.77	16.00	1.054	0.03	1.290	1.360
30	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	5mm	Reduced	25	1851.25	15.73	16.00	1.064	0.06	1.310	1.394
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	5mm	Reduced	600	1880	15.93	16.00	1.016	-0.03	1.280	1.301



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 7	20M	QPSK	1	99	Front	5mm	Reduced	21100	2535	19.95	20.00	1.012	0.03	1.090	1.103
	LTE Band 7	20M	QPSK	1	99	Front	5mm	Reduced	20850	2510	19.72	20.00	1.067	0.01	1.060	1.131
	LTE Band 7	20M	QPSK	1	99	Front	5mm	Reduced	21350	2560	19.83	20.00	1.040	-0.01	1.100	1.144
	LTE Band 7	20M	QPSK	50	0	Front	5mm	Reduced	21100	2535	19.87	20.00	1.030	0.03	1.200	1.236
	LTE Band 7	20M	QPSK	50	0	Front	5mm	Reduced	20850	2510	19.82	20.00	1.042	0.05	1.160	1.209
	LTE Band 7	20M	QPSK	50	0	Front	5mm	Reduced	21350	2560	19.79	20.00	1.050	0.01	1.240	1.301
	LTE Band 7	20M	QPSK	100	0	Front	5mm	Reduced	21100	2535	19.78	20.00	1.052	0.03	1.210	1.273
	LTE Band 7	20M	QPSK	1	99	Back	5mm	Reduced	21100	2535	19.95	20.00	1.012	0.02	1.260	1.275
	LTE Band 7	20M	QPSK	1	99	Back	5mm	Reduced	20850	2510	19.72	20.00	1.067	0.03	1.260	1.344
	LTE Band 7	20M	QPSK	1	99	Back	5mm	Reduced	21350	2560	19.83	20.00	1.040	0.06	1.230	1.279
	LTE Band 7	20M	QPSK	50	0	Back	5mm	Reduced	21100	2535	19.87	20.00	1.030	0.01	1.320	1.360
31	LTE Band 7	20M	QPSK	50	0	Back	5mm	Reduced	20850	2510	19.82	20.00	1.042	0.03	1.330	1.386
	LTE Band 7	20M	QPSK	50	0	Back	5mm	Reduced	21350	2560	19.79	20.00	1.050	0.05	1.250	1.312
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Reduced	21100	2535	19.78	20.00	1.052	0.05	1.310	1.378
	LTE Band 7	20M	QPSK	1	99	Left Side	5mm	Reduced	21100	2535	19.95	20.00	1.012	0.11	1.020	1.032
	LTE Band 7	20M	QPSK	1	99	Left Side	5mm	Reduced	20850	2510	19.72	20.00	1.067	0.03	0.984	1.050
	LTE Band 7	20M	QPSK	1	99	Left Side	5mm	Reduced	21350	2560	19.83	20.00	1.040	0.02	1.090	1.134
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	Reduced	21100	2535	19.87	20.00	1.030	0.05	1.080	1.113
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	Reduced	20850	2510	19.82	20.00	1.042	0.01	1.030	1.074
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	Reduced	21350	2560	19.79	20.00	1.050	-0.01	1.110	1.165
	LTE Band 7	20M	QPSK	100	0	Left Side	5mm	Reduced	21100	2535	19.78	20.00	1.052	0.03	1.090	1.147
	LTE Band 7	20M	QPSK	1	99	Bottom Side	5mm	Reduced	21100	2535	19.95	20.00	1.012	0.06	0.994	1.006
	LTE Band 7	20M	QPSK	1	99	Bottom Side	5mm	Reduced	20850	2510	19.72	20.00	1.067	0.04	0.981	1.046
	LTE Band 7	20M	QPSK	1	99	Bottom Side	5mm	Reduced	21350	2560	19.83	20.00	1.040	0.06	1.050	1.092
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	Reduced	21100	2535	19.87	20.00	1.030	0.01	1.070	1.103
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	Reduced	20850	2510	19.82	20.00	1.042	0.02	1.030	1.074
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	Reduced	21350	2560	19.79	20.00	1.050	0.05	1.070	1.123
	LTE Band 7	20M	QPSK	100	0	Bottom Side	5mm	Reduced	21100	2535	19.78	20.00	1.052	0.01	1.060	1.115
32	LTE Band 12	10M	QPSK	1	49	Front	5mm	Full	23095	707.5	23.51	24.00	1.119	0.09	0.730	0.817
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Full	23095	707.5	22.33	23.00	1.167	-0.02	0.465	0.543
	LTE Band 12	10M	QPSK	50	0	Front	5mm	Full	23095	707.5	22.27	23.00	1.183	0.03	0.444	0.525
	LTE Band 12	10M	QPSK	1	49	Back	5mm	Full	23095	707.5	23.51	24.00	1.119	-0.06	0.722	0.808
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Full	23095	707.5	22.33	23.00	1.167	0.02	0.434	0.506
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Full	23095	707.5	22.27	23.00	1.183	0.17	0.417	0.493
	LTE Band 12	10M	QPSK	1	49	Left Side	5mm	Full	23095	707.5	23.51	24.00	1.119	0.02	0.494	0.553
	LTE Band 12	10M	QPSK	25	0	Left Side	5mm	Full	23095	707.5	22.33	23.00	1.167	0.15	0.233	0.272
	LTE Band 12	10M	QPSK	1	49	Right Side	5mm	Full	23095	707.5	23.51	24.00	1.119	0.04	0.658	0.737
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	Full	23095	707.5	22.33	23.00	1.167	0.05	0.370	0.432
	LTE Band 12	10M	QPSK	1	49	Bottom Side	5mm	Full	23095	707.5	23.51	24.00	1.119	-0.06	0.480	0.537
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5mm	Full	23095	707.5	22.33	23.00	1.167	0.01	0.278	0.324
	LTE Band 13	10M	QPSK	1	0	Front	5mm	Full	23230	782	23.88	24.00	1.028	-0.07	1.180	1.213
	LTE Band 13	10M	QPSK	25	12	Front	5mm	Full	23230	782	22.62	23.00	1.091	0.03	0.537	0.586
	LTE Band 13	10M	QPSK	50	0	Front	5mm	Full	23230	782	22.55	23.00	1.109	0.04	0.352	0.390
	LTE Band 13	10M	QPSK	1	0	Back	5mm	Full	23230	782	23.88	24.00	1.028	0.06	0.793	0.815
	LTE Band 13	10M	QPSK	25	12	Back	5mm	Full	23230	782	22.62	23.00	1.091	0.14	0.347	0.379
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Full	23230	782	22.55	23.00	1.109	0.05	0.363	0.403
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	Reduced	23230	782	23.20	23.50	1.072	0.02	0.602	0.645
	LTE Band 13	10M	QPSK	25	12	Left Side	5mm	Reduced	23230	782	22.57	23.00	1.104	0.06	0.337	0.372
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	Reduced	23230	782	23.20	23.50	1.072	-0.01	0.931	0.998
	LTE Band 13	10M	QPSK	25	12	Right Side	5mm	Reduced	23230	782	22.57	23.00	1.104	0.01	0.530	0.585
	LTE Band 13	10M	QPSK	50	0	Right Side	5mm	Reduced	23230	782	22.52	23.00	1.117	0.03	0.538	0.601
33	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	Reduced	23230	782	23.20	23.50	1.072	0.09	1.250	1.339
	LTE Band 13	10M	QPSK	25	12	Bottom Side	5mm	Reduced	23230	782	22.57	23.00	1.104	0.02	0.554	0.612
	LTE Band 13	10M	QPSK	50	0	Bottom Side	5mm	Reduced	23230	782	22.52	23.00	1.117	0.01	0.552	0.617



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
34	LTE Band 26	15M	QPSK	1	74	Front	5mm	Reduced	26865	831.5	22.54	23.00	1.112	0.01	1.150	1.278
	LTE Band 26	15M	QPSK	36	0	Front	5mm	Reduced	26865	831.5	22.47	23.00	1.130	0.02	0.730	0.825
	LTE Band 26	15M	QPSK	75	0	Front	5mm	Reduced	26865	831.5	22.31	23.00	1.172	0.05	0.929	1.089
	LTE Band 26	15M	QPSK	1	74	Back	5mm	Reduced	26865	831.5	22.54	23.00	1.112	0.09	1.040	1.156
	LTE Band 26	15M	QPSK	36	0	Back	5mm	Reduced	26865	831.5	22.47	23.00	1.130	0.01	0.752	0.850
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Reduced	26865	831.5	22.31	23.00	1.172	-0.15	0.561	0.658
	LTE Band 26	15M	QPSK	1	74	Left Side	5mm	Reduced	26865	831.5	22.54	23.00	1.112	0.06	0.213	0.237
	LTE Band 26	15M	QPSK	36	0	Left Side	5mm	Reduced	26865	831.5	22.47	23.00	1.130	0.02	0.164	0.185
	LTE Band 26	15M	QPSK	1	74	Right Side	5mm	Reduced	26865	831.5	22.54	23.00	1.112	0.07	0.539	0.599
	LTE Band 26	15M	QPSK	36	0	Right Side	5mm	Reduced	26865	831.5	22.47	23.00	1.130	0.02	0.390	0.441
	LTE Band 26	15M	QPSK	1	74	Bottom Side	5mm	Reduced	26865	831.5	22.54	23.00	1.112	0.07	0.889	0.988
	LTE Band 26	15M	QPSK	36	0	Bottom Side	5mm	Reduced	26865	831.5	22.47	23.00	1.130	0.06	0.478	0.540
	LTE Band 26	15M	QPSK	75	0	Bottom Side	5mm	Reduced	26865	831.5	22.31	23.00	1.172	0.02	0.596	0.699
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Reduced	26590	1905	16.82	17.00	1.042	0.02	0.895	0.933
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Reduced	26140	1860	16.70	17.00	1.072	0.03	0.926	0.992
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Reduced	26340	1880	16.74	17.00	1.062	0.08	0.881	0.935
	LTE Band 25	20M	QPSK	50	0	Front	5mm	Reduced	26590	1905	16.57	17.00	1.104	0.08	0.865	0.955
	LTE Band 25	20M	QPSK	50	0	Front	5mm	Reduced	26140	1860	16.54	17.00	1.112	0.02	0.915	1.017
	LTE Band 25	20M	QPSK	50	0	Front	5mm	Reduced	26340	1880	16.47	17.00	1.130	0.05	0.868	0.981
	LTE Band 25	20M	QPSK	100	0	Front	5mm	Reduced	26590	1905	16.51	17.00	1.119	0.06	0.858	0.960
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Reduced	26590	1905	16.82	17.00	1.042	0.03	1.150	1.199
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Reduced	26140	1860	16.70	17.00	1.072	0.02	1.170	1.254
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Reduced	26340	1880	16.74	17.00	1.062	0.03	1.150	1.221
35	LTE Band 25	20M	QPSK	50	0	Back	5mm	Reduced	26590	1905	16.57	17.00	1.104	-0.03	1.200	1.325
	LTE Band 25	20M	QPSK	50	0	Back	5mm	Reduced	26140	1860	16.54	17.00	1.112	0.05	1.120	1.245
	LTE Band 25	20M	QPSK	50	0	Back	5mm	Reduced	26340	1880	16.47	17.00	1.130	0.07	1.120	1.265
	LTE Band 25	20M	QPSK	100	0	Back	5mm	Reduced	26590	1905	16.51	17.00	1.119	0.07	1.110	1.243
	LTE Band 25	20M	QPSK	1	49	Left Side	5mm	Reduced	26590	1905	14.89	15.00	1.026	0.06	0.014	0.015
	LTE Band 25	20M	QPSK	50	0	Left Side	5mm	Reduced	26590	1905	14.82	15.00	1.042	0.09	0.014	0.015
	LTE Band 25	20M	QPSK	1	49	Right Side	5mm	Reduced	26590	1905	14.89	15.00	1.026	0.012	0.026	0.027
	LTE Band 25	20M	QPSK	50	0	Right Side	5mm	Reduced	26590	1905	14.82	15.00	1.042	0.15	0.022	0.023
	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Reduced	26590	1905	14.89	15.00	1.026	0.02	1.130	1.159
	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Reduced	26140	1860	14.61	15.00	1.094	0.09	1.030	1.127
	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Reduced	26340	1880	14.86	15.00	1.033	-0.13	1.040	1.074
	LTE Band 25	20M	QPSK	50	0	Bottom Side	5mm	Reduced	26590	1905	14.82	15.00	1.042	0.08	1.130	1.178
	LTE Band 25	20M	QPSK	50	0	Bottom Side	5mm	Reduced	26140	1860	14.63	15.00	1.089	0.01	1.170	1.274
	LTE Band 25	20M	QPSK	50	0	Bottom Side	5mm	Reduced	26340	1880	14.72	15.00	1.067	0.02	1.150	1.227
	LTE Band 25	20M	QPSK	100	0	Bottom Side	5mm	Reduced	26590	1905	14.74	15.00	1.062	0.07	1.140	1.210



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66	20M	QPSK	1	99	Front	5mm	Reduced	132572	1770	17.70	18.00	1.072	0.01	0.883	0.946
	LTE Band 66	20M	QPSK	1	99	Front	5mm	Reduced	132072	1770	17.33	18.00	1.167	0.02	0.834	0.973
	LTE Band 66	20M	QPSK	1	99	Front	5mm	Reduced	132322	1770	17.48	18.00	1.127	0.03	0.724	0.816
	LTE Band 66	20M	QPSK	50	50	Front	5mm	Reduced	132572	1770	17.45	18.00	1.135	0.07	0.805	0.914
	LTE Band 66	20M	QPSK	50	50	Front	5mm	Reduced	132072	1770	17.26	18.00	1.186	0.03	0.799	0.947
	LTE Band 66	20M	QPSK	50	50	Front	5mm	Reduced	132322	1770	17.30	18.00	1.175	0.09	0.690	0.811
	LTE Band 66	20M	QPSK	100	0	Front	5mm	Reduced	132572	1770	17.41	18.00	1.146	-0.09	0.811	0.929
	LTE Band 66	20M	QPSK	1	99	Back	5mm	Reduced	132572	1770	17.70	18.00	1.072	0.06	0.992	1.063
36	LTE Band 66	20M	QPSK	1	99	Back	5mm	Reduced	132072	1770	17.33	18.00	1.167	0.1	1.180	1.377
	LTE Band 66	20M	QPSK	1	99	Back	5mm	Reduced	132322	1770	17.48	18.00	1.127	0.06	1.080	1.217
	LTE Band 66	20M	QPSK	50	50	Back	5mm	Reduced	132572	1770	17.45	18.00	1.135	0.07	0.928	1.053
	LTE Band 66	20M	QPSK	50	50	Back	5mm	Reduced	132072	1770	17.26	18.00	1.186	0.02	0.883	1.047
	LTE Band 66	20M	QPSK	50	50	Back	5mm	Reduced	132322	1770	17.30	18.00	1.175	0.03	0.786	0.923
	LTE Band 66	20M	QPSK	100	0	Back	5mm	Reduced	132572	1770	17.41	18.00	1.146	0.06	0.930	1.065
	LTE Band 66	20M	QPSK	1	99	Left Side	5mm	Reduced	132572	1770	15.10	15.50	1.096	0.03	0.028	0.030
	LTE Band 66	20M	QPSK	50	50	Left Side	5mm	Reduced	132572	1770	14.77	15.50	1.183	0.09	0.026	0.031
	LTE Band 66	20M	QPSK	1	99	Right Side	5mm	Reduced	132572	1770	15.10	15.50	1.096	-0.01	0.031	0.034
	LTE Band 66	20M	QPSK	50	50	Right Side	5mm	Reduced	132572	1770	14.77	15.50	1.183	0.08	0.028	0.033
	LTE Band 66	20M	QPSK	1	99	Bottom Side	5mm	Reduced	132572	1770	15.10	15.50	1.096	0.01	1.030	1.129
	LTE Band 66	20M	QPSK	1	99	Bottom Side	5mm	Reduced	132072	1770	15.01	15.50	1.119	0.02	0.920	1.030
	LTE Band 66	20M	QPSK	1	99	Bottom Side	5mm	Reduced	132322	1770	15.06	15.50	1.107	0.08	0.898	0.994
	LTE Band 66	20M	QPSK	50	50	Bottom Side	5mm	Reduced	132572	1770	14.77	15.50	1.183	-0.03	0.877	1.038
	LTE Band 66	20M	QPSK	50	50	Bottom Side	5mm	Reduced	132072	1770	14.72	15.50	1.197	0.08	0.845	1.011
	LTE Band 66	20M	QPSK	50	50	Bottom Side	5mm	Reduced	132322	1770	14.66	15.50	1.213	0.01	0.772	0.937
	LTE Band 66	20M	QPSK	100	0	Bottom Side	5mm	Reduced	132572	1770	14.75	15.50	1.189	0.05	0.802	0.953
	LTE Band 71	20M	QPSK	1	49	Front	5mm	Full	133322	683	22.94	24.00	1.276	0.04	0.567	0.724
	LTE Band 71	20M	QPSK	50	50	Front	5mm	Full	133322	683	22.32	23.00	1.169	0.06	0.336	0.393
	LTE Band 71	20M	QPSK	1	49	Back	5mm	Full	133322	683	22.94	24.00	1.276	-0.03	0.591	0.754
	LTE Band 71	20M	QPSK	50	50	Back	5mm	Full	133322	683	22.32	23.00	1.169	0.04	0.330	0.386
	LTE Band 71	20M	QPSK	1	49	Left Side	5mm	Full	133322	683	22.94	24.00	1.276	0.03	0.270	0.345
	LTE Band 71	20M	QPSK	50	50	Left Side	5mm	Full	133322	683	22.32	23.00	1.169	0.02	0.152	0.178
	LTE Band 71	20M	QPSK	1	49	Right Side	5mm	Full	133322	683	22.94	24.00	1.276	0.01	0.412	0.526
	LTE Band 71	20M	QPSK	50	50	Right Side	5mm	Full	133322	683	22.32	23.00	1.169	0.04	0.239	0.280
37	LTE Band 71	20M	QPSK	1	49	Bottom Side	5mm	Full	133322	683	22.94	24.00	1.276	0.01	0.785	1.002
	LTE Band 71	20M	QPSK	50	50	Bottom Side	5mm	Full	133322	683	22.32	23.00	1.169	0.06	0.432	0.505



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Reduced	41055	2636.5	19.34	19.50	1.038	62.9	1.006	0.03	0.893	0.932
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Reduced	39750	2506	18.95	19.50	1.135	62.9	1.006	0.03	0.895	1.022
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Reduced	40185	2549.5	18.94	19.50	1.138	62.9	1.006	0.05	0.922	1.055
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Reduced	40620	2593	18.92	19.50	1.143	62.9	1.006	0.01	0.884	1.016
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Reduced	41490	2680	19.30	19.50	1.047	62.9	1.006	0.06	0.804	0.847
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Reduced	41055	2636.5	19.32	19.50	1.042	62.9	1.006	0.04	0.879	0.922
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Reduced	39750	2506	19.14	19.50	1.086	62.9	1.006	0.02	0.922	1.008
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Reduced	40185	2549.5	18.99	19.50	1.125	62.9	1.006	0.01	0.950	1.075
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Reduced	40620	2593	18.97	19.50	1.130	62.9	1.006	0.04	0.901	1.024
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Reduced	41490	2680	19.23	19.50	1.064	62.9	1.006	0.01	0.805	0.862
	LTE Band 41	20M	QPSK	100	0	Front	5mm	Reduced	41055	2636.5	19.15	19.50	1.084	62.9	1.006	0.04	0.842	0.918
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Reduced	41055	2636.5	19.34	19.50	1.038	62.9	1.006	0.01	1.050	1.096
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Reduced	39750	2506	18.95	19.50	1.135	62.9	1.006	0.06	1.200	1.370
38	LTE Band 41	20M	QPSK	1	49	Back	5mm	Reduced	40185	2549.5	18.94	19.50	1.138	62.9	1.006	0.03	1.230	1.408
	LTE Band 41C	20M	QPSK	1	49	Back	5mm	Reduced	40185+40383	2549.5+2569.3	18.45	19.50	1.274	62.9	1.006	0.03	0.930	1.191
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Reduced	40620	2593	18.92	19.50	1.143	62.9	1.006	0.03	1.130	1.299
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Reduced	41490	2680	19.30	19.50	1.047	62.9	1.006	0.06	1.070	1.127
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Reduced	41055	2636.5	19.32	19.50	1.042	62.9	1.006	0.01	0.966	1.013
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Reduced	39750	2506	19.14	19.50	1.086	62.9	1.006	0.03	1.230	1.344
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Reduced	40185	2549.5	18.99	19.50	1.125	62.9	1.006	0.07	1.220	1.380
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Reduced	40620	2593	18.97	19.50	1.130	62.9	1.006	-0.08	1.060	1.205
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Reduced	41490	2680	19.23	19.50	1.064	62.9	1.006	0.01	0.954	1.021
	LTE Band 41	20M	QPSK	100	0	Back	5mm	Reduced	41055	2636.5	19.15	19.50	1.084	62.9	1.006	0.01	1.130	1.232
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Reduced	41055	2636.5	18.23	18.50	1.064	62.9	1.006	0.06	0.823	0.881
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Reduced	39750	2506	18.11	18.50	1.094	62.9	1.006	0.05	0.769	0.846
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Reduced	40185	2549.5	18.12	18.50	1.091	62.9	1.006	0.01	0.924	1.015
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Reduced	40620	2593	18.13	18.50	1.089	62.9	1.006	0.04	0.885	0.969
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Reduced	41490	2680	18.12	18.50	1.091	62.9	1.006	0.05	0.746	0.819
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Reduced	41055	2636.5	18.21	18.50	1.069	62.9	1.006	0.03	0.850	0.914
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Reduced	39750	2506	17.99	18.50	1.125	62.9	1.006	-0.05	0.711	0.804
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Reduced	40185	2549.5	17.83	18.50	1.167	62.9	1.006	-0.02	0.781	0.917
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Reduced	40620	2593	18.11	18.50	1.094	62.9	1.006	-0.03	0.865	0.952
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Reduced	41490	2680	18.11	18.50	1.094	62.9	1.006	0.02	0.753	0.829
	LTE Band 41	20M	QPSK	100	0	Left Side	5mm	Reduced	41055	2636.5	17.82	18.50	1.169	62.9	1.006	-0.05	0.844	0.993
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Reduced	41055	2636.5	18.23	18.50	1.064	62.9	1.006	-0.01	1.030	1.103
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Reduced	39750	2506	18.11	18.50	1.094	62.9	1.006	0.03	0.767	0.844
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Reduced	40185	2549.5	18.12	18.50	1.091	62.9	1.006	0.012	0.986	1.083
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Reduced	40620	2593	18.13	18.50	1.089	62.9	1.006	0.05	0.850	0.931
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Reduced	41490	2680	18.12	18.50	1.091	62.9	1.006	-0.03	1.070	1.175
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Reduced	41055	2636.5	18.21	18.50	1.069	62.9	1.006	0.03	1.050	1.129
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Reduced	39750	2506	17.99	18.50	1.125	62.9	1.006	-0.05	0.791	0.895
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Reduced	40185	2549.5	17.83	18.50	1.167	62.9	1.006	-0.02	0.917	1.076
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Reduced	40620	2593	18.11	18.50	1.094	62.9	1.006	-0.03	0.932	1.026
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Reduced	41490	2680	18.11	18.50	1.094	62.9	1.006	0.02	0.846	0.931
	LTE Band 41	20M	QPSK	100	0	Bottom Side	5mm	Reduced	41055	2636.5	17.82	18.50	1.169	62.9	1.006	0.01	0.989	1.164
39	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	Reduced	40185	2549.5	19.03	19.50	1.114	42.9	1.009	0.01	0.818	0.920
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	Reduced	39750	2506	19.03	19.50	1.114	42.9	1.009	0.06	0.748	0.841
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	Reduced	41055	2636.5	19.38	19.50	1.028	42.9	1.009	0.01	0.681	0.706
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	Reduced	40620	2593	19.08	19.50	1.102	42.9	1.009	0.03	0.704	0.782
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	Reduced	41490	2680	19.28	19.50	1.052	42.9	1.009	0.06	0.696	0.739



<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	0.13	0.659	0.807
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Reduced	6	2437	18.08	19.00	1.236	97.59	1.025	0.02	0.498	0.631
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	-0.05	0.775	0.948
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	1	2412	17.69	19.00	1.352	97.59	1.025	-0.17	0.594	0.823
40	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	6	2437	18.08	19.00	1.236	97.59	1.025	0.04	0.792	1.003
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	0.02	0.355	0.434
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	0.12	0.760	0.930
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Reduced	6	2437	18.08	19.00	1.236	97.59	1.025	0.02	0.608	0.770

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	0.09	0.073	0.080
	Bluetooth	1Mbps	Back	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	0.07	0.074	0.081
	Bluetooth	1Mbps	Back	5mm	Full	0	2402	7.96	9.50	1.426	76.99	1.082	0.03	0.053	0.082
41	Bluetooth	1Mbps	Back	5mm	Full	39	2441	7.92	9.50	1.439	76.99	1.082	-0.17	0.070	0.110
	Bluetooth	1Mbps	Right Side	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	-0.03	0.073	0.080
	Bluetooth	1Mbps	Top Side	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	0.01	0.073	0.080
	Bluetooth	1Mbps	Front	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	-	n/a	n/a
	Bluetooth	1Mbps	Back	5mm	Full	39	2441	7.92	9.50	1.439	76.99	1.082	-	n/a	n/a

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	5mm	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	0.02	0.001	0.001
42	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	-0.09	0.864	1.339
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Reduced	48	5240	9.82	11.50	1.472	87.04	1.149	-0.09	0.763	1.291
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Reduced	36	5180	10.19	11.50	1.352	87.04	1.149	0.05	0.672	1.044
	WLAN5.2GHz	802.11a 6Mbps	Right Side	5mm	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	0.01	0.028	0.044
	WLAN5.2GHz	802.11a 6Mbps	Top Side	5mm	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	0.01	0.033	0.051
	WLAN5.8GHz	802.11a 6Mbps	Front	5mm	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	-0.06	0.689	1.150
	WLAN5.8GHz	802.11a 6Mbps	Right Side	5mm	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	0.01	0.078	0.130
	WLAN5.8GHz	802.11a 6Mbps	Top Side	5mm	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	0.02	0.055	0.092
43	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Reduced	149	5745	13.12	15.00	1.542	87.04	1.149	0.07	0.656	1.162
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Reduced	165	5825	13.31	15.00	1.476	87.04	1.149	-0.08	0.678	1.150



14.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 2 Tx slots	Front	5mm	-	Reduced	251	848.8	28.86	30.00	1.300	0.03	0.800	1.040
	GSM850	GPRS 2 Tx slots	Front	5mm	-	Reduced	128	824.2	28.75	30.00	1.334	0.09	1.040	1.387
44	GSM850	GPRS 2 Tx slots	Front	5mm	-	Reduced	189	836.4	28.82	30.00	1.312	0.04	1.060	1.391
	GSM850	GPRS 2 Tx slots	Back	5mm	-	Reduced	251	848.8	28.86	30.00	1.300	0.01	0.797	1.036
	GSM850	GPRS 2 Tx slots	Back	5mm	-	Reduced	128	824.2	28.75	30.00	1.334	0.09	1.000	1.334
	GSM850	GPRS 2 Tx slots	Back	5mm	-	Reduced	189	836.4	28.82	30.00	1.312	-0.03	1.040	1.365
	GSM850	GPRS 2 Tx slots	Front	5mm	Headset	Reduced	189	836.4	28.82	30.00	1.312	0.05	0.857	1.125
	GSM850	GPRS 2 Tx slots	Front	15mm	-	Full	189	836.4	29.53	30.50	1.250	0.09	0.135	0.169
	GSM850	GPRS 2 Tx slots	Back	19mm	-	Full	189	836.4	29.53	30.50	1.250	0.01	0.100	0.125
	GSM1900	GPRS 2 Tx slots	Front	5mm	-	Reduced	810	1909.8	23.73	24.50	1.194	0.03	0.802	0.958
	GSM1900	GPRS 2 Tx slots	Front	5mm	-	Reduced	512	1850.2	23.52	24.50	1.253	0.06	0.826	1.035
	GSM1900	GPRS 2 Tx slots	Front	5mm	-	Reduced	661	1880	23.63	24.50	1.222	0.04	0.810	0.990
	GSM1900	GPRS 2 Tx slots	Back	5mm	-	Reduced	810	1909.8	23.73	24.50	1.194	0.06	0.990	1.182
	GSM1900	GPRS 2 Tx slots	Back	5mm	-	Reduced	512	1850.2	23.52	24.50	1.253	0.05	0.958	1.201
45	GSM1900	GPRS 2 Tx slots	Back	5mm	-	Reduced	661	1880	23.63	24.50	1.222	0.03	1.020	1.246
	GSM1900	GPRS 2 Tx slots	Back	5mm	Headset	Reduced	661	1880	23.63	24.50	1.222	0.03	0.848	1.036
	GSM1900	GPRS 2 Tx slots	Front	15mm	-	Full	512	1850.2	26.75	27.50	1.189	0.03	0.334	0.397
	GSM1900	GPRS 2 Tx slots	Back	19mm	-	Full	661	1880	27.10	27.50	1.096	0.06	0.364	0.399

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	Reduced	9538	1907.6	15.31	16.00	1.172	-0.18	0.783	0.918
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	Reduced	9262	1852.4	15.20	16.00	1.202	-0.05	0.856	1.029
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	Reduced	9400	1880	15.16	16.00	1.213	0.01	0.831	1.008
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Reduced	9538	1907.6	15.31	16.00	1.172	0.03	1.030	1.207
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Reduced	9262	1852.4	15.20	16.00	1.202	0.06	1.040	1.250
46	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Reduced	9400	1880	15.16	16.00	1.213	0.04	1.060	1.286
	WCDMA II	RMC 12.2Kbps	Back	5mm	Headset	Reduced	9400	1880	15.16	16.00	1.213	0.04	0.919	1.115
	WCDMA II	RMC 12.2Kbps	Front	15mm	-	Full	9262	1852.4	23.50	24.00	1.122	0.05	0.983	1.103
	WCDMA II	RMC 12.2Kbps	Back	19mm	-	Full	9400	1880	23.41	24.00	1.146	0.17	1.120	1.283
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	Reduced	1513	1752.6	16.45	17.00	1.135	0.06	0.877	0.995
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	Reduced	1312	1712.4	16.36	17.00	1.159	0.18	0.913	1.058
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	Reduced	1413	1732.6	16.43	17.00	1.140	0.03	0.861	0.982
	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	Reduced	1513	1752.6	16.45	17.00	1.135	0.17	0.994	1.128
47	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	Reduced	1312	1712.4	16.36	17.00	1.159	0.04	1.040	1.205
	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	Reduced	1413	1732.6	16.43	17.00	1.140	0.19	0.960	1.095
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Headset	Reduced	1312	1712.4	16.36	17.00	1.159	-0.14	0.813	0.942
	WCDMA IV	RMC 12.2Kbps	Front	15mm	-	Full	1312	1712.4	23.32	24.00	1.169	0.03	0.691	0.808
	WCDMA IV	RMC 12.2Kbps	Back	19mm	-	Full	1312	1712.4	23.32	24.00	1.169	0.03	0.678	0.793
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Reduced	4233	846.6	22.08	23.00	1.236	0.09	0.933	1.153
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Reduced	4132	826.4	21.97	23.00	1.268	-0.04	0.954	1.209
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Reduced	4182	836.4	22.02	23.00	1.253	0.02	0.951	1.192
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Reduced	4233	846.6	22.08	23.00	1.236	0.07	0.831	1.027
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Reduced	4132	826.4	21.97	23.00	1.268	0.02	0.849	1.076
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Reduced	4182	836.4	22.02	23.00	1.253	0.05	0.862	1.080
	WCDMA V	RMC 12.2Kbps	Front	5mm	Headset	Reduced	4182	836.4	22.02	23.00	1.253	0.02	0.972	1.218
48	WCDMA V	RMC 12.2Kbps	Front	5mm	Headset	Reduced	4132	826.4	21.97	23.00	1.268	0.03	0.968	1.227
	WCDMA V	RMC 12.2Kbps	Front	5mm	Headset	Reduced	4233	846.6	22.08	23.00	1.236	0.02	0.925	1.143
	WCDMA V	RMC 12.2Kbps	Front	15mm	-	Full	4132	826.4	23.16	24.00	1.213	-0.07	0.390	0.473
	WCDMA V	RMC 12.2Kbps	Back	19mm	-	Full	4182	836.4	23.06	24.00	1.242	-0.01	0.280	0.348

**<CDMA SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	5mm	-	Full	684	823.1	24.23	25.00	1.194	0.06	0.968	1.156
49	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	5mm	-	Full	476	817.9	24.19	25.00	1.205	0.05	0.961	<b>1.158</b>
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Front	5mm	-	Full	580	820.5	24.12	25.00	1.225	0.17	0.932	1.141
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	5mm	-	Full	684	823.1	24.23	25.00	1.194	-0.14	0.943	1.126
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	5mm	-	Full	476	817.9	24.19	25.00	1.205	0.19	0.938	1.130
	CDMA2000 BC10	RC3 SO32 (F+SCH)	Back	5mm	-	Full	580	820.5	24.12	25.00	1.225	0.02	0.904	1.107
50	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	5mm	-	Full	1013	824.7	24.28	25.00	1.180	-0.09	1.140	<b>1.346</b>
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	5mm	-	Full	384	836.52	24.15	25.00	1.216	0.09	0.961	1.169
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	5mm	-	Full	777	848.31	24.22	25.00	1.197	0.12	1.080	1.292
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	5mm	-	Full	1013	824.7	24.28	25.00	1.180	0.17	1.050	1.239
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	5mm	-	Full	384	836.52	24.15	25.00	1.216	-0.14	0.990	1.204
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Back	5mm	-	Full	777	848.31	24.22	25.00	1.197	0.19	1.090	1.304
	CDMA2000 BC0	RC3 SO32 (F+SCH)	Front	5mm	Headset	Full	1013	824.7	24.28	25.00	1.180	-0.14	1.030	1.216
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	5mm	-	Reduced	1175	1908.75	17.21	17.50	1.069	0.02	0.973	1.040
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	5mm	-	Reduced	25	1851.25	17.44	17.50	1.014	0.06	1.120	1.136
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	5mm	-	Reduced	600	1880	17.20	17.50	1.072	0.05	1.030	1.104
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	5mm	-	Reduced	1175	1908.75	17.21	17.50	1.069	0.03	1.200	1.283
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	5mm	-	Reduced	25	1851.25	17.44	17.50	1.014	0.03	1.250	1.267
51	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	5mm	-	Reduced	600	1880	17.20	17.50	1.072	-0.05	1.220	<b>1.307</b>
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	5mm	Headset	Reduced	600	1880	17.20	17.50	1.072	-0.02	1.170	1.254
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Front	15mm	-	Full	25	1851.25	24.50	25.00	1.122	-0.03	0.191	0.214
	CDMA2000 BC1	RC3 SO32 (F+SCH)	Back	19mm	-	Full	600	1880	24.49	25.00	1.125	0.02	0.249	0.280

**<FDD LTE SAR>**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 7	20M	QPSK	1	99	Front	5mm	-	Reduced	21100	2535	19.95	20.00	1.012	0.03	1.090	1.103
	LTE Band 7	20M	QPSK	1	99	Front	5mm	-	Reduced	20850	2510	19.72	20.00	1.067	0.01	1.060	1.131
	LTE Band 7	20M	QPSK	1	99	Front	5mm	-	Reduced	21350	2560	19.83	20.00	1.040	-0.01	1.100	1.144
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	Reduced	21100	2535	19.87	20.00	1.030	0.03	1.200	1.236
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	Reduced	20850	2510	19.82	20.00	1.042	0.05	1.160	1.209
	LTE Band 7	20M	QPSK	50	0	Front	5mm	-	Reduced	21350	2560	19.79	20.00	1.050	0.01	1.240	1.301
	LTE Band 7	20M	QPSK	100	0	Front	5mm	-	Reduced	21100	2535	19.78	20.00	1.052	0.03	1.210	1.273
	LTE Band 7	20M	QPSK	1	99	Back	5mm	-	Reduced	21100	2535	19.95	20.00	1.012	0.02	1.260	1.275
	LTE Band 7	20M	QPSK	1	99	Back	5mm	-	Reduced	20850	2510	19.72	20.00	1.067	0.03	1.260	1.344
	LTE Band 7	20M	QPSK	1	99	Back	5mm	-	Reduced	21350	2560	19.83	20.00	1.040	0.06	1.230	1.279
	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	Reduced	21100	2535	19.87	20.00	1.030	0.01	1.320	1.360
52	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	Reduced	20850	2510	19.82	20.00	1.042	0.03	1.330	<b>1.386</b>
	LTE Band 7	20M	QPSK	50	0	Back	5mm	-	Reduced	21350	2560	19.79	20.00	1.050	0.05	1.250	1.312
	LTE Band 7	20M	QPSK	100	0	Back	5mm	-	Reduced	21100	2535	19.78	20.00	1.052	0.05	1.310	1.378
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Headset	Reduced	21100	2535	19.78	20.00	1.052	0.1	1.290	1.357
	LTE Band 7	20M	QPSK	1	99	Front	15mm	-	Full	21350	2560	23.61	24.00	1.094	0.01	1.150	1.258
	LTE Band 7	20M	QPSK	1	99	Back	19mm	-	Full	20850	2510	23.70	24.00	1.072	0.03	0.912	0.977
53	LTE Band 12	10M	QPSK	1	49	Front	5mm	-	Full	23095	707.5	23.51	24.00	1.119	0.09	0.730	<b>0.817</b>
	LTE Band 12	10M	QPSK	25	0	Front	5mm	-	Full	23095	707.5	22.33	23.00	1.167	-0.02	0.465	0.543
	LTE Band 12	10M	QPSK	50	0	Front	5mm	-	Full	23095	707.5	22.27	23.00	1.183	0.03	0.444	0.525
	LTE Band 12	10M	QPSK	1	49	Back	5mm	-	Full	23095	707.5	23.51	24.00	1.119	-0.06	0.722	0.808
	LTE Band 12	10M	QPSK	25	0	Back	5mm	-	Full	23095	707.5	22.33	23.00	1.167	0.02	0.434	0.506
	LTE Band 12	10M	QPSK	50	0	Back	5mm	-	Full	23095	707.5	22.27	23.00	1.183	0.17	0.417	0.493



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
54	LTE Band 13	10M	QPSK	1	0	Front	5mm	-	Full	23230	782	23.88	24.00	1.028	-0.07	1.180	1.213
	LTE Band 13	10M	QPSK	25	12	Front	5mm	-	Full	23230	782	22.62	23.00	1.091	0.03	0.537	0.586
	LTE Band 13	10M	QPSK	50	0	Front	5mm	-	Full	23230	782	22.55	23.00	1.109	0.04	0.352	0.390
	LTE Band 13	10M	QPSK	1	0	Back	5mm	-	Full	23230	782	23.88	24.00	1.028	0.06	0.793	0.815
	LTE Band 13	10M	QPSK	25	12	Back	5mm	-	Full	23230	782	22.62	23.00	1.091	0.14	0.347	0.379
	LTE Band 13	10M	QPSK	50	0	Back	5mm	-	Full	23230	782	22.55	23.00	1.109	0.05	0.363	0.403
	LTE Band 13	10M	QPSK	1	0	Front	5mm	Headset	Full	23230	782	23.88	24.00	1.028	0.06	0.921	0.947
55	LTE Band 26	15M	QPSK	1	74	Front	5mm	-	Reduced	26865	831.5	22.54	23.00	1.112	0.01	1.150	1.278
	LTE Band 26	15M	QPSK	36	0	Front	5mm	-	Reduced	26865	831.5	22.47	23.00	1.130	0.02	0.730	0.825
	LTE Band 26	15M	QPSK	75	0	Front	5mm	-	Reduced	26865	831.5	22.31	23.00	1.172	0.05	0.929	1.089
	LTE Band 26	15M	QPSK	1	74	Back	5mm	-	Reduced	26865	831.5	22.54	23.00	1.112	0.09	1.040	1.156
	LTE Band 26	15M	QPSK	36	0	Back	5mm	-	Reduced	26865	831.5	22.47	23.00	1.130	0.01	0.752	0.850
	LTE Band 26	15M	QPSK	75	0	Back	5mm	-	Reduced	26865	831.5	22.31	23.00	1.172	-0.15	0.561	0.658
	LTE Band 26	15M	QPSK	1	74	Front	15mm	-	Full	26865	831.5	23.84	24.00	1.038	0.02	0.311	0.323
	LTE Band 26	15M	QPSK	1	74	Back	19mm	-	Full	26865	831.5	23.84	24.00	1.038	0.03	0.211	0.219
	LTE Band 25	20M	QPSK	1	49	Front	5mm	-	Reduced	26590	1905	16.82	17.00	1.042	0.02	0.895	0.933
	LTE Band 25	20M	QPSK	1	49	Front	5mm	-	Reduced	26140	1860	16.70	17.00	1.072	0.03	0.926	0.992
	LTE Band 25	20M	QPSK	1	49	Front	5mm	-	Reduced	26340	1880	16.74	17.00	1.062	0.08	0.881	0.935
	LTE Band 25	20M	QPSK	50	0	Front	5mm	-	Reduced	26590	1905	16.57	17.00	1.104	0.08	0.865	0.955
	LTE Band 25	20M	QPSK	50	0	Front	5mm	-	Reduced	26140	1860	16.54	17.00	1.112	0.02	0.915	1.017
	LTE Band 25	20M	QPSK	50	0	Front	5mm	-	Reduced	26340	1880	16.47	17.00	1.130	0.05	0.868	0.981
	LTE Band 25	20M	QPSK	100	0	Front	5mm	-	Reduced	26590	1905	16.51	17.00	1.119	0.06	0.858	0.960
	LTE Band 25	20M	QPSK	1	49	Back	5mm	-	Reduced	26590	1905	16.82	17.00	1.042	0.03	1.150	1.199
	LTE Band 25	20M	QPSK	1	49	Back	5mm	-	Reduced	26140	1860	16.70	17.00	1.072	0.02	1.170	1.254
	LTE Band 25	20M	QPSK	1	49	Back	5mm	-	Reduced	26340	1880	16.74	17.00	1.062	0.03	1.150	1.221
56	LTE Band 25	20M	QPSK	50	0	Back	5mm	-	Reduced	26590	1905	16.57	17.00	1.104	-0.03	1.200	1.325
	LTE Band 25	20M	QPSK	50	0	Back	5mm	-	Reduced	26140	1860	16.54	17.00	1.112	0.05	1.120	1.245
	LTE Band 25	20M	QPSK	50	0	Back	5mm	-	Reduced	26340	1880	16.47	17.00	1.130	0.07	1.120	1.265
	LTE Band 25	20M	QPSK	100	0	Back	5mm	-	Reduced	26590	1905	16.51	17.00	1.119	0.07	1.110	1.243
	LTE Band 25	20M	QPSK	50	0	Back	5mm	Headset	Reduced	26590	1905	16.57	17.00	1.104	-0.03	0.653	0.721
	LTE Band 25	20M	QPSK	1	49	Front	15mm	-	Full	26140	1860	23.63	24.00	1.089	0.03	0.809	0.881
	LTE Band 25	20M	QPSK	1	49	Back	19mm	-	Full	26590	1905	23.87	24.00	1.030	0.01	0.960	0.989



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66	20M	QPSK	1	99	Front	5mm	-	Reduced	132572	1770	17.70	18.00	1.072	0.01	0.883	0.946
	LTE Band 66	20M	QPSK	1	99	Front	5mm	-	Reduced	132072	1770	17.33	18.00	1.167	0.02	0.834	0.973
	LTE Band 66	20M	QPSK	1	99	Front	5mm	-	Reduced	132322	1770	17.48	18.00	1.127	0.03	0.724	0.816
	LTE Band 66	20M	QPSK	50	50	Front	5mm	-	Reduced	132572	1770	17.45	18.00	1.135	0.07	0.805	0.914
	LTE Band 66	20M	QPSK	50	50	Front	5mm	-	Reduced	132072	1770	17.26	18.00	1.186	0.03	0.799	0.947
	LTE Band 66	20M	QPSK	50	50	Front	5mm	-	Reduced	132322	1770	17.30	18.00	1.175	0.09	0.690	0.811
	LTE Band 66	20M	QPSK	100	0	Front	5mm	-	Reduced	132572	1770	17.41	18.00	1.146	-0.09	0.811	0.929
	LTE Band 66	20M	QPSK	1	99	Back	5mm	-	Reduced	132572	1770	17.70	18.00	1.072	0.06	0.992	1.063
57	LTE Band 66	20M	QPSK	1	99	Back	5mm	-	Reduced	132072	1770	17.33	18.00	1.167	0.1	1.180	1.377
	LTE Band 66	20M	QPSK	1	99	Back	5mm	-	Reduced	132322	1770	17.48	18.00	1.127	0.06	1.080	1.217
	LTE Band 66	20M	QPSK	50	50	Back	5mm	-	Reduced	132572	1770	17.45	18.00	1.135	0.07	0.928	1.053
	LTE Band 66	20M	QPSK	50	50	Back	5mm	-	Reduced	132072	1770	17.26	18.00	1.186	0.02	0.883	1.047
	LTE Band 66	20M	QPSK	50	50	Back	5mm	-	Reduced	132322	1770	17.30	18.00	1.175	0.03	0.786	0.923
	LTE Band 66	20M	QPSK	100	0	Back	5mm	-	Reduced	132572	1770	17.41	18.00	1.146	0.06	0.930	1.065
	LTE Band 66	20M	QPSK	1	99	Back	5mm	Headset	Reduced	132072	1770	17.33	18.00	1.167	-0.01	0.985	1.149
	LTE Band 66	20M	QPSK	1	99	Front	15mm	-	Full	132072	1770	23.72	24.00	1.067	0.03	0.576	0.614
	LTE Band 66	20M	QPSK	1	99	Back	19mm	-	Full	132072	1770	23.72	24.00	1.067	0.03	0.569	0.607
	LTE Band 71	20M	QPSK	1	49	Front	5mm	-	Full	133322	683	22.94	24.00	1.276	0.04	0.567	0.724
	LTE Band 71	20M	QPSK	50	50	Front	5mm	-	Full	133322	683	22.32	23.00	1.169	0.06	0.336	0.393
58	LTE Band 71	20M	QPSK	1	49	Back	5mm	-	Full	133322	683	22.94	24.00	1.276	-0.03	0.591	0.754
	LTE Band 71	20M	QPSK	50	50	Back	5mm	-	Full	133322	683	22.32	23.00	1.169	0.04	0.330	0.386



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Reduced	41055	2636.5	19.34	19.50	1.038	62.9	1.006	0.03	0.893	0.932
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Reduced	39750	2506	18.95	19.50	1.135	62.9	1.006	0.03	0.895	1.022
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Reduced	40185	2549.5	18.94	19.50	1.138	62.9	1.006	0.05	0.922	1.055
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Reduced	40620	2593	18.92	19.50	1.143	62.9	1.006	0.01	0.884	1.016
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Reduced	41490	2680	19.30	19.50	1.047	62.9	1.006	0.06	0.804	0.847
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Reduced	41055	2636.5	19.32	19.50	1.042	62.9	1.006	0.04	0.879	0.922
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Reduced	39750	2506	19.14	19.50	1.086	62.9	1.006	0.02	0.922	1.008
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Reduced	40185	2549.5	18.99	19.50	1.125	62.9	1.006	0.01	0.950	1.075
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Reduced	40620	2593	18.97	19.50	1.130	62.9	1.006	0.04	0.901	1.024
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Reduced	41490	2680	19.23	19.50	1.064	62.9	1.006	0.01	0.805	0.862
	LTE Band 41	20M	QPSK	100	0	Front	5mm	-	Reduced	41055	2636.5	19.15	19.50	1.084	62.9	1.006	0.04	0.842	0.918
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Reduced	41055	2636.5	19.34	19.50	1.038	62.9	1.006	0.01	1.050	1.096
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Reduced	39750	2506	18.95	19.50	1.135	62.9	1.006	0.06	1.200	1.370
59	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Reduced	40185	2549.5	18.94	19.50	1.138	62.9	1.006	0.03	1.230	1.408
	LTE Band 41C	20M	QPSK	1	49	Back	5mm	-	Reduced	40185+40383	2549.5+2569.3	18.45	19.50	1.274	62.9	1.006	0.03	0.930	1.191
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Reduced	40620	2593	18.92	19.50	1.143	62.9	1.006	0.03	1.130	1.299
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Reduced	41490	2680	19.30	19.50	1.047	62.9	1.006	0.06	1.070	1.127
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Reduced	41055	2636.5	19.32	19.50	1.042	62.9	1.006	0.01	0.966	1.013
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Reduced	39750	2506	19.14	19.50	1.086	62.9	1.006	0.03	1.230	1.344
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Reduced	40185	2549.5	18.99	19.50	1.125	62.9	1.006	0.07	1.220	1.380
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Reduced	40620	2593	18.97	19.50	1.130	62.9	1.006	-0.08	1.060	1.205
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Reduced	41490	2680	19.23	19.50	1.064	62.9	1.006	0.01	0.954	1.021
	LTE Band 41	20M	QPSK	100	0	Back	5mm	-	Reduced	41055	2636.5	19.15	19.50	1.084	62.9	1.006	0.01	1.130	1.232
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Headset	Reduced	40185	2549.5	18.94	19.50	1.138	62.9	1.006	0.03	0.971	1.111
	LTE Band 41	20M	QPSK	1	49	Front	15mm	-	Full	40185	2549.5	23.54	25.00	1.400	62.9	1.006	0.01	0.818	1.152
	LTE Band 41	20M	QPSK	1	49	Back	19mm	-	Full	39750	2506	23.56	25.00	1.393	62.9	1.006	0.01	0.503	0.705
60	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	-	Reduced	40185	2549.5	19.03	19.50	1.114	42.9	1.009	0.01	0.818	0.920
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	-	Reduced	39750	2506	19.03	19.50	1.114	42.9	1.009	0.06	0.748	0.841
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	-	Reduced	41055	2636.5	19.38	19.50	1.028	42.9	1.009	0.01	0.681	0.706
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	-	Reduced	40620	2593	19.08	19.50	1.102	42.9	1.009	0.03	0.704	0.782
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	5mm	-	Reduced	41490	2680	19.28	19.50	1.052	42.9	1.009	0.06	0.696	0.739

**<WLAN2.4G SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	0.13	0.659	0.807
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Reduced	6	2437	18.08	19.00	1.236	97.59	1.025	0.02	0.498	0.631
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	11	2462	18.23	19.00	1.194	97.59	1.025	-0.05	0.775	0.948
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	1	2412	17.69	19.00	1.352	97.59	1.025	-0.17	0.594	0.823
61	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Reduced	6	2437	18.08	19.00	1.236	97.59	1.025	0.04	0.792	<b>1.003</b>
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Full	11	2462	21.30	22.50	1.318	97.59	1.025	0.09	0.201	0.272
	WLAN2.4GHz	802.11b 1Mbps	Back	19mm	Full	6	2437	20.90	22.50	1.445	97.59	1.025	-0.02	0.170	0.252

**<Bluetooth SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Back	5mm	Full	0	2402	7.96	9.50	1.426	76.99	1.082	0.03	0.046	0.071
62	Bluetooth	1Mbps	Back	5mm	Full	39	2441	7.92	9.50	1.439	76.99	1.082	-0.17	0.070	<b>0.110</b>
	Bluetooth	1Mbps	Back	5mm	Full	78	2480	9.44	9.50	1.014	76.99	1.082	0.07	0.060	0.066
	Bluetooth	1Mbps	Front	15mm	Full	0	2402	7.96	9.50	1.426	76.99	1.082	-	n/a	n/a
	Bluetooth	1Mbps	Back	19mm	Full	39	2441	7.92	9.50	1.439	76.99	1.082	-	n/a	n/a

**<WLAN5G SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	5mm	-	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	0.02	0.001	0.001
63	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	-	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	-0.09	0.864	<b>1.339</b>
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Headset	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	0.02	0.860	1.333
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	-	Reduced	48	5240	9.82	11.50	1.472	87.04	1.149	-0.09	0.763	1.291
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	-	Reduced	36	5180	10.19	11.50	1.352	87.04	1.149	0.05	0.672	1.044
	WLAN5.2GHz	802.11a 6Mbps	Front	15mm	-	Full	44	5220	16.44	18.00	1.432	87.04	1.149	-	n/a	n/a
	WLAN5.2GHz	802.11a 6Mbps	Back	19mm	-	Full	44	5220	16.44	18.00	1.432	87.04	1.149	-0.04	0.759	1.249
	WLAN5.3GHz	802.11a 6Mbps	Front	5mm	-	Reduced	60	5300	10.11	12.00	1.545	87.04	1.149	-	n/a	n/a
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	-	Reduced	60	5300	10.11	12.00	1.545	87.04	1.149	0.09	0.621	1.103
64	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	-	Reduced	52	5260	10.09	12.00	1.552	87.04	1.149	0.01	0.746	<b>1.331</b>
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Headset	Reduced	52	5260	10.09	12.00	1.552	87.04	1.149	0.02	0.745	1.329
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	-	Reduced	64	5320	9.82	11.50	1.472	87.04	1.149	0.11	0.590	0.998
	WLAN5.3GHz	802.11a 6Mbps	Front	15mm	-	Full	52	5260	16.52	18.00	1.406	87.04	1.149	-	n/a	n/a
	WLAN5.3GHz	802.11a 6Mbps	Back	19mm	-	Full	52	5260	16.52	18.00	1.406	87.04	1.149	-0.03	0.816	1.318
	WLAN5.5GHz	802.11a 6Mbps	Front	5mm	-	Reduced	100	5500	10.28	12.00	1.486	87.04	1.149	-	n/a	n/a
65	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	-	Reduced	100	5500	10.28	12.00	1.486	87.04	1.149	0.04	0.676	<b>1.154</b>
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	-	Reduced	116	5620	9.66	11.00	1.361	87.04	1.149	-0.05	0.454	0.710
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	-	Reduced	140	5700	9.38	11.00	1.451	87.04	1.149	0.01	0.313	0.522
	WLAN5.5GHz	802.11a 6Mbps	Front	15mm	-	Full	100	5500	15.55	16.00	1.109	87.04	1.149	-	n/a	n/a
	WLAN5.5GHz	802.11a 6Mbps	Back	19mm	-	Full	100	5500	15.55	16.00	1.109	87.04	1.149	-0.02	0.781	0.995
	WLAN5.8GHz	802.11a 6Mbps	Front	5mm	-	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	-	Reduced	157	5785	13.38	15.00	1.452	87.04	1.149	-0.06	0.689	1.150
66	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	-	Reduced	149	5745	13.12	15.00	1.542	87.04	1.149	0.07	0.656	<b>1.162</b>
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	-	Reduced	165	5825	13.31	15.00	1.476	87.04	1.149	-0.08	0.678	1.150
	WLAN5.8GHz	802.11a 6Mbps	Front	15mm	-	Full	157	5785	17.75	19.00	1.334	87.04	1.149	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Back	19mm	-	Full	149	5745	17.44	19.00	1.431	87.04	1.149	-0.03	0.722	1.187



14.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM850	GPRS 2 Tx slots	Front	0mm	Full	251	848.8	29.61	30.50	1.227	0.03	0.415	0.509
67	GSM850	GPRS 2 Tx slots	Back	0mm	Full	251	848.8	29.61	30.50	1.227	0.05	0.488	0.599
	GSM1900	GPRS 2 Tx slots	Front	0mm	Full	810	1909.8	27.15	27.50	1.084	0.04	1.620	1.756
	GSM1900	GPRS 2 Tx slots	Back	0mm	Full	810	1909.8	27.15	27.50	1.084	0.04	1.410	1.528
68	GSM1900	GPRS 2 Tx slots	Back	0mm	Full	512	1850.2	26.75	27.50	1.189	0.05	2.130	2.532
	GSM1900	GPRS 2 Tx slots	Back	0mm	Full	661	1880	27.10	27.50	1.096	0.03	1.910	2.094
	GSM1900	GPRS 2 Tx slots	Bottom Side	0mm	Full	810	1909.8	27.15	27.50	1.084	0.01	0.966	1.047

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	0mm	Reduced	9538	1907.6	20.37	20.50	1.030	-0.14	2.260	2.329
	WCDMA II	RMC 12.2Kbps	Front	0mm	Reduced	9262	1852.4	20.35	20.50	1.035	0.19	2.620	2.712
	WCDMA II	RMC 12.2Kbps	Front	0mm	Reduced	9400	1880	20.31	20.50	1.045	-0.14	2.470	2.580
	WCDMA II	RMC 12.2Kbps	Back	0mm	Reduced	9538	1907.6	20.37	20.50	1.030	-0.07	2.710	2.792
	WCDMA II	RMC 12.2Kbps	Back	0mm	Reduced	9262	1852.4	20.35	20.50	1.035	0.07	3.100	3.209
69	WCDMA II	RMC 12.2Kbps	Back	0mm	Reduced	9400	1880	20.31	20.50	1.045	0.09	3.090	3.228
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9538	1907.6	20.37	20.50	1.030	0.04	1.820	1.875
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9262	1852.4	20.35	20.50	1.035	0.06	2.780	2.878
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Reduced	9400	1880	20.31	20.50	1.045	-0.06	2.110	2.204
	WCDMA II	RMC 12.2Kbps	Front	5mm	Full	9262	1852.4	23.50	24.00	1.122	0.01	1.480	1.661
	WCDMA II	RMC 12.2Kbps	Back	9mm	Full	9400	1880	23.41	24.00	1.146	0.03	1.670	1.913
	WCDMA II	RMC 12.2Kbps	Bottom Side	11mm	Full	9262	1852.4	23.50	24.00	1.122	0.04	1.860	2.087
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Reduced	1513	1752.6	20.47	21.00	1.130	0.02	2.310	2.610
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Reduced	1312	1712.4	20.45	21.00	1.135	0.05	2.450	2.781
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Reduced	1413	1732.6	20.43	21.00	1.140	0.02	2.210	2.520
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Reduced	1513	1752.6	20.47	21.00	1.130	0.03	2.210	2.497
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Reduced	1312	1712.4	20.45	21.00	1.135	0.17	2.190	2.486
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Reduced	1413	1732.6	20.43	21.00	1.140	-0.14	2.060	2.349
70	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1513	1752.6	20.47	21.00	1.130	0.19	3.000	3.389
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1312	1712.4	20.45	21.00	1.135	0.03	2.930	3.326
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Reduced	1413	1732.6	20.43	21.00	1.140	0.01	2.720	3.101
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Full	1312	1712.4	23.32	24.00	1.169	-0.04	1.240	1.450
	WCDMA IV	RMC 12.2Kbps	Back	9mm	Full	1513	1752.6	23.56	24.00	1.107	0.05	1.000	1.107
	WCDMA IV	RMC 12.2Kbps	Bottom Side	11mm	Full	1513	1752.6	23.56	24.00	1.107	0.05	1.390	1.538
71	WCDMA V	RMC 12.2Kbps	Front	0mm	Full	4233	846.6	23.18	24.00	1.208	0.06	2.810	3.394
	WCDMA V	RMC 12.2Kbps	Front	0mm	Full	4132	826.4	23.16	24.00	1.213	0.04	1.770	2.148
	WCDMA V	RMC 12.2Kbps	Front	0mm	Full	4182	836.4	23.06	24.00	1.242	0.04	1.920	2.384
	WCDMA V	RMC 12.2Kbps	Bottom Side	0mm	Full	4233	846.6	23.18	24.00	1.208	-0.06	1.570	1.896
	WCDMA V	RMC 12.2Kbps	Bottom Side	0mm	Full	4132	826.4	23.16	24.00	1.213	-0.07	1.500	1.820
	WCDMA V	RMC 12.2Kbps	Bottom Side	0mm	Full	4182	836.4	23.06	24.00	1.242	0.07	1.580	1.962



<CDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	CDMA2000 BC0	RTAP 153.6Kbps	Front	0mm	Full	1013	824.7	24.29	25.00	1.178	0.07	1.140	1.342
72	CDMA2000 BC0	RTAP 153.6Kbps	Back	0mm	Full	1013	824.7	24.29	25.00	1.178	0.02	1.150	1.354
	CDMA2000 BC0	RTAP 153.6Kbps	Back	0mm	Full	384	836.52	24.17	25.00	1.211	0.07	0.963	1.166
	CDMA2000 BC0	RTAP 153.6Kbps	Back	0mm	Full	777	848.31	24.26	25.00	1.186	0.03	0.997	1.182
	CDMA2000 BC1	RTAP 153.6Kbps	Front	0mm	Reduced	1175	1908.75	21.43	22.00	1.140	0.06	2.320	2.645
	CDMA2000 BC1	RTAP 153.6Kbps	Front	0mm	Reduced	25	1851.25	21.67	22.00	1.079	0.02	2.640	2.848
	CDMA2000 BC1	RTAP 153.6Kbps	Front	0mm	Reduced	600	1880	21.38	22.00	1.153	0.07	2.420	2.791
	CDMA2000 BC1	RTAP 153.6Kbps	Back	0mm	Reduced	1175	1908.75	21.43	22.00	1.140	0.02	2.470	2.816
73	CDMA2000 BC1	RTAP 153.6Kbps	Back	0mm	Reduced	25	1851.25	21.67	22.00	1.079	0.07	3.130	3.377
	CDMA2000 BC1	RTAP 153.6Kbps	Back	0mm	Reduced	600	1880	21.38	22.00	1.153	0.03	2.800	3.230
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0mm	Reduced	1175	1908.75	21.43	22.00	1.140	0.06	1.530	1.745
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0mm	Reduced	25	1851.25	21.67	22.00	1.079	0.15	2.440	2.633
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	0mm	Reduced	600	1880	21.38	22.00	1.153	0.02	1.860	2.145
	CDMA2000 BC1	RTAP 153.6Kbps	Front	5mm	Full	25	1851.25	24.46	25.00	1.132	0.02	0.936	1.060
	CDMA2000 BC1	RTAP 153.6Kbps	Back	9mm	Full	25	1851.25	24.46	25.00	1.132	0.01	0.800	0.906
	CDMA2000 BC1	RTAP 153.6Kbps	Bottom Side	11mm	Full	25	1851.25	24.46	25.00	1.132	-0.06	1.050	1.189



<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 7	20M	QPSK	1	99	Front	0mm	Reduced	21100	2535	21.99	22.00	1.002	0.15	3.080	3.087
	LTE Band 7	20M	QPSK	1	99	Front	0mm	Reduced	20850	2510	21.90	22.00	1.023	0.04	3.050	3.121
	LTE Band 7	20M	QPSK	1	99	Front	0mm	Reduced	21350	2560	21.83	22.00	1.040	0.05	3.090	3.213
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Reduced	21100	2535	21.94	22.00	1.014	-0.06	3.170	3.214
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Reduced	20850	2510	21.93	22.00	1.016	0.01	3.150	3.201
	LTE Band 7	20M	QPSK	50	0	Front	0mm	Reduced	21350	2560	21.90	22.00	1.023	-0.15	3.190	3.264
	LTE Band 7	20M	QPSK	100	0	Front	0mm	Reduced	21100	2535	21.98	22.00	1.005	-0.03	3.200	3.215
	LTE Band 7	20M	QPSK	1	99	Back	0mm	Reduced	21100	2535	21.99	22.00	1.002	0.06	3.190	3.197
	LTE Band 7	20M	QPSK	1	99	Back	0mm	Reduced	20850	2510	21.90	22.00	1.023	0.02	3.260	3.336
	LTE Band 7	20M	QPSK	1	99	Back	0mm	Reduced	21350	2560	21.83	22.00	1.040	0.07	3.200	3.328
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Reduced	21100	2535	21.94	22.00	1.014	0.02	3.400	3.447
74	LTE Band 7	20M	QPSK	50	0	Back	0mm	Reduced	20850	2510	21.93	22.00	1.016	0.07	3.450	3.506
	LTE Band 7	20M	QPSK	50	0	Back	0mm	Reduced	21350	2560	21.90	22.00	1.023	0.03	3.350	3.428
	LTE Band 7	20M	QPSK	100	0	Back	0mm	Reduced	21100	2535	21.98	22.00	1.005	0.08	3.300	3.315
	LTE Band 7	20M	QPSK	1	99	Bottom Side	0mm	Reduced	21100	2535	21.99	22.00	1.002	0.15	2.120	2.125
	LTE Band 7	20M	QPSK	1	99	Bottom Side	0mm	Reduced	20850	2510	21.90	22.00	1.023	0.04	2.160	2.210
	LTE Band 7	20M	QPSK	1	99	Bottom Side	0mm	Reduced	21350	2560	21.83	22.00	1.040	0.05	2.310	2.402
	LTE Band 7	20M	QPSK	50	0	Bottom Side	0mm	Reduced	21100	2535	21.94	22.00	1.014	-0.06	2.050	2.079
	LTE Band 7	20M	QPSK	50	0	Bottom Side	0mm	Reduced	20850	2510	21.93	22.00	1.016	0.01	2.010	2.043
	LTE Band 7	20M	QPSK	50	0	Bottom Side	0mm	Reduced	21350	2560	21.90	22.00	1.023	0.06	2.160	2.210
	LTE Band 7	20M	QPSK	100	0	Bottom Side	0mm	Reduced	21100	2535	21.98	22.00	1.005	0.03	2.070	2.080
	LTE Band 7	20M	QPSK	1	99	Front	5mm	Full	21350	2560	23.61	24.00	1.094	0.01	1.400	1.532
	LTE Band 7	20M	QPSK	1	99	Back	9mm	Full	20850	2510	23.70	24.00	1.072	0.04	1.400	1.500
	LTE Band 7	20M	QPSK	1	99	Bottom Side	11mm	Full	21350	2560	23.61	24.00	1.094	0.06	0.754	0.825
75	LTE Band 13	10M	QPSK	1	0	Front	0mm	Full	23230	782	23.88	24.00	1.028	0.01	2.820	2.899
	LTE Band 13	10M	QPSK	25	12	Front	0mm	Full	23230	782	22.62	23.00	1.091	0.03	1.210	1.321
	LTE Band 13	10M	QPSK	50	0	Front	0mm	Full	23230	782	22.55	23.00	1.109	0.03	0.890	0.987
	LTE Band 13	10M	QPSK	1	0	Bottom Side	0mm	Full	23230	782	23.88	24.00	1.028	0.02	0.831	0.854
	LTE Band 13	10M	QPSK	25	12	Bottom Side	0mm	Full	23230	782	22.62	23.00	1.091	0.05	0.438	0.478
	LTE Band 26	15M	QPSK	1	74	Front	0mm	Full	26865	831.5	23.84	24.00	1.038	0.03	1.400	1.453
	LTE Band 26	15M	QPSK	36	0	Front	0mm	Full	26865	831.5	22.77	23.00	1.054	0.02	0.763	0.804
	LTE Band 26	15M	QPSK	1	74	Back	0mm	Full	26865	831.5	23.84	24.00	1.038	0.01	1.210	1.255
	LTE Band 26	15M	QPSK	36	0	Back	0mm	Full	26865	831.5	22.77	23.00	1.054	0.09	0.727	0.767
76	LTE Band 26	15M	QPSK	1	74	Bottom Side	0mm	Full	26865	831.5	23.84	24.00	1.038	0.02	1.490	1.546
	LTE Band 26	15M	QPSK	36	0	Bottom Side	0mm	Full	26865	831.5	22.77	23.00	1.054	0.01	0.575	0.606



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 25	20M	QPSK	1	49	Front	0mm	Reduced	26590	1905	21.35	21.50	1.035	-0.03	2.640	2.733
	LTE Band 25	20M	QPSK	1	49	Front	0mm	Reduced	26140	1860	21.26	21.50	1.057	0.05	2.790	2.949
	LTE Band 25	20M	QPSK	1	49	Front	0mm	Reduced	26340	1880	21.32	21.50	1.042	0.03	2.670	2.783
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Reduced	26590	1905	21.21	21.50	1.069	0.09	2.740	2.929
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Reduced	26140	1860	21.07	21.50	1.104	0.01	2.920	3.224
	LTE Band 25	20M	QPSK	50	0	Front	0mm	Reduced	26340	1880	21.03	21.50	1.114	-0.05	2.820	3.142
	LTE Band 25	20M	QPSK	100	0	Front	0mm	Reduced	26590	1905	21.11	21.50	1.094	0.08	2.780	3.041
	LTE Band 25	20M	QPSK	1	49	Back	0mm	Reduced	26590	1905	21.35	21.50	1.035	0.03	2.600	2.691
	LTE Band 25	20M	QPSK	1	49	Back	0mm	Reduced	26140	1860	21.26	21.50	1.057	0.08	3.130	3.308
	LTE Band 25	20M	QPSK	1	49	Back	0mm	Reduced	26340	1880	21.32	21.50	1.042	0.08	2.950	3.075
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Reduced	26590	1905	21.21	21.50	1.069	0.02	2.800	2.993
	LTE Band 25	20M	QPSK	50	0	Back	0mm	Reduced	26140	1860	21.07	21.50	1.104	-0.09	2.810	3.102
77	LTE Band 25	20M	QPSK	50	0	Back	0mm	Reduced	26340	1880	21.03	21.50	1.114	0.06	3.070	3.421
	LTE Band 25	20M	QPSK	100	0	Back	0mm	Reduced	26590	1905	21.11	21.50	1.094	0.03	2.750	3.008
	LTE Band 25	20M	QPSK	1	49	Bottom Side	0mm	Reduced	26590	1905	21.35	21.50	1.035	0.02	1.790	1.853
	LTE Band 25	20M	QPSK	50	0	Bottom Side	0mm	Reduced	26590	1905	21.21	21.50	1.069	0.03	1.860	1.988
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Full	26140	1860	23.63	24.00	1.089	0.06	1.590	1.731
	LTE Band 25	20M	QPSK	1	49	Back	9mm	Full	26340	1880	23.61	24.00	1.094	-0.09	1.330	1.455
	LTE Band 25	20M	QPSK	1	49	Bottom Side	11mm	Full	26590	1905	23.87	24.00	1.030	-0.06	1.700	1.752
	LTE Band 66	20M	QPSK	1	99	Front	0mm	Reduced	132572	1770	21.65	22.00	1.084	-0.03	2.390	2.591
	LTE Band 66	20M	QPSK	1	99	Front	0mm	Reduced	132072	1770	21.22	22.00	1.197	0.02	2.230	2.669
	LTE Band 66	20M	QPSK	1	99	Front	0mm	Reduced	132322	1770	21.35	22.00	1.161	0.06	1.990	2.311
	LTE Band 66	20M	QPSK	50	50	Front	0mm	Reduced	132572	1770	21.26	22.00	1.186	0.05	2.450	2.905
	LTE Band 66	20M	QPSK	50	50	Front	0mm	Reduced	132072	1770	21.18	22.00	1.208	0.03	2.230	2.693
	LTE Band 66	20M	QPSK	50	50	Front	0mm	Reduced	132322	1770	21.22	22.00	1.197	0.03	1.760	2.106
	LTE Band 66	20M	QPSK	100	0	Front	0mm	Reduced	132572	1770	21.25	22.00	1.189	-0.05	2.140	2.543
	LTE Band 66	20M	QPSK	1	99	Back	0mm	Reduced	132572	1770	21.65	22.00	1.084	-0.02	2.870	3.111
	LTE Band 66	20M	QPSK	1	99	Back	0mm	Reduced	132072	1770	21.22	22.00	1.197	-0.03	2.380	2.848
	LTE Band 66	20M	QPSK	1	99	Back	0mm	Reduced	132322	1770	21.35	22.00	1.161	0.02	2.360	2.741
	LTE Band 66	20M	QPSK	50	50	Back	0mm	Reduced	132572	1770	21.26	22.00	1.186	0.12	2.280	2.704
	LTE Band 66	20M	QPSK	50	50	Back	0mm	Reduced	132072	1770	21.18	22.00	1.208	0.09	1.820	2.198
	LTE Band 66	20M	QPSK	50	50	Back	0mm	Reduced	132322	1770	21.22	22.00	1.197	0.03	1.770	2.118
	LTE Band 66	20M	QPSK	100	0	Back	0mm	Reduced	132572	1770	21.25	22.00	1.189	0.02	2.290	2.722
	LTE Band 66	20M	QPSK	1	99	Bottom Side	0mm	Reduced	132572	1770	21.65	22.00	1.084	0.01	3.060	3.317
	LTE Band 66	20M	QPSK	1	99	Bottom Side	0mm	Reduced	132072	1770	21.22	22.00	1.197	0.04	2.480	2.968
	LTE Band 66	20M	QPSK	1	99	Bottom Side	0mm	Reduced	132322	1770	21.35	22.00	1.161	0.01	2.550	2.962
78	LTE Band 66	20M	QPSK	50	50	Bottom Side	0mm	Reduced	132572	1770	21.26	22.00	1.186	0.04	2.840	3.368
	LTE Band 66	20M	QPSK	50	50	Bottom Side	0mm	Reduced	132072	1770	21.18	22.00	1.208	0.01	2.170	2.621
	LTE Band 66	20M	QPSK	50	50	Bottom Side	0mm	Reduced	132322	1770	21.22	22.00	1.197	0.01	2.550	3.052
	LTE Band 66	20M	QPSK	100	0	Bottom Side	0mm	Reduced	132572	1770	21.25	22.00	1.189	0.06	2.820	3.352
	LTE Band 66	20M	QPSK	1	99	Front	5mm	Full	132072	1770	23.72	24.00	1.067	0.03	1.260	1.344
	LTE Band 66	20M	QPSK	1	99	Back	9mm	Full	132572	1770	23.80	24.00	1.047	0.03	1.070	1.120
	LTE Band 66	20M	QPSK	1	99	Bottom Side	11mm	Full	132572	1770	23.80	24.00	1.047	0.06	1.210	1.267



<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Reduced	41055	2636.5	22.38	22.50	1.028	62.9	1.006	0.01	2.050	2.120
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Reduced	39750	2506	22.32	22.50	1.042	62.9	1.006	-0.15	2.160	2.265
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Reduced	40185	2549.5	22.20	22.50	1.072	62.9	1.006	-0.04	2.270	2.447
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Reduced	40620	2593	22.06	22.50	1.107	62.9	1.006	-0.07	2.120	2.360
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Reduced	41490	2680	22.12	22.50	1.091	62.9	1.006	-0.15	2.050	2.251
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Reduced	41055	2636.5	22.35	22.50	1.035	62.9	1.006	0.01	1.860	1.937
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Reduced	39750	2506	22.03	22.50	1.114	62.9	1.006	0.03	1.800	2.018
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Reduced	40185	2549.5	22.17	22.50	1.079	62.9	1.006	0.07	1.740	1.889
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Reduced	40620	2593	22.13	22.50	1.089	62.9	1.006	-0.08	1.880	2.059
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Reduced	41490	2680	22.26	22.50	1.057	62.9	1.006	-0.15	1.710	1.818
	LTE Band 41	20M	QPSK	100	0	Front	0mm	Reduced	41055	2636.5	22.17	22.50	1.079	62.9	1.006	0.01	1.870	2.030
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Reduced	41055	2636.5	22.38	22.50	1.028	62.9	1.006	0.01	2.920	3.020
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Reduced	39750	2506	22.32	22.50	1.042	62.9	1.006	-0.15	3.000	3.146
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Reduced	40185	2549.5	22.20	22.50	1.072	62.9	1.006	-0.04	3.000	3.234
79	LTE Band 41	20M	QPSK	1	49	Back	0mm	Reduced	40620	2593	22.06	22.50	1.107	62.9	1.006	-0.07	3.120	3.473
	LTE Band 41C	20M	QPSK	1	49	Back	0mm	Reduced	40620+40818	2593+2612.8	22.34	22.50	1.038	62.9	1.006	-0.15	2.790	2.912
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Reduced	41490	2680	22.12	22.50	1.091	62.9	1.006	-0.15	3.057	3.357
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Reduced	41055	2636.5	22.35	22.50	1.035	62.9	1.006	0.01	2.270	2.364
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Reduced	39750	2506	22.03	22.50	1.114	62.9	1.006	0.03	2.080	2.332
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Reduced	40185	2549.5	22.17	22.50	1.079	62.9	1.006	0.07	2.090	2.269
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Reduced	40620	2593	22.13	22.50	1.089	62.9	1.006	-0.08	2.280	2.498
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Reduced	41490	2680	22.26	22.50	1.057	62.9	1.006	-0.15	2.110	2.243
	LTE Band 41	20M	QPSK	100	0	Back	0mm	Reduced	41055	2636.5	22.17	22.50	1.079	62.9	1.006	0.01	2.260	2.453
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	Reduced	41055	2636.5	22.38	22.50	1.028	62.9	1.006	0.06	1.870	1.934
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	Reduced	39750	2506	22.32	22.50	1.042	62.9	1.006	0.05	1.750	1.835
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	Reduced	40185	2549.5	22.20	22.50	1.072	62.9	1.006	0.01	1.960	2.113
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	Reduced	40620	2593	22.06	22.50	1.107	62.9	1.006	0.04	1.970	2.193
	LTE Band 41	20M	QPSK	1	49	Left Side	0mm	Reduced	41490	2680	22.12	22.50	1.091	62.9	1.006	0.05	1.790	1.965
	LTE Band 41	20M	QPSK	50	24	Left Side	0mm	Reduced	41055	2636.5	22.35	22.50	1.035	62.9	1.006	0.03	1.660	1.729
	LTE Band 41	20M	QPSK	50	24	Left Side	0mm	Reduced	39750	2506	22.03	22.50	1.114	62.9	1.006	-0.05	1.410	1.581
	LTE Band 41	20M	QPSK	50	24	Left Side	0mm	Reduced	40185	2549.5	22.17	22.50	1.079	62.9	1.006	-0.02	1.470	1.596
	LTE Band 41	20M	QPSK	50	24	Left Side	0mm	Reduced	40620	2593	22.13	22.50	1.089	62.9	1.006	-0.03	1.670	1.829
	LTE Band 41	20M	QPSK	50	24	Left Side	0mm	Reduced	41490	2680	22.26	22.50	1.057	62.9	1.006	0.02	1.550	1.648
	LTE Band 41	20M	QPSK	100	0	Left Side	0mm	Reduced	41055	2636.5	22.17	22.50	1.079	62.9	1.006	0.01	1.420	1.541
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Reduced	41055	2636.5	22.38	22.50	1.028	62.9	1.006	-0.15	1.440	1.489
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Reduced	39750	2506	22.32	22.50	1.042	62.9	1.006	-0.15	1.280	1.342
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Reduced	40185	2549.5	22.20	22.50	1.072	62.9	1.006	-0.04	1.570	1.692
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Reduced	40620	2593	22.06	22.50	1.107	62.9	1.006	-0.07	1.740	1.937
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Reduced	41490	2680	22.12	22.50	1.091	62.9	1.006	-0.15	1.330	1.460
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Reduced	41055	2636.5	22.35	22.50	1.035	62.9	1.006	0.03	1.390	1.447
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Reduced	39750	2506	22.03	22.50	1.114	62.9	1.006	-0.05	1.210	1.356
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Reduced	40185	2549.5	22.17	22.50	1.079	62.9	1.006	-0.02	1.230	1.335
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Reduced	40620	2593	22.13	22.50	1.089	62.9	1.006	-0.03	1.520	1.665
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Reduced	41490	2680	22.26	22.50	1.057	62.9	1.006	0.02	1.120	1.191
	LTE Band 41	20M	QPSK	100	0	Bottom Side	0mm	Reduced	41055	2636.5	22.17	22.50	1.079	62.9	1.006	0.02	1.290	1.400
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Full	40185	2549.5	23.54	25.00	1.400	62.9	1.006	-0.04	0.496	0.698
	LTE Band 41	20M	QPSK	1	49	Back	9mm	Full	40620	2593	23.69	25.00	1.352	62.9	1.006	-0.15	0.262	0.356
	LTE Band 41	20M	QPSK	1	49	Bottom Side	11mm	Full	40620	2593	23.69	25.00	1.352	62.9	1.006	-0.07	0.306	0.416
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Full	40620	2593	23.69	25.00	1.352	62.9	1.006	0.01	0.606	0.824
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	0mm	Reduced	41055	2636.5	22.00	22.50	1.122	42.9	1.009	0.03	1.850	2.094
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	0mm	Reduced	39750	2506	22.05	22.50	1.109	42.9	1.009	0.01	1.900	2.126
	LTE Band 41-HPUE	20M	QPSK	1	49	Back	0mm	Reduced	40185	2549.5	21.95	22.50	1.135	42.9	1.009	0.06	1.900	2.176



	LTE Band 41-HPUE	20M	QPSK	1	49	Back	0mm	Reduced	40620	2593	21.96	22.50	1.132	42.9	1.009	0.01	1.970	2.251
80	LTE Band 41-HPUE	20M	QPSK	1	49	Back	0mm	Reduced	41490	2680	22.01	22.50	1.119	42.9	1.009	0.08	2.100	2.372

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
81	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Full	6	2437	20.90	22.50	1.445	97.59	1.025	0.06	1.790	2.652
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Full	6	2437	20.90	22.50	1.445	97.59	1.025	0.04	1.380	2.045
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Full	6	2437	20.90	22.50	1.445	97.59	1.025	0.09	1.530	2.267

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Full	44	5220	16.44	18.00	1.432	87.04	1.149	0.01	1.920	3.160
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Full	36	5180	13.39	14.00	1.151	87.04	1.149	-0.09	1.000	1.322
82	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Full	48	5240	16.36	18.00	1.459	87.04	1.149	0.08	1.970	3.302
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Reduced	44	5220	16.44	17.00	1.138	87.04	1.149	0.01	1.890	2.470
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Reduced	36	5180	13.39	14.00	1.151	87.04	1.149	-0.09	1.000	1.322
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Reduced	48	5240	16.36	17.00	1.159	87.04	1.149	0.08	1.860	2.476
	WLAN5.2GHz	802.11a 6Mbps	Back	9mm	Full	48	5240	16.36	18.00	1.459	87.04	1.149	0.08	0.616	1.033
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.03	0.106	0.171
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.06	1.780	2.869
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Full	52	5260	16.52	18.00	1.406	87.04	1.149	0.09	1.850	2.989
83	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Full	64	5320	16.50	18.00	1.413	87.04	1.149	0.07	1.890	3.067
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Reduced	60	5300	16.53	17.00	1.114	87.04	1.149	0.06	1.780	2.279
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Reduced	52	5260	16.52	17.00	1.117	87.04	1.149	0.09	1.850	2.374
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Reduced	64	5320	16.50	17.00	1.122	87.04	1.149	0.07	1.890	2.437
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.06	0.083	0.133
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Full	60	5300	16.53	18.00	1.403	87.04	1.149	0.01	0.090	0.145
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Full	116	5580	16.46	18.00	1.426	87.04	1.149	0.01	0.014	0.022
84	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Full	116	5580	16.46	18.00	1.426	87.04	1.149	0.09	1.320	2.162
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Full	100	5500	15.55	16.00	1.109	87.04	1.149	-0.09	1.490	1.899
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Full	140	5700	16.31	18.00	1.476	87.04	1.149	-0.06	1.170	1.984
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Full	116	5580	16.46	18.00	1.426	87.04	1.149	0.01	0.141	0.231
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Full	116	5580	16.46	18.00	1.426	87.04	1.149	0.03	0.070	0.115
	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Full	157	5785	17.75	19.00	1.334	87.04	1.149	0.01	1.890	2.896
85	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Full	149	5745	17.44	19.00	1.431	87.04	1.149	0.05	1.890	3.108
	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Full	165	5825	17.97	19.00	1.267	87.04	1.149	-0.02	2.020	2.940
	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Reduced	157	5785	17.75	18.00	1.059	87.04	1.149	0.01	1.890	2.300
	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Reduced	149	5745	17.44	18.00	1.137	87.04	1.149	0.05	1.890	2.469
	WLAN5.8GH-	802.11a 6Mbps	Back	0mm	Reduced	165	5825	17.97	18.00	1.006	87.04	1.149	-0.02	2.020	2.336



14.5 TDD LTE Band 41(HPUE) Linearity Data Analysis

LTE Band 41(HPUE)-Linearity Data for Head		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	25.00	27.00
Reported 1g SAR (W/kg)	0.609	0.722
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	200.17	217.01
Linearity SAR (W/kg)	0.660	
% deviation from expected linearity		9.35%

LTE Band 41(HPUE)-Linearity Data for Hotspot		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	19.50	19.50
Reported 1g SAR (W/kg)	1.440	0.961
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	56.42	38.59
Linearity SAR (W/kg)	0.985	
% deviation from expected linearity		-2.44%

LTE Band 41(HPUE)-Linearity Data for Body-Worn		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	19.50	19.50
Reported 1g SAR (W/kg)	1.440	0.961
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	56.42	38.59
Linearity SAR (W/kg)	0.985	
% deviation from expected linearity		-2.44%

LTE Band 41(HPUE)-Linearity Data for Handheld		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	22.50	22.50
Reported 1g SAR (W/kg)	3.473	2.372
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	112.57	77.00
Linearity SAR (W/kg)	2.376	
% deviation from expected linearity		-0.16%

General Note:

1. The device can adjust uplink/downlink configuration automatically according to the transmitting power class level for LTE band 41.
2. According to TCB Workshop May 2017, Rel. 14 has introduced HPUE Power Class 2 for Band 41. HPUE Power Class 2 does not support uplink downlink configurations 0 and 6.
3. Power class 3 is expected to be the dominant use configuration; therefore, SAR should be tested as normally required.
4. Power class 2 is tested using the highest SAR test configuration in power class 3 of each LTE configuration and

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exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in power class 2.

5. Separate SAR testing for Power Class 2 is not required when
  - the reported SAR vs. output power can be linearly scaled with < 10%
  - discrepancy between power classes and all *reported* 1g SAR are < 1.4 W/kg (The same procedures should be adapted for measurements according to extremity limits by applying a factor of 2.5 for extremity exposure.)



14.6 Repeated SAR Measurement

<1g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0	Reduced	6	2437	14.58	16.50	1.556	97.59	1.025	0.05	0.750	1	1.196
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0	Reduced	6	2437	14.58	16.50	1.556	97.59	1.025	0.05	0.743	1.009	1.185
1st	CDMA2000 BC1	-	-	-	-	RTAP 153.6Kbps	Bottom Side	5	Reduced	25	1851.25	15.73	16.00	1.064	-	-	0.06	1.310	1	1.394
2nd	CDMA2000 BC1	-	-	-	-	RTAP 153.6Kbps	Bottom Side	5	Reduced	25	1851.25	15.73	16.00	1.064	-	-	0.06	1.300	1.008	1.383
1st	LTE Band 7	20M	QPSK	50	0	-	Back	5	Reduced	20850	2510	19.82	20.00	1.042	-	-	0.03	1.330	1	1.386
2nd	LTE Band 7	20M	QPSK	50	0	-	Back	5	Reduced	20850	2510	19.82	20.00	1.042	-	-	0.04	1.300	1.023	1.355
1st	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	5	Reduced	23230	782	23.20	23.50	1.072	-	-	0.09	1.250	1	1.339
2nd	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	5	Reduced	23230	782	23.20	23.50	1.072	-	-	-0.02	1.210	1.033	1.297
1st	LTE Band 26	15M	QPSK	1	74	-	Front	5	Reduced	26865	831.5	22.54	23.00	1.112	-	-	0.01	1.150	1	1.278
2nd	LTE Band 26	15M	QPSK	1	74	-	Front	5	Reduced	26865	831.5	22.54	23.00	1.112	-	-	-0.03	1.130	1.018	1.256
1st	LTE Band 66	20M	QPSK	1	99	-	Back	5	Reduced	132072	1770	17.33	18.00	1.167	-	-	0.1	1.180	1	1.377
2nd	LTE Band 66	20M	QPSK	1	99	-	Back	5	Reduced	132072	1770	17.33	18.00	1.167	-	-	0.1	1.150	1.026	1.342
1st	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	5	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	-0.09	0.864	1	1.339
2nd	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	5	Reduced	44	5220	10.20	11.50	1.349	87.04	1.149	-0.09	0.853	1.013	1.322
1st	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	19	Full	52	5260	16.52	18.00	1.406	87.04	1.149	-0.03	0.816	1	1.318
2nd	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	19	Full	52	5260	16.52	18.00	1.406	87.04	1.149	-0.03	0.810	1.007	1.309

<10g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0	Full	4233	846.6	23.18	24.00	1.208	-	-	0.06	2.810	1	3.394
2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	0	Full	4233	846.6	23.18	24.00	1.208	-	-	0.06	2.790	1.007	3.370
1st	CDMA2000 BC1	-	-	-	-	RTAP 153.6Kbps	Back	0	Reduced	25	1851.25	21.67	22.00	1.079	-	-	0.07	3.130	1	3.377
2nd	CDMA2000 BC1	-	-	-	-	RTAP 153.6Kbps	Back	0	Reduced	25	1851.25	21.67	22.00	1.079	-	-	0.04	3.090	1.013	3.334
1st	LTE Band 7	20M	QPSK	50	0	-	Back	0	Reduced	20850	2510	21.93	22.00	1.016	-	-	0.07	3.450	1	3.506
2nd	LTE Band 7	20M	QPSK	50	0	-	Back	0	Reduced	20850	2510	21.93	22.00	1.016	-	-	0.07	3.400	1.015	3.455
1st	LTE Band 13	10M	QPSK	1	0	-	Front	0	Full	23230	782	23.88	24.00	1.028	-	-	0.01	2.820	1	2.899
2nd	LTE Band 13	10M	QPSK	1	0	-	Front	0	Full	23230	782	23.88	24.00	1.028	-	-	0.01	2.770	1.018	2.848
1st	LTE Band 66	20M	QPSK	1	99	-	Bottom Side	0	Reduced	132572	1770	21.65	22.00	1.084	-	-	0.01	3.060	1	3.317
2nd	LTE Band 66	20M	QPSK	1	99	-	Bottom Side	0	Reduced	132572	1770	21.65	22.00	1.084	-	-	0.02	3.060	1.000	3.317
1st	WLAN5.8GHz	-	-	-	-	802.11a 6Mbps	Back	0	Full	165	5825	17.97	19.00	1.267	87.04	1.149	-0.02	2.020	1	2.940
2nd	WLAN5.8GHz	-	-	-	-	802.11a 6Mbps	Back	0	Full	165	5825	17.97	19.00	1.267	87.04	1.149	0.03	2.010	1.005	2.926

General Note:

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

### 15. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		Yes
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	Yes
4.	CDMA + WLAN2.4GHz	Yes	Yes	Yes	Yes
5.	LTE + WLAN2.4GHz	Yes	Yes	Yes	Yes
6.	GSM Voice + WLAN5.3/5.5GHz	Yes	Yes		Yes
7.	GPRS/EDGE + WLAN5.3/5.5GHz	Yes	Yes		Yes
8.	WCDMA + WLAN5.3/5.5GHz	Yes	Yes		Yes
9.	CDMA + WLAN5.3/5.5GHz	Yes	Yes		Yes
10.	LTE + WLAN5.3/5.5GHz	Yes	Yes		Yes
11.	GSM Voice + WLAN5.2/5.8GHz	Yes	Yes		Yes
12.	GPRS/EDGE + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
13.	WCDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
14.	CDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
15.	LTE + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
16.	GSM Voice + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
17.	GPRS/EDGE + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
18.	WCDMA + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
19.	CDMA + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
20.	LTE + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
21.	GSM Voice + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes		Yes
22.	GPRS/EDGE + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
23.	WCDMA + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
24.	CDMA + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
25.	LTE + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
26.	WLAN5.2/5.8GHz+ Bluetooth	Yes	Yes	Yes	Yes
27.	WLAN5.3/5.5GHz + Bluetooth	Yes	Yes	Yes	Yes
28.	GSM Voice + Bluetooth	Yes	Yes		Yes
29.	GPRS/EDGE + Bluetooth	Yes	Yes	Yes	Yes
30.	WCDMA + Bluetooth	Yes	Yes	Yes	Yes
31.	CDMA + Bluetooth	Yes	Yes	Yes	Yes
32.	LTE + Bluetooth	Yes	Yes	Yes	Yes

**General Note:**

- This device supports VoIP in GPRS, EGPRS, WCDMA, CDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- EUT will choose each GSM, CDMA, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment though they have independent antenna.
- WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
- According to the EUT character, WLAN 5GHz and Bluetooth can transmit simultaneously. WWAN+WLAN5GHz+Bluetooth can represent WWAN+WLAN5GHz or WWAN+ Bluetooth, So no need to do co-located analysis separately.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
  - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - If  $SPLSR \leq 0.04$  for 1g SAR and  $SPLSR \leq 0.10$  for 10g SAR, simultaneously transmission SAR measurement is not necessary.
  - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
  - The SPLSR calculated results please refer to section 15.5.



15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM	GSM850	Right Cheek	0.417	0.539	0.131	0.187	0.96			0.74
		Right Tilted	0.156	0.557	0.181	0.187	0.71			0.52
		Left Cheek	0.260	1.196	0.114	0.255	1.46			0.63
		Left Tilted	0.161	0.818	0.140	0.187	0.98			0.49
	GSM1900	Right Cheek	0.035	0.539	0.131	0.187	0.57			0.35
		Right Tilted	0.004	0.557	0.181	0.187	0.56			0.37
		Left Cheek	0.012	1.196	0.114	0.255	1.21			0.38
		Left Tilted	0.006	0.818	0.140	0.187	0.82			0.33
WCDMA	WCDMA II	Right Cheek	0.088	0.539	0.131	0.187	0.63			0.41
		Right Tilted	0.019	0.557	0.181	0.187	0.58			0.39
		Left Cheek	0.032	1.196	0.114	0.255	1.23			0.40
		Left Tilted	0.014	0.818	0.140	0.187	0.83			0.34
	WCDMA IV	Right Cheek	0.055	0.539	0.131	0.187	0.59			0.37
		Right Tilted	0.052	0.557	0.181	0.187	0.61			0.42
		Left Cheek	0.077	1.196	0.114	0.255	1.27			0.45
		Left Tilted	0.047	0.818	0.140	0.187	0.87			0.37
	WCDMA V	Right Cheek	0.521	0.539	0.131	0.187	1.06			0.84
		Right Tilted	0.227	0.557	0.181	0.187	0.78			0.60
		Left Cheek	0.424	1.196	0.114	0.255	1.62	#01	0.03	0.79
		Left Tilted	0.228	0.818	0.140	0.187	1.05			0.56
CDMA	CDMA2000 BC0	Right Cheek	0.486	0.539	0.131	0.187	1.03			0.80
		Right Tilted	0.238	0.557	0.181	0.187	0.80			0.61
		Left Cheek	0.435	1.196	0.114	0.255	1.63	#02	0.03	0.80
		Left Tilted	0.047	0.818	0.140	0.187	0.87			0.37
	CDMA2000 BC1	Right Cheek	0.114	0.539	0.131	0.187	0.65			0.43
		Right Tilted	0.011	0.557	0.181	0.187	0.57			0.38
		Left Cheek	0.039	1.196	0.114	0.255	1.24			0.41
		Left Tilted	0.021	0.818	0.140	0.187	0.84			0.35
	CDMA2000 BC10	Right Cheek	0.387	0.539	0.131	0.187	0.93			0.71
		Right Tilted	0.201	0.557	0.181	0.187	0.76			0.57
		Left Cheek	0.316	1.196	0.114	0.255	1.51			0.69
		Left Tilted	0.189	0.818	0.140	0.187	1.01			0.52



WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3+4 Summed 1g SAR (W/kg)	
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
LTE	LTE Band 7	Right Cheek	0.513	0.539	0.131	0.187	1.05			0.83
		Right Tilted	0.450	0.557	0.181	0.187	1.01			0.82
		Left Cheek	0.215	1.196	0.114	0.255	1.41			0.58
		Left Tilted	0.081	0.818	0.140	0.187	0.90			0.41
	LTE Band 12	Right Cheek	0.336	0.539	0.131	0.187	0.88			0.65
		Right Tilted	0.210	0.557	0.181	0.187	0.77			0.58
		Left Cheek	0.387	1.196	0.114	0.255	1.58			0.76
		Left Tilted	0.216	0.818	0.140	0.187	1.03			0.54
	LTE Band 13	Right Cheek	0.379	0.539	0.131	0.187	0.92			0.70
		Right Tilted	0.196	0.557	0.181	0.187	0.75			0.56
		Left Cheek	0.330	1.196	0.114	0.255	1.53			0.70
		Left Tilted	0.193	0.818	0.140	0.187	1.01			0.52
	LTE Band 25	Right Cheek	0.088	0.539	0.131	0.187	0.63			0.41
		Right Tilted	0.008	0.557	0.181	0.187	0.57			0.38
		Left Cheek	0.034	1.196	0.114	0.255	1.23			0.40
		Left Tilted	0.025	0.818	0.140	0.187	0.84			0.35
	LTE Band 26	Right Cheek	0.436	0.539	0.131	0.187	0.98			0.75
		Right Tilted	0.111	0.557	0.181	0.187	0.67			0.48
		Left Cheek	0.342	1.196	0.114	0.255	1.54			0.71
		Left Tilted	0.188	0.818	0.140	0.187	1.01			0.52
	LTE Band 66	Right Cheek	0.110	0.539	0.131	0.187	0.65			0.43
		Right Tilted	0.059	0.557	0.181	0.187	0.62			0.43
		Left Cheek	0.097	1.196	0.114	0.255	1.29			0.47
		Left Tilted	0.065	0.818	0.140	0.187	0.88			0.39
	LTE Band 41	Right Cheek	0.277	0.539	0.131	0.187	0.82			0.60
		Right Tilted	0.267	0.557	0.181	0.187	0.82			0.64
		Left Cheek	0.722	1.196	0.114	0.255	1.92	#03	0.03	1.09
		Left Tilted	0.397	0.818	0.140	0.187	1.22			0.72
	LTE Band 71	Right Cheek	0.306	0.539	0.131	0.187	0.85			0.62
		Right Tilted	0.152	0.557	0.181	0.187	0.71			0.52
		Left Cheek	0.260	1.196	0.114	0.255	1.46			0.63
		Left Tilted	0.137	0.818	0.140	0.187	0.96			0.46



15.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3+4 Summed 1g SAR (W/kg)	Case No	SPLSR	
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth							
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
GSM	GSM850	Front	1.391	0.807	0.001	0.080	2.20	#04	0.02	1.47		
		Back	1.365	1.003	1.339	0.110	2.37	#05	0.03	2.81	#06	0.04
		Left side	0.228				0.23			0.23		
		Right side	0.572	0.434	0.130	0.080	1.01			0.78		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	0.793				0.79			0.79		
	GSM1900	Front	1.035	0.807	0.001	0.080	1.84	#07	0.02	1.12		
		Back	1.246	1.003	1.339	0.110	2.25	#08	0.02	2.70	#09	0.04
		Left side	0.027				0.03			0.03		
		Right side	0.021	0.434	0.130	0.080	0.46			0.23		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.206				1.21			1.21		
WCDMA	WCDMA II	Front	1.029	0.807	0.001	0.080	1.84	#10	0.01	1.11		
		Back	1.286	1.003	1.339	0.110	2.29	#11	0.02	2.74	#12	0.03
		Left side	0.016				0.02			0.02		
		Right side	0.024	0.434	0.130	0.080	0.46			0.23		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.266				1.27			1.27		
	WCDMA IV	Front	1.058	0.807	0.001	0.080	1.87	#13	0.02	1.14		
		Back	1.205	1.003	1.339	0.110	2.21	#14	0.02	2.65	#15	0.03
		Left side	0.035				0.04			0.04		
		Right side	0.041	0.434	0.130	0.080	0.48			0.25		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.250				1.25			1.25		
	WCDMA V	Front	1.209	0.807	0.001	0.080	2.02	#16	0.02	1.29		
		Back	1.080	1.003	1.339	0.110	2.08	#17	0.02	2.53	#18	0.03
		Left side	0.247				0.25			0.25		
		Right side	0.709	0.434	0.130	0.080	1.14			0.92		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.228				1.23			1.23		
CDMA	CDMA2000 BC0	Front	1.344	0.807	0.001	0.080	2.15	#19	0.02	1.43		
		Back	1.247	1.003	1.339	0.110	2.25	#20	0.02	2.70	#21	0.03
		Left side	0.350				0.35			0.35		
		Right side	0.738	0.434	0.130	0.080	1.17			0.95		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.141				1.14			1.14		
	CDMA2000 BC1	Front	1.139	0.807	0.001	0.080	1.95	#22	0.02	1.22		
		Back	1.330	1.003	1.339	0.110	2.33	#23	0.02	2.78	#24	0.04
		Left side	0.019				0.02			0.02		
		Right side	0.032	0.434	0.130	0.080	0.47			0.24		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.394				1.39			1.39		
	CDMA2000 BC10	Front	1.065	0.807	0.001	0.080	1.87	#25	0.01	1.15		
		Back	1.040	1.003	1.339	0.110	2.04	#26	0.02	2.49	#27	0.03
		Left side	0.249				0.25			0.25		
		Right side	0.560	0.434	0.130	0.080	0.99			0.77		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	0.980				0.98			0.98		



WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3+4 Summed 1g SAR (W/kg)	Case No	SPLSR	
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth							
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
LTE	LTE Band 7	Front	1.301	0.807	0.001	0.080	2.11	#28	0.02	1.38		
		Back	1.386	1.003	1.339	0.110	2.39	#29	0.03	2.84	#30	0.04
		Left side	1.165				1.17			1.17		
		Right side		0.434	0.130	0.080	0.43			0.21		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.123				1.12			1.12		
	LTE Band 12	Front	0.817	0.807	0.001	0.080	1.62	#31	0.01	0.9		
		Back	0.808	1.003	1.339	0.110	1.81	#32	0.02	2.26	#33	0.03
		Left side	0.553				0.55			0.55		
		Right side	0.737	0.434	0.130	0.080	1.17			0.95		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	0.537				0.54			0.54		
	LTE Band 13	Front	1.213	0.807	0.001	0.080	2.02	#34	0.02	1.29		
		Back	0.815	1.003	1.339	0.110	1.82	#35	0.02	2.26	#36	0.03
		Left side	0.645				0.65			0.65		
		Right side	0.998	0.434	0.130	0.080	1.43			1.21		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.339				1.34			1.34		
	LTE Band 25	Front	1.017	0.807	0.001	0.080	1.82	#37	0.01	1.1		
		Back	1.325	1.003	1.339	0.110	2.33	#38	0.02	2.77	#39	0.04
		Left side	0.015				0.02			0.02		
		Right side	0.027	0.434	0.130	0.080	0.46			0.24		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.274				1.27			1.27		
	LTE Band 26	Front	1.278	0.807	0.001	0.080	2.09	#40	0.02	1.36		
		Back	1.156	1.003	1.339	0.110	2.16	#41	0.02	2.61	#42	0.03
		Left side	0.237				0.24			0.24		
		Right side	0.599	0.434	0.130	0.080	1.03			0.81		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.099				1.10			1.1		
	LTE Band 66	Front	0.973	0.807	0.001	0.080	1.78	#43	0.01	1.05		
		Back	1.377	1.003	1.339	0.110	2.38	#44	0.02	2.83	#45	0.04
		Left side	0.031				0.03			0.03		
		Right side	0.034	0.434	0.130	0.080	0.47			0.24		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.129				1.13			1.13		
	LTE Band 41	Front	1.075	0.807	0.001	0.080	1.88	#46	0.02	1.16		
		Back	1.408	1.003	1.339	0.110	2.41	#47	0.03	2.86	#48	0.04
		Left side	1.015				1.02			1.02		
		Right side		0.434	0.130	0.080	0.43			0.21		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.175				1.18			1.18		
	LTE Band 71	Front	0.724	0.807	0.001	0.080	1.53			0.81		
		Back	0.754	1.003	1.339	0.110	1.76	#49	0.02	2.20	#50	0.02
		Left side	0.345				0.35			0.35		
		Right side	0.526	0.434	0.130	0.080	0.96			0.74		
		Top side		0.930	0.092	0.080	0.93			0.17		
		Bottom side	1.002				1.00			1		



15.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3+4 Summed 1g SAR (W/kg)	Case No	SPLSR	
		WWAN	2.4GHz WLAN	5GHz WLAN	Bluetooth							
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)							
GSM	GSM850	Front	1.391	0.807	0.001	0.080	2.20	#04	0.02	1.47		
		Back	1.365	1.003	1.339	0.110	2.37	#05	0.03	2.81	#06	0.04
	GSM1900	Front	1.035	0.807	0.001	0.080	1.84	#07	0.02	1.12		
		Back	1.246	1.003	1.339	0.110	2.25	#08	0.02	2.70	#09	0.04
WCDMA	WCDMA II	Front	1.029	0.807	0.001	0.080	1.84	#10	0.01	1.11		
		Back	1.286	1.003	1.339	0.110	2.29	#11	0.02	2.74	#12	0.03
	WCDMA IV	Front	1.058	0.807	0.001	0.080	1.87	#13	0.02	1.14		
		Back	1.205	1.003	1.339	0.110	2.21	#14	0.02	2.65	#15	0.03
	WCDMA V	Front	1.209	0.807	0.001	0.080	2.02	#16	0.02	1.29		
		Back	1.080	1.003	1.339	0.110	2.08	#17	0.02	2.53	#18	0.03
CDMA	CDMA2000 BC0	Front	1.346	0.807	0.001	0.080	2.15	#51	0.02	1.43		
		Back	1.304	1.003	1.339	0.110	2.31	#52	0.02	2.75	#53	0.04
	CDMA2000 BC1	Front	1.136	0.807	0.001	0.080	1.94	#54	0.02	1.22		
		Back	1.307	1.003	1.339	0.110	2.31	#55	0.02	2.76	#56	0.04
	CDMA2000 BC10	Front	1.158	0.807	0.001	0.080	1.97	#57	0.02	1.24		
		Back	1.130	1.003	1.339	0.110	2.13	#58	0.02	2.58	#59	0.03
LTE	LTE Band 7	Front	1.301	0.807	0.001	0.080	2.11	#18	0.02	1.38		
		Back	1.386	1.003	1.339	0.110	2.39	#29	0.03	2.84	#30	0.04
	LTE Band 12	Front	0.817	0.807	0.001	0.080	1.62	#31	0.01	0.9		
		Back	0.808	1.003	1.339	0.110	1.81	#32	0.02	2.26	#33	0.03
	LTE Band 13	Front	1.213	0.807	0.001	0.080	2.02	#34	0.02	1.29		
		Back	0.815	1.003	1.339	0.110	1.82	#35	0.02	2.26	#36	0.02
	LTE Band 25	Front	1.017	0.807	0.001	0.080	1.82	#37	0.01	1.1		
		Back	1.325	1.003	1.339	0.110	2.33	#38	0.02	2.77	#39	0.04
	LTE Band 26	Front	1.278	0.807	0.001	0.080	2.09	#40	0.02	1.36		
		Back	1.156	1.003	1.339	0.110	2.16	#41	0.02	2.61	#42	0.03
	LTE Band 66	Front	0.973	0.807	0.001	0.080	1.78	#43	0.01	1.05		
		Back	1.377	1.003	1.339	0.110	2.38	#44	0.02	2.83	#45	0.04
	LTE Band 41	Front	1.075	0.807	0.001	0.080	1.88	#46	0.02	1.16		
		Back	1.408	1.003	1.339	0.110	2.41	#47	0.03	2.86	#48	0.04
	LTE Band 71	Front	0.724	0.807	0.001	0.080	1.53			0.81		
		Back	0.754	1.003	1.339	0.110	1.76	#49	0.02	2.20	#50	0.02



WWAN Band		Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	Case No	SPLSR
			WWAN	2.4GHz WLAN	5GHz WLAN				
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM	GSM850	Front at 15mm -	0.169	0.272		0.44	0.17		
		Back at 19mm -	0.125	0.252	1.318	0.38	1.44		
		Front at 5mm Headset	1.125			1.13	1.13		
		Back at 5mm Headset			1.333		1.33		
	GSM1900	Front at 15mm -	0.397	0.272		0.67	0.4		
		Back at 19mm -	0.399	0.252	1.318	0.65	<b>1.72</b>	<b>#68</b>	<b>0.02</b>
		Front at 5mm Headset							
		Back at 5mm Headset	1.036		1.333	1.04	<b>2.37</b>	<b>#60</b>	<b>0.03</b>
WCDMA	WCDMA II	Front at 15mm -	1.103	0.272		1.38	1.1		
		Back at 19mm -	1.283	0.252	1.318	1.54	<b>2.6</b>	<b>#69</b>	<b>0.03</b>
		Front at 5mm Headset							
		Back at 5mm Headset	1.115		1.333	1.12	<b>2.45</b>	<b>#61</b>	<b>0.03</b>
	WCDMA IV	Front at 15mm -	0.808	0.272		1.08	0.81		
		Back at 19mm -	0.793	0.252	1.318	1.05	<b>2.11</b>	<b>#70</b>	<b>0.02</b>
		Front at 5mm Headset					0		
		Back at 5mm Headset	0.942		1.333	0.94	<b>2.28</b>	<b>#62</b>	<b>0.03</b>
	WCDMA V	Front at 15mm -	0.473	0.272		0.75	0.47		
		Back at 19mm -	0.348	0.252	1.318	0.60	<b>1.67</b>	<b>#71</b>	<b>0.04</b>
		Front at 5mm Headset	1.227			1.23	1.23		
		Back at 5mm Headset			1.333		1.33		
CDMA	CDMA2000 BC0	Front at 15mm -		0.272		0.27			
		Back at 19mm -		0.252	1.318	0.25	1.32		
		Front at 5mm Headset	1.216			1.22	1.22		
		Back at 5mm Headset			1.333		1.33		
	CDMA2000 BC1	Front at 15mm -	0.214	0.272		0.49	0.21		
		Back at 19mm -	0.280	0.252	1.318	0.53	1.60		
		Front at 5mm Headset							
		Back at 5mm Headset	1.254		1.333	1.25	<b>2.59</b>	<b>#63</b>	<b>0.03</b>
	CDMA2000 BC10	Front at 15mm -		0.272		0.27			
		Back at 19mm -		0.252	1.318	0.25	1.32		
		Front at 5mm Headset							
		Back at 5mm Headset			1.333		1.33		



WWAN Band	Exposure Position	1	2	3	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	Case No	SPLSR	
		WWAN	2.4GHz WLAN	5GHz WLAN					
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)					
LTE	LTE Band 7	Front at 15mm -	1.258	0.272		1.53	1.26		
		Back at 19mm -	0.977	0.252	1.318	1.23	2.3	#72	0.03
		Front at 5mm Headset							
		Back at 5mm Headset	1.357		1.333	1.36	2.69	#64	0.03
	LTE Band 12	Front at 15mm -		0.272		0.27			
		Back at 19mm -		0.252	1.318	0.25	1.32		
		Front at 5mm Headset							
		Back at 5mm Headset			1.333		1.33		
	LTE Band 13	Front at 15mm -		0.272		0.27			
		Back at 19mm -		0.252	1.318	0.25	1.32		
		Front at 5mm Headset	0.947			0.95	0.95		
		Back at 5mm Headset			1.333		1.33		
	LTE Band 25	Front at 15mm -	0.881	0.272		1.15	0.88		
		Back at 19mm -	0.989	0.252	1.318	1.24	2.31	#73	0.03
		Front at 5mm Headset							
		Back at 5mm Headset	0.721		1.333	0.72	2.05	#65	0.02
	LTE Band 26	Front at 15mm -	0.323	0.272		0.60	0.32		
		Back at 19mm -	0.219	0.252	1.318	0.47	1.54		
		Front at 5mm Headset							
		Back at 5mm Headset			1.333		1.33		
	LTE Band 66	Front at 15mm -	0.614	0.272		0.89	0.61		
		Back at 19mm -	0.607	0.252	1.318	0.86	1.93	#74	0.02
		Front at 5mm Headset							
		Back at 5mm Headset	1.149		1.333	1.15	2.48	#66	0.03
LTE Band 41	Front at 15mm -	1.152	0.272		1.42	1.15			
	Back at 19mm -	0.705	0.252	1.318	0.96	2.02	#75	0.02	
	Front at 5mm Headset								
	Back at 5mm Headset	1.111		1.333	1.11	2.44	#67	0.03	
LTE Band 71	Front at 15mm -		0.272		0.27				
	Back at 19mm -		0.252	1.318	0.25	1.32			
	Front at 5mm Headset								
	Back at 5mm Headset			1.333		1.33			



15.4 Product specific 10g SAR Exposure Conditions

WWAN Band	Exposure Position	1	2	3	1+2 Summed 10g SAR (W/kg)	Case No	SPLSR	1+3 Summed 10g SAR (W/kg)	Case No	SPLSR	
		WWAN	2.4GHz WLAN Ant 1	5GHz WLAN Ant 1							
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)							
GSM	GSM850	Front at 0mm	0.509		0.171			0.68			
		Back at 0mm	0.599	2.652	2.476	3.25		3.08			
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
	GSM1900	Front at 0mm	1.756		0.171	1.76		1.93			
		Back at 0mm	2.532	2.652	2.476	5.18	#76	0.08	5.01	#77	0.08
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
WCDMA	WCDMA II	Front at 0mm	2.712		0.171	2.71		2.88			
		Back at 0mm	3.228	2.652	2.476	5.88	#78	0.10	5.7	#79	0.10
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm	2.878			2.88		2.88			
	WCDMA IV	Front at 0mm	2.781		0.171	2.78		2.95			
		Back at 0mm	2.497	2.652	2.476	5.15	#80	0.08	4.97	#81	0.08
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm	3.389			3.39		3.39			
	WCDMA V	Front at 0mm	3.394		0.171	3.39		3.57			
		Back at 0mm		2.652	2.476	2.65		2.48			
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm	1.962			1.96		1.96			
	CDMA	CDMA2000 BC0	Front at 0mm	1.366		0.171	1.37		1.54		
Back at 0mm			1.354	2.652	2.476	4.01	#82	0.06	3.83		
Right side at 0mm					0.231	0.00		0.23			
Top side at 0mm					0.145	0.00		0.15			
Bottom side at 0mm						0.00		0			
CDMA2000 BC1		Front at 0mm	2.848		0.171	2.85		3.02			
		Back at 0mm	3.377	2.652	2.476	6.03	#83	0.10	5.85	#84	0.10
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm	2.633			2.63		2.63			
LTE	LTE Band 7	Front at 0mm	3.264		0.171	3.26		3.44			
		Back at 0mm	3.506	2.652	2.476	6.16	#85	0.10	5.98	#86	0.10
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm	2.402			2.40		2.4			
	LTE Band 12	Front at 0mm			0.171	0.00		0.17			
		Back at 0mm		2.652	2.476	2.65		2.48			
		Right side at 0mm			0.231	0.00		0.23			
		Top side at 0mm			0.145	0.00		0.15			
		Bottom side at 0mm				0.00		0			
	LTE Band 13	Front at 0mm	2.899		0.171	2.90		3.07			
		Back at 0mm		2.652	2.476	2.65		2.48			
		Right side at 0mm			0.231	0.00		0.23			
Top side at 0mm				0.145	0.00		0.15				



	Bottom side at 0mm	0.854			0.85			0.85		
LTE Band 25	Front at 0mm	3.224		0.171	3.22			3.4		
	Back at 0mm	3.421	2.652	2.476	6.07	#87	0.10	5.9	#88	0.10
	Right side at 0mm			0.231	0.00			0.23		
	Top side at 0mm			0.145	0.00			0.15		
	Bottom side at 0mm	1.988			1.99			1.99		
	LTE Band 26	Front at 0mm	1.453		0.171	1.45			1.62	
Back at 0mm		1.255	2.652	2.476	3.91			3.73		
Right side at 0mm				0.231	0.00			0.23		
Top side at 0mm				0.145	0.00			0.15		
Bottom side at 0mm		1.546			1.55			1.55		
LTE Band 66	Front at 0mm	2.905		0.171	2.91			3.08		
	Back at 0mm	3.111	2.652	2.476	5.76	#89	0.09	5.59	#90	0.10
	Right side at 0mm			0.231	0.00			0.23		
	Top side at 0mm			0.145	0.00			0.15		
	Bottom side at 0mm	3.368			3.37			3.37		
LTE Band 71	Front at 0mm			0.171	0.00			0.17		
	Back at 0mm		2.652	2.476	2.65			2.48		
	Right side at 0mm			0.231	0.00			0.23		
	Top side at 0mm			0.145	0.00			0.15		
	Bottom side at 0mm				0.00			0		
LTE Band 41	Front at 0mm	2.447		0.171	2.45			2.62		
	Back at 0mm	3.295	2.652	2.476	5.95	#91	0.10	5.77	#92	0.10
	Left side at 0mm	2.193			2.19			2.19		
	Right side at 0mm			0.231	0.00			0.23		
	Top side at 0mm			0.145	0.00			0.15		
	Bottom side at 0mm	1.937			1.94			1.94		

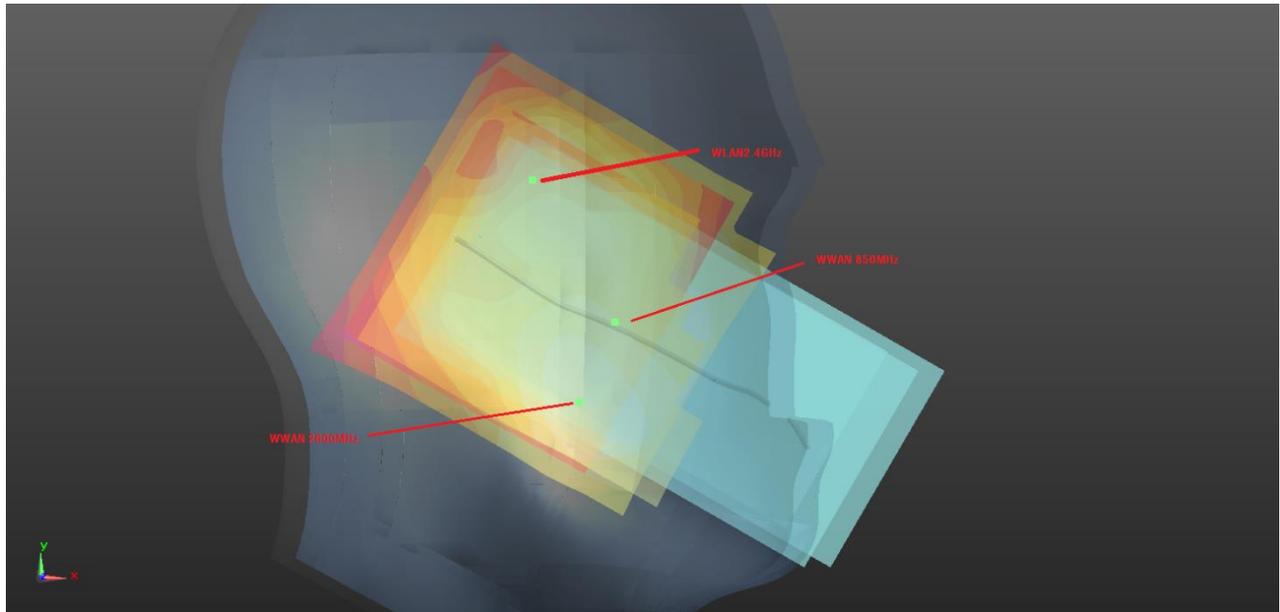
**Remark:**

1. For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.
2. If SPLSR ≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is not necessary.

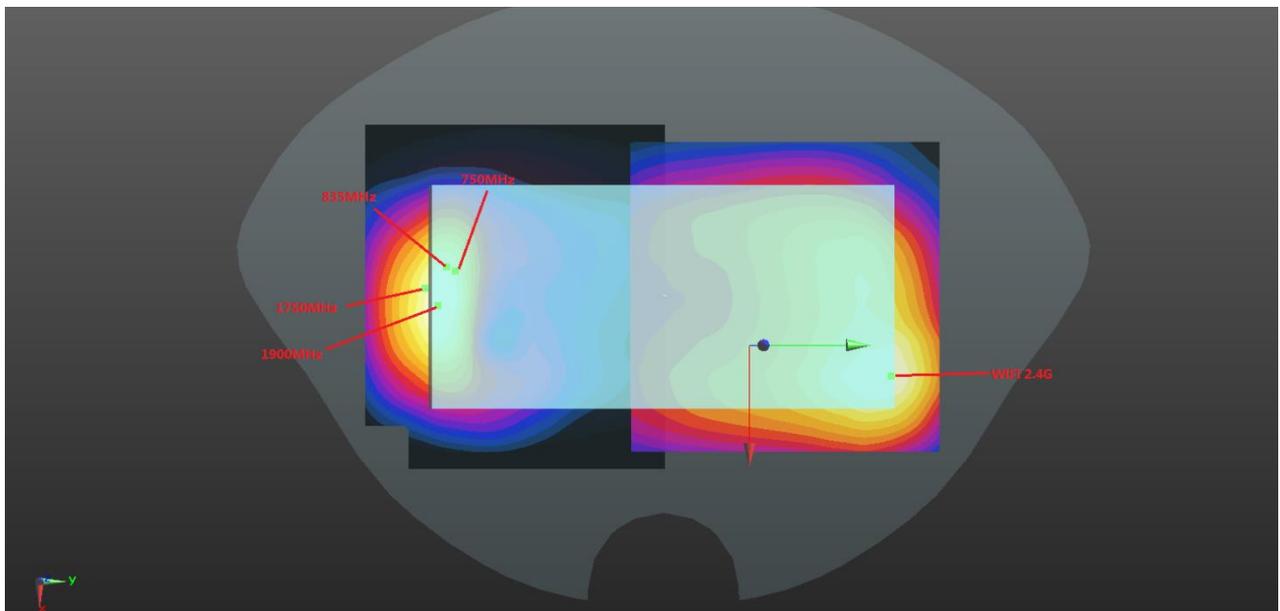
### 15.5 SPLSR Evaluation and Analysis

**General Note:**

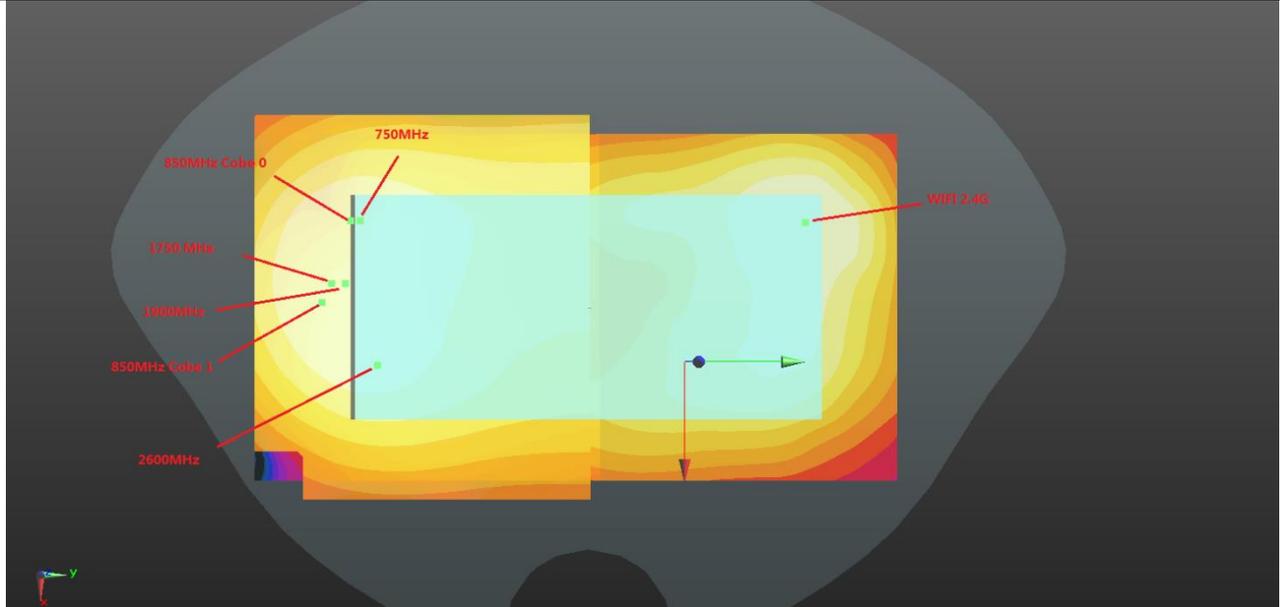
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where  $(x1, y1, z1)$  and  $(x2, y2, z2)$  are the coordinates in the area scans or extrapolated peak SAR locations in the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



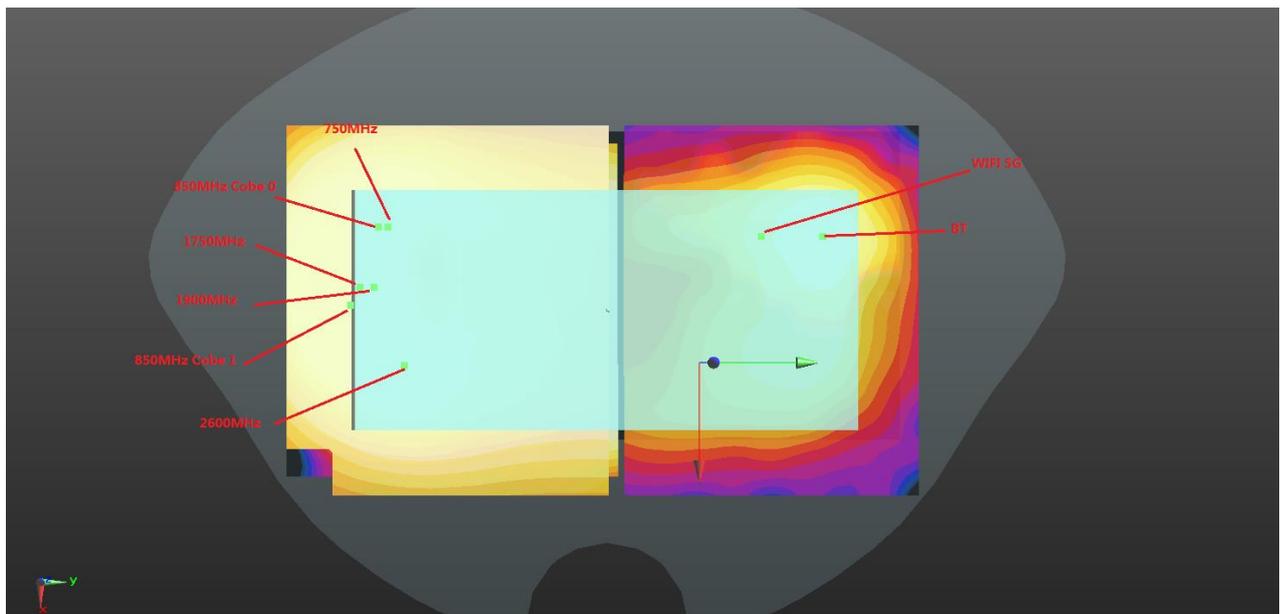
**Head**



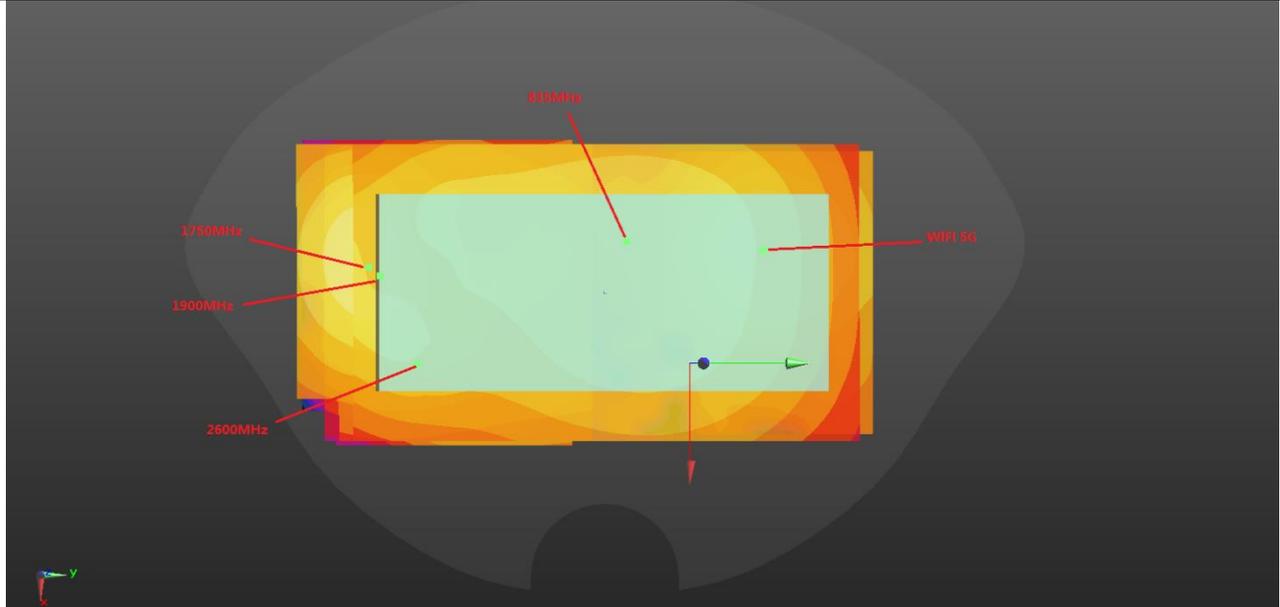
**Front(5mm)+2.4G(5mm)**



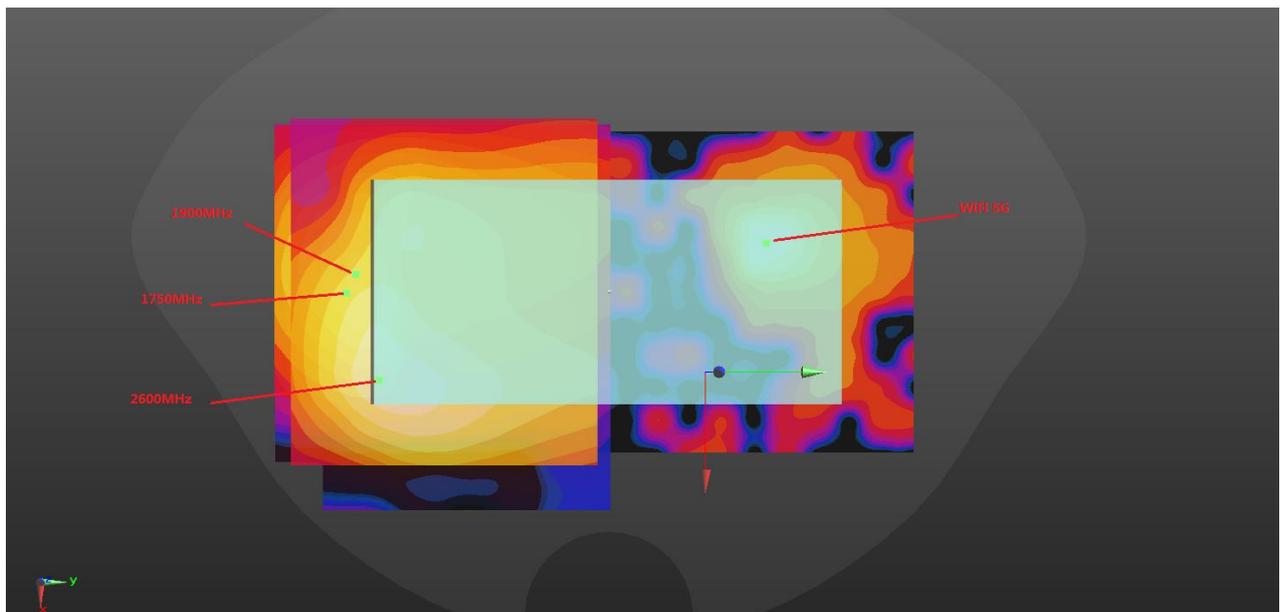
Back(5mm)+2.4G(5mm)



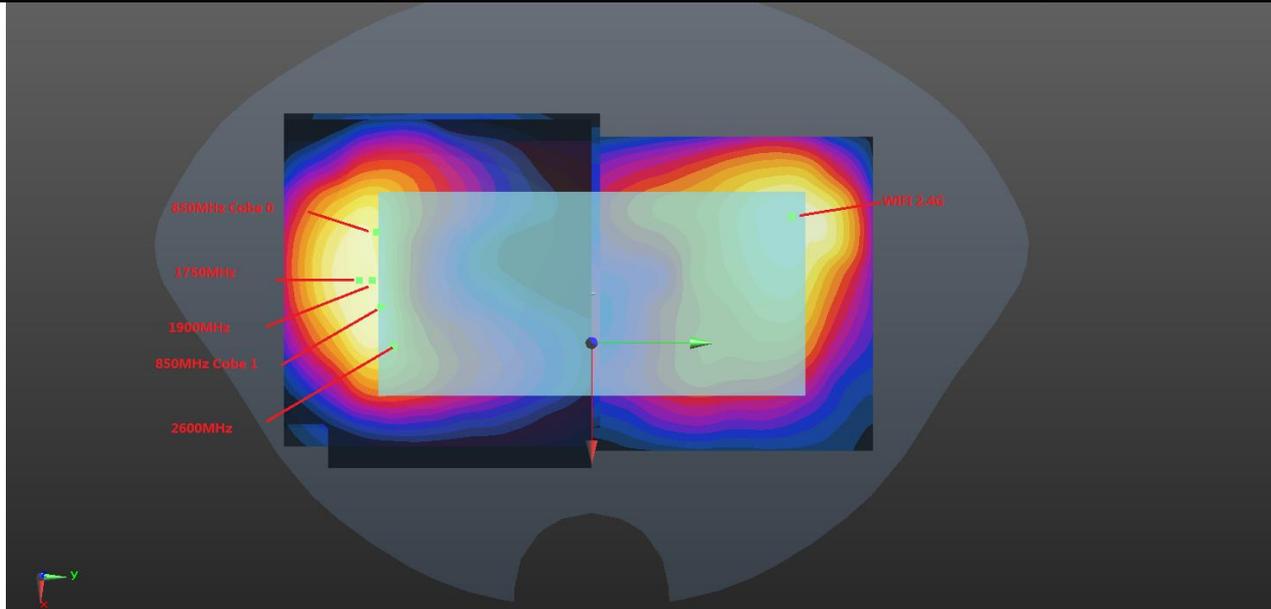
Back(5mm)+5G(5mm)+BT(5mm)



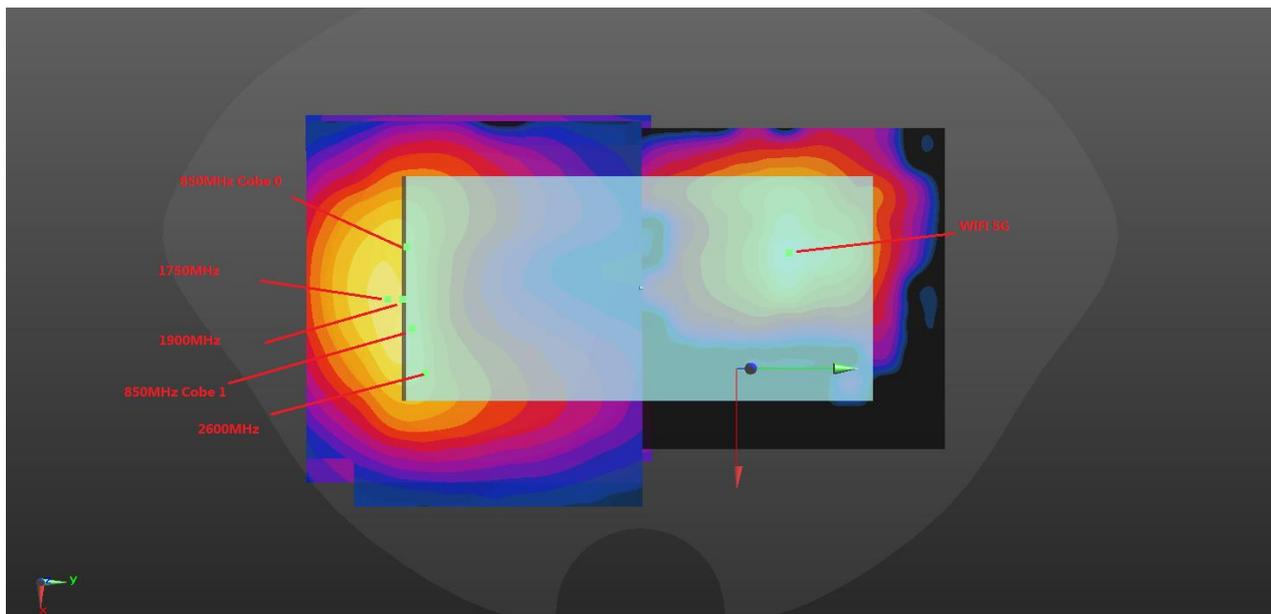
Back(19mm)+5G(19mm)



Back\_Headset (5mm)+5G\_Headset(5mm)



Back(0mm)+2.4G(0mm)



Back(0mm)+5G(0mm)



Head 0mm											
Case 1	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	WCDMA V	Left Cheek	0.424	0mm	45.23	-29.62	-3.7	59.3	1.62	0.03	Not required
	WLAN2.4GHz		1.196	0mm	14.25	20.86	-1.93				
Hotspot 5mm											
Case 2	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 2	CDMA2000 BC0	Left Cheek	0.435	0mm	44.89	-32.64	-3.66	61.7	1.63	0.03	Not required
	WLAN2.4GHz		1.196	0mm	14.25	20.86	-1.93				
Case 3	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 3	LTE Band 41	Left Cheek	0.722	0mm	42.25	-62.8	1.38	88.3	1.92	0.03	Not required
	WLAN2.4GHz		1.196	0mm	14.25	20.86	-1.93				
Case 4	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 4	GSM850	Front	1.391	5mm	-5.7	-81.3	-2.01	167.7	2.20	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 5	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	GSM850 Cube 0	Back	1.365	5mm	-6.3	-87.2	-1.91	154.1	2.37	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
GSM850 Cube 1	Back	1.15	5mm	-3	-51	5.55	119.4	2.15	0.03	Not required	
WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8					



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 6	GSM850 Cube 0	Back	1.365	5mm	-6.3	-87.2	-1.91	157.5	2.81	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	GSM850 Cube 0	Back	1.365	5mm	-6.3	-87.2	-1.91	138.6	2.81	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	GSM850 Cube 1	Back	1.15	5mm	-3	-51	5.55	122.6	2.60	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	GSM850 Cube 1	Back	1.15	5mm	-3	-51	5.55	103.2	2.60	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 7											
	GSM1900	Front	1.035	5mm	3	-76.3	-1.96	161.1	1.84	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 8											
	GSM1900	Back	1.246	5mm	-7.5	-73.3	-2.05	140.2	2.25	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 9											
	GSM1900	Back	1.246	5mm	-7.5	-73.3	-2.05	143.6	2.70	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	GSM1900	Back	1.246	5mm	-7.5	-73.3	-2.05	124.7	2.70	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
WLAN5GHz	1.339		5mm	-19.2	50.8	1.39					
Case 10											
	WCDMA II	Front	1.029	5mm	0.2	-82.5	-2.03	167.7	1.84	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 11											
	WCDMA II	Back	1.286	5mm	-9.1	-79.4	-2.11	146.0	2.29	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 12	WCDMA II	Back	1.286	5mm	-9.1	-79.4	-2.11	149.4	2.74	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WCDMA II	Back	1.286	5mm	-9.1	-79.4	-2.11	130.6	2.74	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 13	WCDMA IV	Front	1.058	5mm	0.2	-82.4	-2.03	167.6	1.87	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
	WLAN2.4GHz	Back	1.003	5mm	-29.4	65.2	-1.8	147.4	2.21	0.02	Not required
Case 14	WCDMA IV	Back	1.205	5mm	-10.7	-81	-2.08	150.8	2.65	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WCDMA IV	Back	1.205	5mm	-10.7	-81	-2.08	132.1	2.65	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 15	WCDMA V	Front	1.209	5mm	-7.4	-82.5	-1.99	169.3	2.02	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
	WLAN2.4GHz	Back	1.003	5mm	-29.4	65.2	-1.8	148.1	2.08	0.02	Not required
Case 16	WCDMA V	Front	1.209	5mm	-7.4	-82.5	-1.99	169.3	2.02	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
	WLAN2.4GHz	Back	1.003	5mm	-29.4	65.2	-1.8	148.1	2.08	0.02	Not required
Case 17	WCDMA V	Front	1.209	5mm	-7.4	-82.5	-1.99	169.3	2.02	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
	WLAN2.4GHz	Back	1.003	5mm	-29.4	65.2	-1.8	148.1	2.08	0.02	Not required



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 18	WCDMA V	Back	1.08	5mm	7.3	-78.3	-1.97	151.3	2.53	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WCDMA V	Back	1.08	5mm	7.3	-78.3	-1.97	131.8	2.53	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 19	CDMA2000 BC0	Front	1.344	5mm	-8.5	-79.8	-2.21	166.9	2.15	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 20	CDMA2000 BC0	Back	1.247	5mm	6	-76.7	-2.14	146.2	2.25	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 21	CDMA2000 BC0	Back	1.247	5mm	6	-76.7	-2.14	149.4	2.70	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC0	Back	1.247	5mm	6	-76.7	-2.14	130.0	2.70	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 22	CDMA2000 BC1	Front	1.139	5mm	-1.4	-79.4	-2.06	164.9	1.95	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 23	CDMA2000 BC1	Back	1.33	5mm	-9	-77.9	-2.14	144.5	2.33	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 24	CDMA2000 BC1	Back	1.33	5mm	-9	-77.9	-2.14	147.9	2.78	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC1	Back	1.33	5mm	-9	-77.9	-2.14	129.2	2.78	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 25	CDMA2000 BC10	Front	1.065	5mm	-75	-83.9	-2.21	197.4	1.87	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 26	CDMA2000 BC10	Back	1.04	5mm	6	-76.7	-2.12	146.2	2.04	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 27	CDMA2000 BC10	Back	1.04	5mm	6	-76.7	-2.12	149.4	2.49	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC10	Back	1.04	5mm	6	-76.7	-2.12	130.0	2.49	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 28	LTE Band 7	Front	1.301	5mm	-31.8	-70.8	-2.12	165.6	2.11	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 29	LTE Band 7	Back	1.386	5mm	20	-69.6	-1.78	143.6	2.39	0.03	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 30	LTE Band 7	Back	1.386	5mm	20	-69.6	-1.78	146.5	2.84	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 7	Back	1.386	5mm	20	-69.6	-1.78	126.7	2.84	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 31	LTE Band 12	Front	0.817	5mm	-2.6	-76.7	-2.28	162.5	1.62	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 32	LTE Band 12	Back	0.808	5mm	-27	-72	-2.43	137.2	1.81	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 33	LTE Band 12	Back	0.808	5mm	-27	-72	-2.43	140.8	2.26	0.02	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 12	Back	0.808	5mm	-27	-72	-2.43	123.1	2.26	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 34	LTE Band 13	Front	1.213	5mm	-25.4	-79.9	-2.05	171.8	2.02	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 35	LTE Band 13 Cube0	Back	0.815	5mm	-7.3	-88.6	-2.15	155.4	1.82	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
	LTE Band 13 Cube0	Back	0.795	5mm	4.9	-80.8	-1.92	150.0	1.80	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 36	LTE Band 13 Cube0	Back	0.815	5mm	-7.3	-88.6	-2.15	158.8	2.26	0.02	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 13 Cube0	Back	0.815	5mm	-7.3	-88.6	-2.15	140.0	2.26	0.02	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	LTE Band 13 Cube1	Back	0.795	5mm	4.9	-80.8	-1.92	153.2	2.24	0.02	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 13 Cube1	Back	0.795	5mm	4.9	-80.8	-1.92	133.8	2.24	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 37	LTE Band 25	Front	1.017	5mm	1.6	-83.8	-1.63	168.7	1.82	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 38	LTE Band 25	Back	1.325	5mm	-13.9	-79.3	-1.62	145.3	2.33	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 39	LTE Band 25	Back	1.325	5mm	-13.9	-79.3	-1.62	148.8	2.77	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 25	Back	1.325	5mm	-13.9	-79.3	-1.62	130.2	2.77	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 40	LTE Band 26 Cube1	Front	1.278	5mm	-5.7	-84	-1.91	170.3	2.09	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
	LTE Band 26 Cube1	Front	0.976	5mm	-5.5	-82.9	-1.95	169.2	1.78	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 41	LTE Band 26 Cube0	Back	1.156	5mm	-23.9	-78.2	-2.11	143.5	2.16	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
	LTE Band 26 Cube1	Back	1.089	5mm	7.3	-78.3	-2.02	148.1	2.09	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 42	LTE Band 26 Cube0	Back	1.156	5mm	-23.9	-78.2	-2.11	147.1	2.61	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 26 Cube0	Back	1.156	5mm	-23.9	-78.2	-2.11	129.1	2.61	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	LTE Band 26 Cube1	Back	1.089	5mm	7.3	-78.3	-2.02	151.3	2.54	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 26 Cube1	Back	1.089	5mm	7.3	-78.3	-2.02	131.8	2.54	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 43	LTE Band 66	Front	0.973	5mm	0.1	-83.8	-1.54	169.0	1.78	0.01	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 44	LTE Band 66	Back	1.377	5mm	-13.8	-81	-2.07	147.0	2.38	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 45	LTE Band 66	Back	1.377	5mm	-13.8	-81	-2.07	150.5	2.83	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 66	Back	1.377	5mm	-13.8	-81	-2.07	132.0	2.83	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 46	LTE Band 41	Front	1.075	5mm	-32	-72.2	2.04	167.0	1.88	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 47	LTE Band 41	Back	1.408	5mm	19.6	-68.4	2.47	142.4	2.41	0.03	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 48	LTE Band 41	Back	1.408	5mm	19.6	-68.4	2.47	145.3	2.86	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 41	Back	1.408	5mm	19.6	-68.4	2.47	125.4	2.86	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 49	LTE Band 71	Back	0.754	5mm	7.3	-83.3	-2.16	153.0	1.76	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 50	LTE Band 71	Back	0.754	5mm	7.3	-83.3	-2.16	156.1	2.20	0.02	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	LTE Band 71	Back	0.754	5mm	7.3	-83.3	-2.16	136.7	2.20	0.02	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				



Body Worn 5mm											
Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 51	CDMA2000 BC0	Front	1.346	5mm	2	-73.5	-2.16	158.5	2.15	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 52	CDMA2000 BC0	Back	1.304	5mm	6	-76.7	-2.14	146.2	2.31	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 53	CDMA2000 BC0	Back	1.304	5mm	6	-76.7	-2.14	149.4	2.75	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC0	Back	1.304	5mm	6	-76.7	-2.14	130.0	2.75	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 54	CDMA2000 BC1	Front	1.136	5mm	-1.4	-79.4	-2.06	164.9	1.94	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				
Case 55	CDMA2000 BC1	Back	1.307	5mm	-9.1	-77.9	-2.13	144.5	2.31	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 56	CDMA2000 BC1	Back	1.307	5mm	-9.1	-77.9	-2.13	147.9	2.76	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC1	Back	1.307	5mm	-9.1	-77.9	-2.13	129.1	2.76	0.04	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 57	CDMA2000 BC10	Front	1.158	5mm	-8.5	-79.8	-2.21	166.9	1.97	0.02	Not required
	WLAN2.4GHz		0.807	5mm	31.6	82.2	-1.64				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 58	CDMA2000 BC10	Back	1.13	5mm	7.5	-79.8	-2.19	149.6	2.13	0.02	Not required
	WLAN2.4GHz		1.003	5mm	-29.4	65.2	-1.8				
Case 59	CDMA2000 BC10	Back	1.13	5mm	7.5	-79.8	-2.19	152.8	2.58	0.03	Not required
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	CDMA2000 BC10	Back	1.13	5mm	7.5	-79.8	-2.19	133.3	2.58	0.03	Not required
	Bluetooth		0.11	5mm	-28	68.8	-2.03				
	WLAN5GHz		1.339	5mm	-19.2	50.8	1.39				
Case 60	GSM1900	Back+Headset	1.036	5mm	-16.7	-79.5	-2.33	130.2	2.37	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Case 61	WCDMA II	Back+Headset	1.115	5mm	-9.2	-81	-2.26	131.9	2.45	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Case 62	WCDMA IV	Back+Headset	0.942	5mm	-10.7	-82.5	-2.28	133.3	2.28	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Case 63	CDMA2000 BC1	Back+Headset	1.254	5mm	-10.7	-79.5	-2.14	130.3	2.59	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Back											
Case 64	LTE Band 7	Back+Headset	1.357	5mm	27.6	-73.4	2.49	131.6	2.69	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Case 65	LTE Band 25	Back+Headset	0.721	5mm	-9.2	-81	-2.13	131.9	2.05	0.02	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 66	LTE Band 66	Back+Headset	1.149	5mm	-7.6	-80.9	-2.12	131.9	2.48	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
Case 67	LTE Band 41	Back+Headset	1.111	5mm	21.6	-71.8	2.47	128.2	2.44	0.03	Not required
	WLAN5GHz		1.333	5mm	-16.6	50.6	1.47				
<b>19mm</b>											
Case 68	GSM1900	Back	0.399	19mm	-9.2	-82.1	2.31	137.4	1.72	0.02	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 69	WCDMA II	Back	1.283	19mm	-7.7	-73.9	2.47	129.3	2.60	0.03	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 70	WCDMA IV	Back	0.793	19mm	-12.2	-84.5	2.24	139.7	2.11	0.02	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 71	WCDMA V	Back	0.348	19mm	-19.6	7.5	1.97	47.9	1.67	0.04	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 72	LTE Band 7	Back	0.977	19mm	25.4	-68.4	2.83	130.0	2.30	0.03	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 73	LTE Band 25	Back	0.989	19mm	-10.6	-83	2.29	138.3	2.31	0.03	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
					(mm)	(mm)	(mm)				
Case 74	LTE Band 66	Back	0.607	19mm	-18.7	-83.1	2.18	138.4	1.93	0.02	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
Case 75	LTE Band 41	Back	0.705	19mm	23.6	-67.2	2.5	128.3	2.02	0.02	Not required
	WLAN5GHz		1.318	19mm	-15	55.2	1.46				
<b>0mm</b>											
Case 76	GSM1900	Back	2.532	0mm	8.1	-79.5	-1.7	152.6	5.18	0.08	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 77	GSM1900	Back	2.532	0mm	8.1	-79.5	-1.7	138.6	5.01	0.08	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 78	WCDMA II	Back	3.228	0mm	3.5	-75	-2.15	147.1	5.88	0.10	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 79	WCDMA II	Back	3.228	0mm	3.5	-75	-2.15	133.3	5.70	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 80	WCDMA IV	Back	2.497	0mm	11.5	-77.9	-1.53	151.9	5.15	0.08	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 81	WCDMA IV	Back	2.497	0mm	11.5	-77.9	-1.53	137.8	4.97	0.08	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 82	CDMA2000 BC0	Back	1.354	0mm	-25.8	-71.9	-2.35	140.3	4.01	0.06	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 83	CDMA2000 BC1	Back	3.377	0mm	10	-75.3	-1.56	149.0	6.03	0.10	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 84	CDMA2000 BC1	Back	3.377	0mm	10	-75.3	-1.56	134.9	5.85	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 85	LTE Band 7	Back	3.506	0mm	25.4	-75.8	2.78	154.3	6.16	0.10	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 86	LTE Band 7	Back	3.506	0mm	25.4	-75.8	2.78	139.6	5.98	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 87	LTE Band 25	Back	3.421	0mm	5	-81	-1.76	153.3	6.07	0.10	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 88	LTE Band 25	Back	3.421	0mm	5	-81	-1.76	139.5	5.90	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 89	LTE Band 66	Back	3.111	0mm	8.5	-73.3	-2.27	146.7	5.76	0.09	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 90	LTE Band 66	Back	3.111	0mm	8.5	-73.3	-2.27	132.6	5.59	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				
Case 91	LTE Band 41	Back	3.295	0mm	21	-70.4	-1.38	147.7	5.95	0.10	Not required
	WLAN2.4GHz		2.652	0mm	-29.4	68.4	-1.46				
Case 92	LTE Band 41	Back	3.295	0mm	26	-70.4	-1.38	134.7	5.77	0.10	Not required
	WLAN5GHz		2.476	0mm	-20	56.2	-0.38				



## 16. Supplemental Tuner Tests Results

### General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly WCDMA Band V, CDMA2000 BC0 and LTE band 5/12/13/17/26, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
3. This device supports LTE B5 / B17 and B26 / B12. Since the supported frequency span for LTE B5 / B17 falls completely within the supports frequency span for LTE B26 / B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, chose LTE B26 / B12 for dynamic antenna analysis.
4. According to workshop 2019, if any single point SAR measurement result is  $> 1.2 \text{ W/kg}$  for a band/exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination. So we verified the single point SAR that bands with SAR value high than  $1.2 \text{ W/Kg}$ .
5. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

### 16.1 Supplemental Tuner Head & Body SAR Results

Please refer to Appendix F.

**Test Engineer :** Nick Hu, Yuan Zhao, Jiaying Chang, Yuankai Kong



## **17. Uncertainty Assessment**

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

## **18. References**

- [1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.
- [7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015
- [8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.
- [9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.
- [10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015
- [11] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015
- [12] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015
- [13] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015
- [14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

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



## **Appendix A. Plots of System Performance Check**

The plots are shown as follows.

**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:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.895 \text{ S/m}$ ;  $\epsilon_r = 41.699$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.2 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.9 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(6.56, 6.56, 6.56); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.65 \text{ W/kg}$

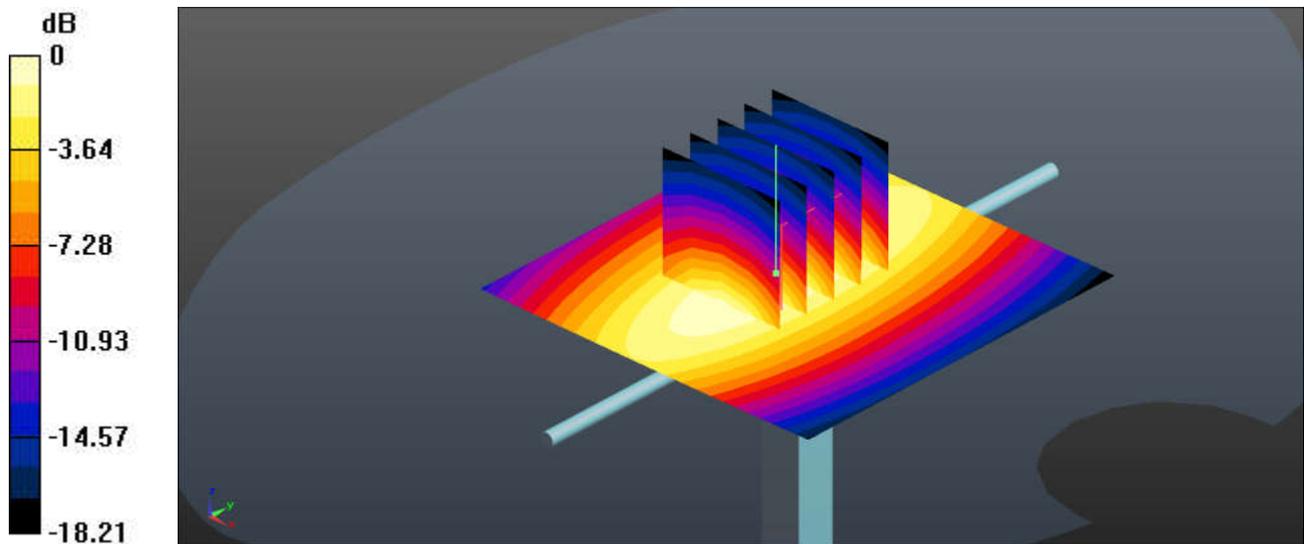
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $56.01 \text{ V/m}$ ; Power Drift =  $0.10 \text{ dB}$

Peak SAR (extrapolated) =  $3.12 \text{ W/kg}$

**SAR(1 g) =  $2.14 \text{ W/kg}$ ; SAR(10 g) =  $1.43 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.69 \text{ W/kg}$



$0 \text{ dB} = 2.65 \text{ W/kg} = 4.23 \text{ dBW/kg}$

### 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:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.911 \text{ S/m}$ ;  $\epsilon_r = 43.213$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature :  $23.2 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.9 \text{ }^\circ\text{C}$

#### DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(6.56, 6.56, 6.56); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.75 \text{ W/kg}$

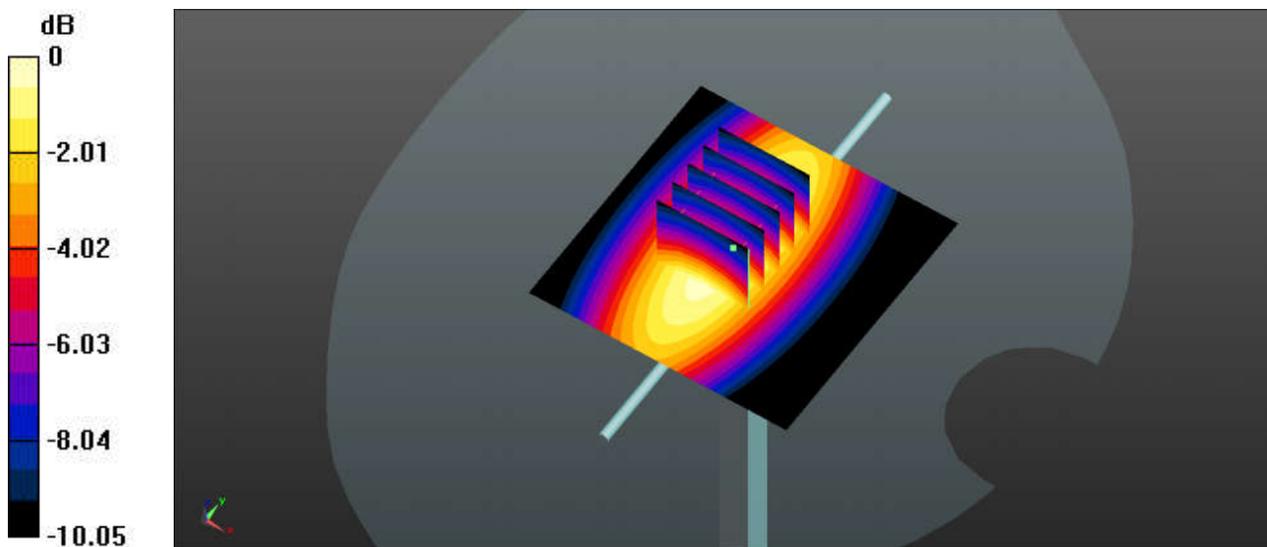
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $49.41 \text{ V/m}$ ; Power Drift =  $0.05 \text{ dB}$

Peak SAR (extrapolated) =  $3.27 \text{ W/kg}$

**SAR(1 g) =  $2.21 \text{ W/kg}$ ; SAR(10 g) =  $1.47 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.78 \text{ W/kg}$



0 dB =  $2.78 \text{ W/kg} = 4.44 \text{ dBW/kg}$

**System Check\_Head\_835MHz**

**DUT: D835V2 - SN:4d151**

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL\_835 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.902 \text{ S/m}$ ;  $\epsilon_r = 41.239$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.2 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.8 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(6.39, 6.39, 6.39); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $3.14 \text{ W/kg}$

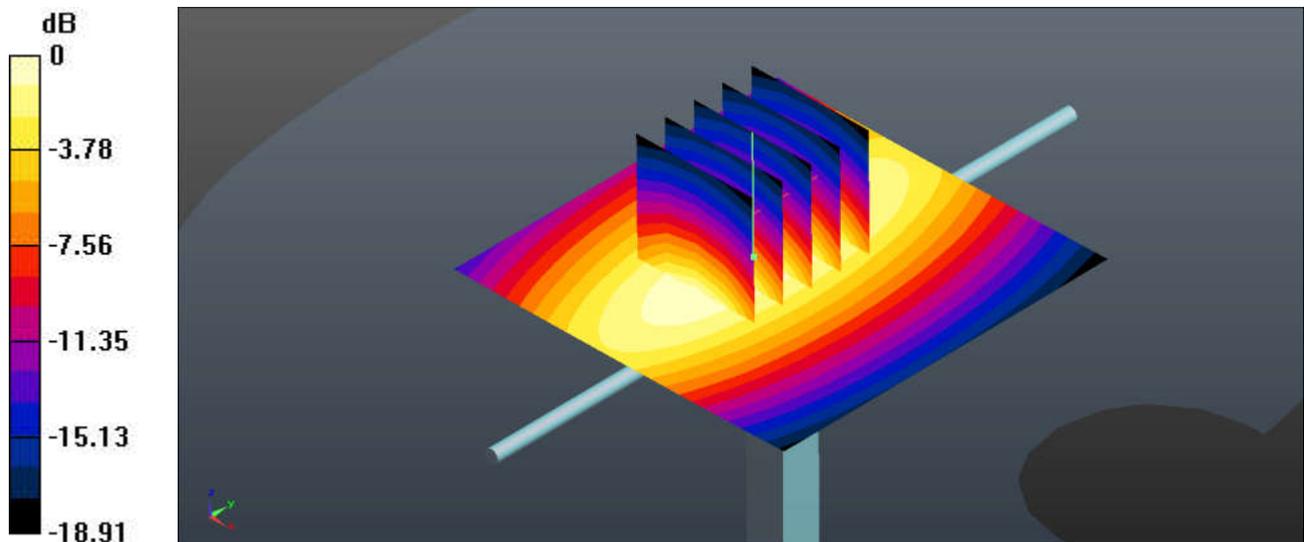
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $59.04 \text{ V/m}$ ; Power Drift =  $-0.05 \text{ dB}$

Peak SAR (extrapolated) =  $3.62 \text{ W/kg}$

**SAR(1 g) =  $2.38 \text{ W/kg}$ ; SAR(10 g) =  $1.55 \text{ W/kg}$**

Maximum value of SAR (measured) =  $3.21 \text{ W/kg}$



$0 \text{ dB} = 3.14 \text{ W/kg} = 4.97 \text{ dBW/kg}$

### System Check\_Head\_835MHz

**DUT: D835V2 - SN:4d151**

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: HSL\_835 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.908 \text{ S/m}$ ;  $\epsilon_r = 42.809$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature :  $23.2 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.8 \text{ }^\circ\text{C}$

#### DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(6.39, 6.39, 6.39); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $3.17 \text{ W/kg}$

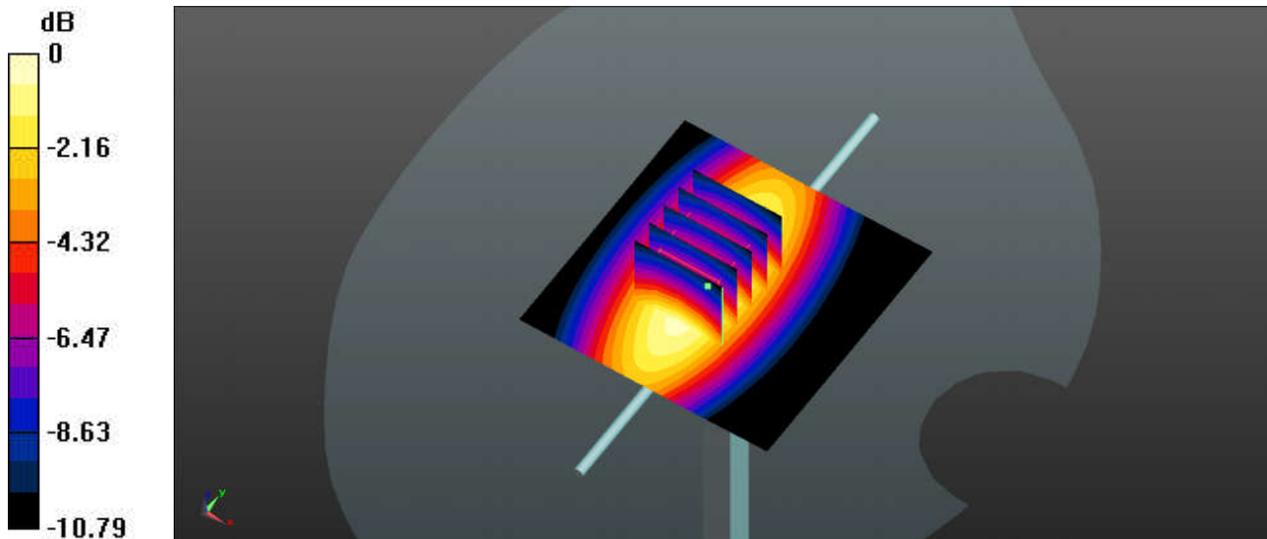
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $59.35 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $3.63 \text{ W/kg}$

**SAR(1 g) =  $2.41 \text{ W/kg}$ ; SAR(10 g) =  $1.58 \text{ W/kg}$**

Maximum value of SAR (measured) =  $3.22 \text{ W/kg}$



0 dB =  $3.22 \text{ W/kg} = 5.08 \text{ dBW/kg}$

**System Check\_Head\_1750MHz**

**DUT: D1750V2 - SN:1090**

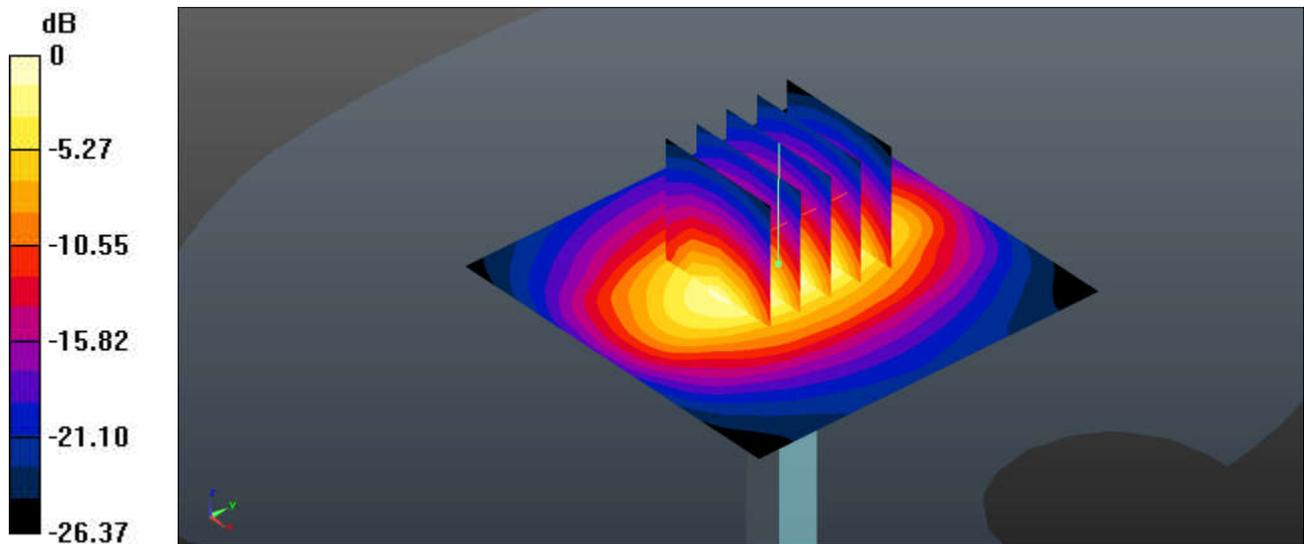
Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1  
 Medium: HSL\_1750 Medium parameters used:  $f = 1750 \text{ MHz}$ ;  $\sigma = 1.357 \text{ S/m}$ ;  $\epsilon_r = 39.059$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature :  $23.3 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.53, 5.53, 5.53); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
 Maximum value of SAR (interpolated) =  $14.0 \text{ W/kg}$

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value =  $100.1 \text{ V/m}$ ; Power Drift =  $0.03 \text{ dB}$   
 Peak SAR (extrapolated) =  $16.9 \text{ W/kg}$   
**SAR(1 g) =  $9.22 \text{ W/kg}$ ; SAR(10 g) =  $4.89 \text{ W/kg}$**   
 Maximum value of SAR (measured) =  $14.3 \text{ W/kg}$



$0 \text{ dB} = 14.0 \text{ W/kg} = 11.46 \text{ dBW/kg}$

### 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;  $\sigma = 1.352$  S/m;  $\epsilon_r = 40.502$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.53, 5.53, 5.53); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.2 W/kg

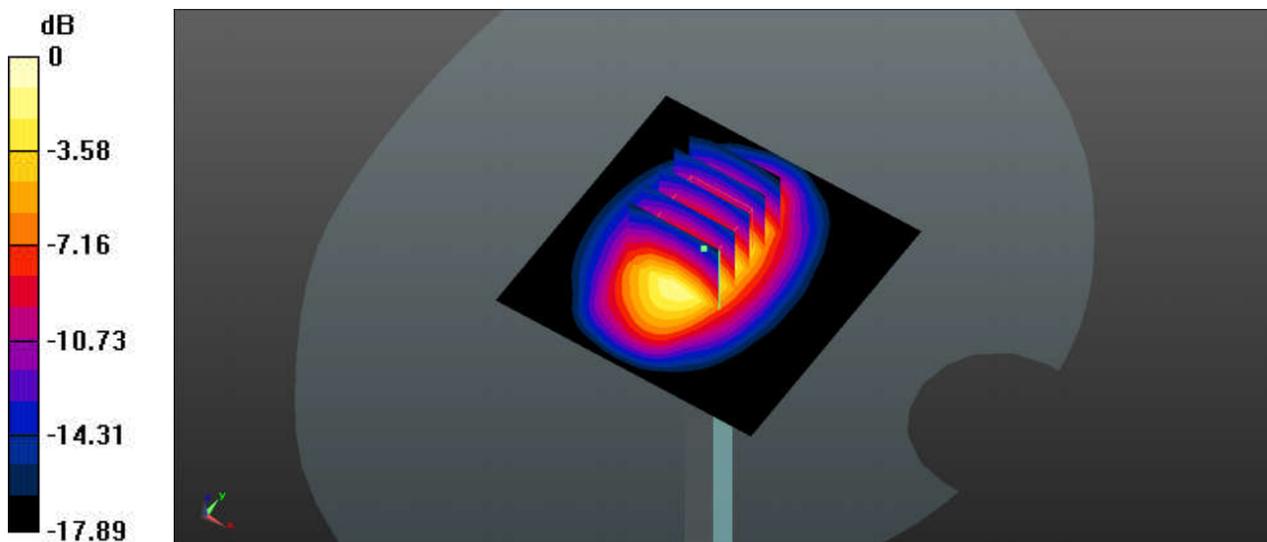
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 101.0 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 16.9 W/kg

**SAR(1 g) = 9.21 W/kg; SAR(10 g) = 4.88 W/kg**

Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.2 W/kg = 11.52 dBW/kg

### 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;  $\sigma = 1.371$  S/m;  $\epsilon_r = 40.674$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.53, 5.53, 5.53); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 14.4 W/kg

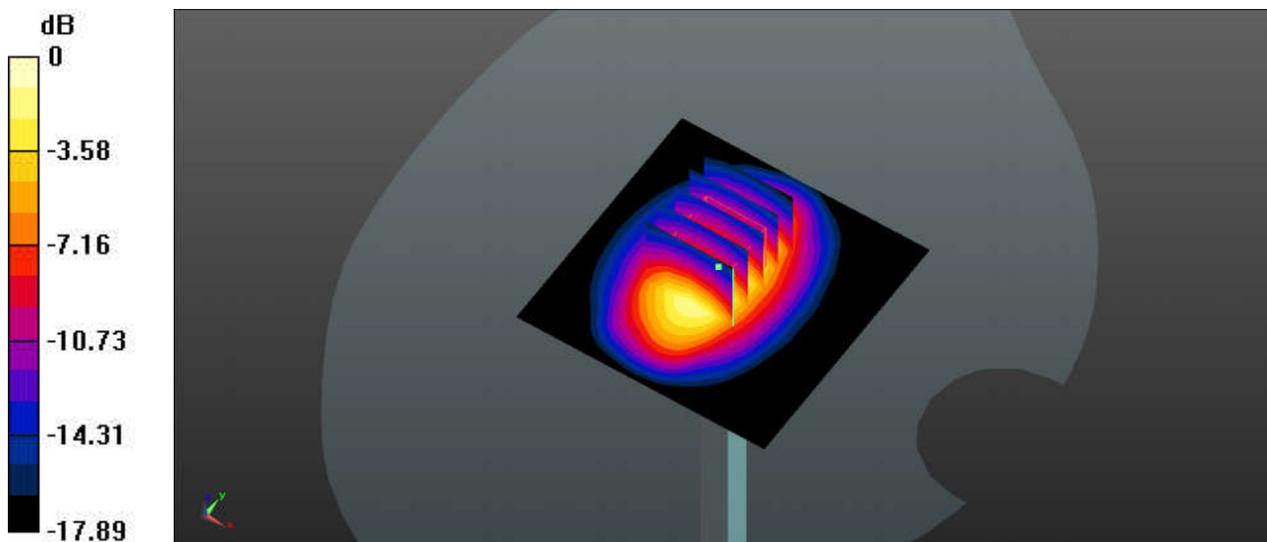
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 101.0 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 17.2 W/kg

**SAR(1 g) = 9.34 W/kg; SAR(10 g) = 4.95 W/kg**

Maximum value of SAR (measured) = 14.4 W/kg



0 dB = 14.4 W/kg = 11.58 dBW/kg

### 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;  $\sigma = 1.397$  S/m;  $\epsilon_r = 39.034$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 15.2 W/kg

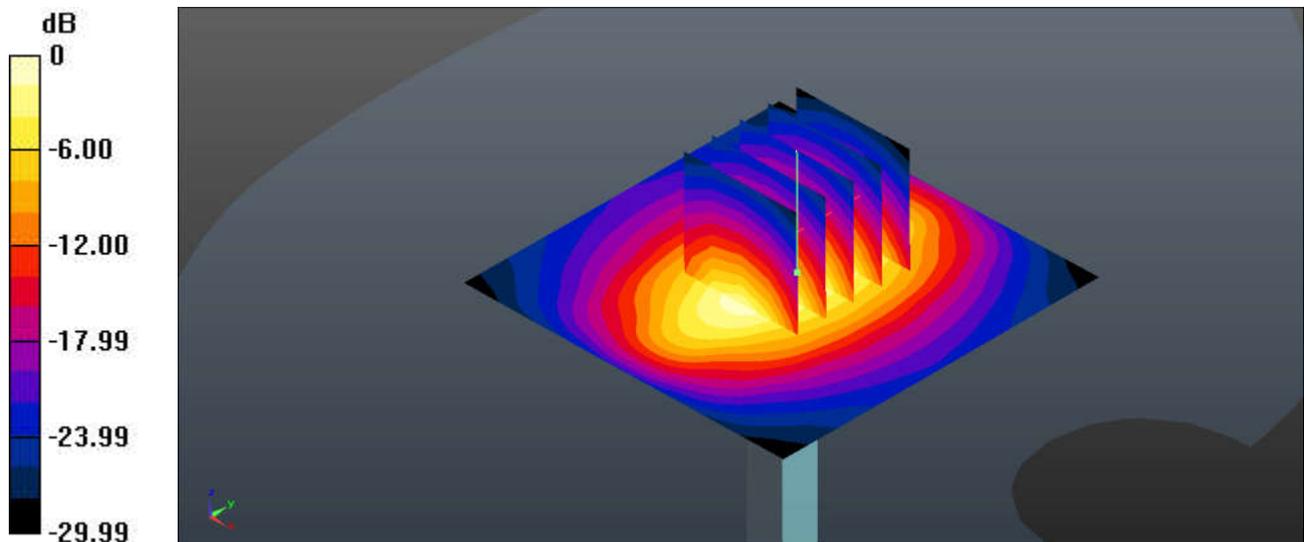
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 90.60 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 19.8 W/kg

**SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.24 W/kg**

Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.2 W/kg = 11.82 dBW/kg

### System Check\_Head\_1900MHz

**DUT: D1900V2 - SN:5d170**

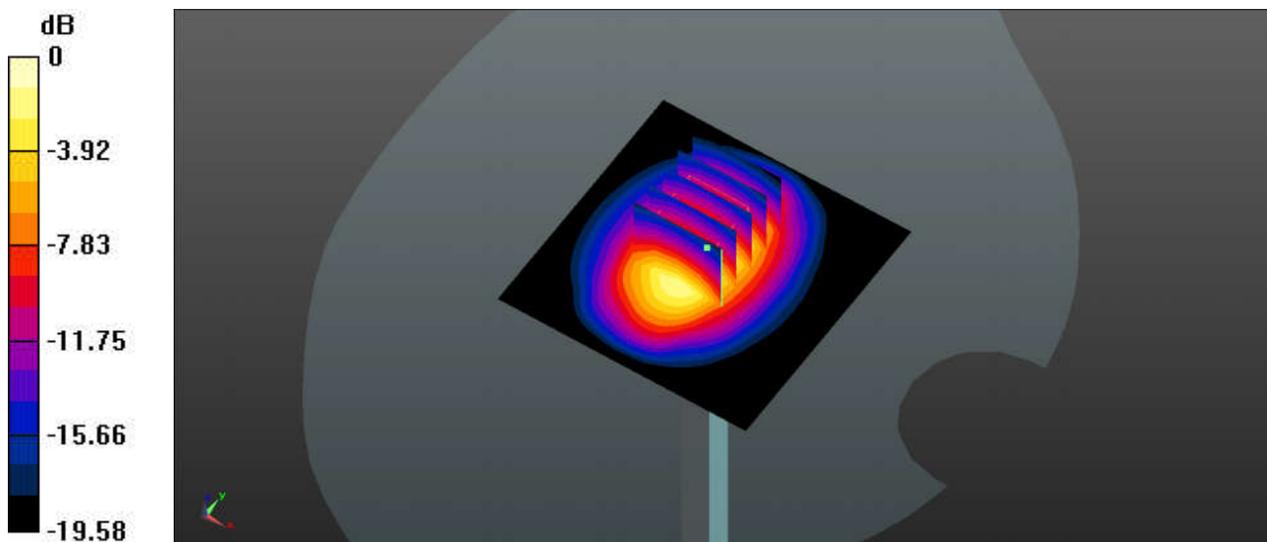
Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: HSL\_1900 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.404$  S/m;  $\epsilon_r = 40.048$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

#### DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 14.9 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 85.22 V/m; Power Drift = 0.09 dB  
Peak SAR (extrapolated) = 19.2 W/kg  
**SAR(1 g) = 10 W/kg; SAR(10 g) = 5.11 W/kg**  
Maximum value of SAR (measured) = 14.6 W/kg



0 dB = 14.6 W/kg = 11.64 dBW/kg

### System Check\_Head\_1900MHz

**DUT: D1900V2 - SN:5d170**

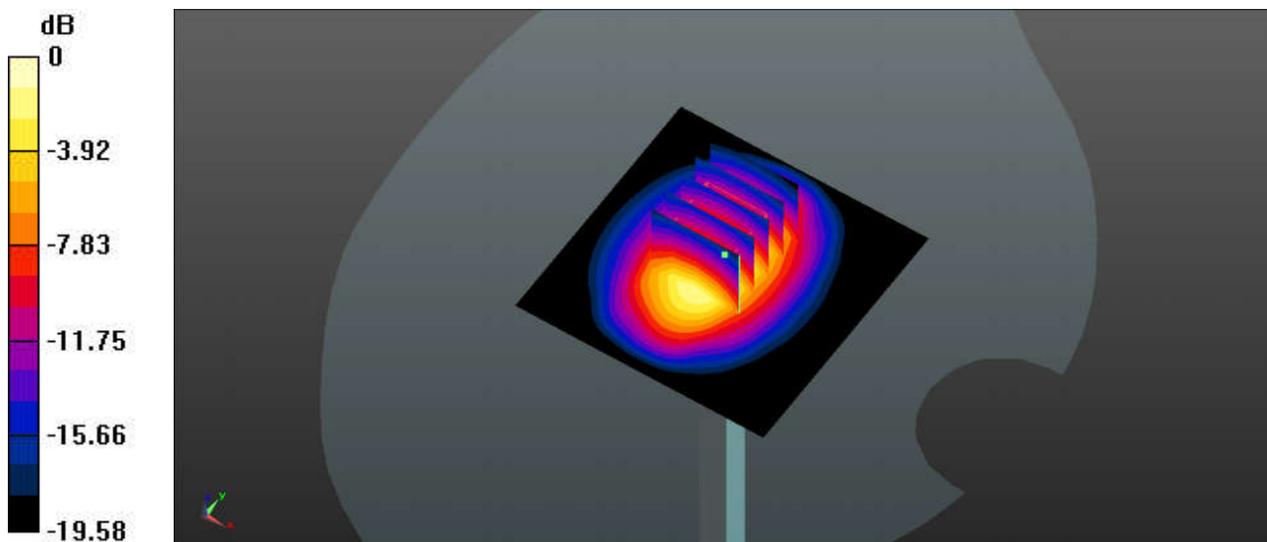
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1  
Medium: HSL\_1900 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.395$  S/m;  $\epsilon_r = 39.648$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(5.32, 5.32, 5.32); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 14.8 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 85.22 V/m; Power Drift = 0.09 dB  
Peak SAR (extrapolated) = 19.1 W/kg  
**SAR(1 g) = 9.98 W/kg; SAR(10 g) = 5.09 W/kg**  
Maximum value of SAR (measured) = 14.6 W/kg



0 dB = 14.6 W/kg = 11.64 dBW/kg

**System Check\_Head\_2450MHz**

**DUT: D2450V2 - SN:908**

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL\_2450 Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 1.86 \text{ S/m}$ ;  $\epsilon_r = 38.535$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $22.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3293; ConvF(4.6, 4.6, 4.6); Calibrated: 2019.11.25
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2019.11.20
- Phantom: SAM2; Type: SAM; Serial: TP-1503
- Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

**Pin=250mW/Area Scan (71x71x1):** Interpolated grid:  $dx=1.200 \text{ mm}$ ,  $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) =  $22.3 \text{ W/kg}$

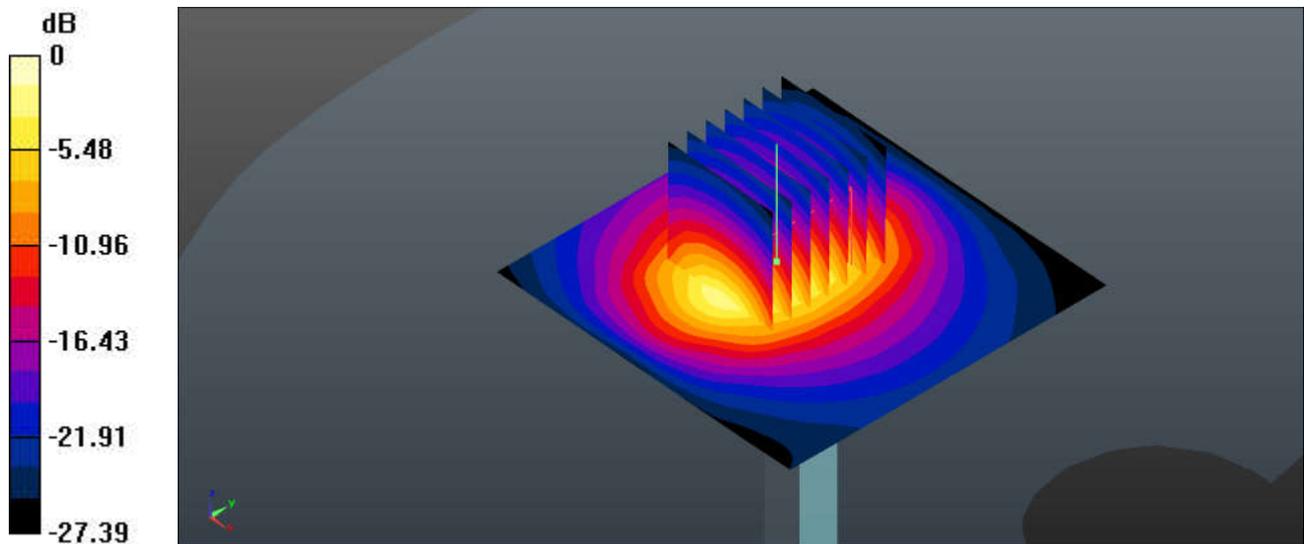
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $76.56 \text{ V/m}$ ; Power Drift =  $0.09 \text{ dB}$

Peak SAR (extrapolated) =  $28.9 \text{ W/kg}$

**SAR(1 g) =  $13.8 \text{ W/kg}$ ; SAR(10 g) =  $6.35 \text{ W/kg}$**

Maximum value of SAR (measured) =  $21.2 \text{ W/kg}$



$0 \text{ dB} = 22.3 \text{ W/kg} = 13.48 \text{ dBW/kg}$