

# FCC SAR Test Report

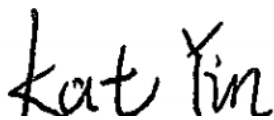
APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Cellular Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2139-1,XT2139-2  
FCC ID : IHDT56ZU1  
STANDARD : FCC 47 CFR Part 2 (2.1093)

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

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



Reviewed by: Nick Hu / Supervisor



Approved by: Kat Yin / Manager



**Sporton International (Kunshan) Inc.**

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People's Republic of China



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## Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA152401	Rev. 01	Initial issue of report.	Jul. 13, 2021
FA152401	Rev. 02	Updated Appendix E with adding LTE B17 Ant4 head \B4 Ant0 ENDC Sensor & Hotspot & Handheld\ B66 Ant4 Handheld \B7 Ant1 ENDC Power	Jul. 15, 2021



### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2139-1,XT2139-2**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	1.29	1.32	1.32	1.59
		GSM1900	<0.10	1.31	1.31	
	WCDMA	Band II	<b>1.31</b>	1.26	1.26	
		Band IV	0.24	<b>1.42</b>	1.30	
		Band V	1.21	1.36	1.36	
	LTE	Band 2	<b>1.31</b>	1.25	1.25	
		Band 4	0.24	1.30	1.22	
		Band 7	0.54	1.27	1.27	
		Band 12/ Band 17	1.30	1.25	1.25	
		Band 13	0.37	0.80	0.80	
		Band 26/Band 5	1.29	0.84	0.84	
		Band 66	1.29	1.16	1.16	
		Band 41/Band 38	0.25	1.41	<b>1.41</b>	
		Band 42	0.99	1.02	1.02	
	5G NR	n5	0.24	0.56	0.56	
		n7	0.55	0.58	0.78	
		n66	0.54	0.59	0.59	
		n77	0.47	0.54	1.22	
		n78	1.05	1.00	1.40	
	DTS	WLAN	2.4GHz WLAN	0.86	0.30	
NII	5GHz WLAN		1.19	0.42	1.03	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.18	0.15	0.15	1.57
Highest 10g SAR Summary						
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)			Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	3.14			3.91
		GSM1900	<b>3.58</b>			
	WCDMA	Band II	2.03			
		Band IV	3.30			
		Band V	2.43			
	LTE	Band 2	2.74			
		Band 4	3.18			
		Band 7	3.02			
		Band 12/ Band 17	0.85			
		LTE B5	1.21			
		Band 66	2.82			
		Band 41/ Band 38	2.98			
	5G NR	Band 42	2.38			
		n7	1.19			
		n66	1.50			
n77		2.33				
NII	WLAN	5GHz WLAN	2.71			3.91
			1.05			



Date of Testing:	2021/6/1 ~ 2021/7/3
<b>Remark:</b> This device supports LTE B4 / B5 / B17 / B38 and B66 / B26 / B12 / B41. Since the supported frequency span for LTE B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE 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 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	XT2139-1,XT2139-2
FCC ID	IHDT56ZU1
IMEI Code	351214780016038
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink) LTE: QPSK, 16QAM, 64QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz: 802.11b/g/n HT20 WLAN 5GHz: 802.11a/n HT20/HT40 WLAN 5GHz: 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
SW Version	RRK31.Q3-3
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
<b>Remark:</b>	
1. 802.11n HT40 is not supported in 2.4G WLAN. 2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE	

- operation.
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
  4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
  5. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
  6. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table.
  7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
  8. For some WWAN bands, receiver off/sensor off reduced power level is higher than hotspot reduced power level, so front/back receiver off SAR can represent hotspot conservatively.
  9. There are three types of EUT, the differences between sample 1 and sample 2 are only for SIM slot, sample 1 is single SIM slot and sample 2 is dual SIM slot. The differences between the sample 1 and sample 3 could refer the Operation Description exhibit submitted. According to the differences, we choose sample 1 to perform full test.
  10. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
  11. There are three headsets, only supplier different, so only chose one headset to perform SAR testing.
  12. NSA and SA mode should perform SAR separately. For the maximum power of SA mode is the same as NSA total power level, so SA standalone total power level SAR can represent NSA mode SAR.
  13. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
  14. 5G NR n77/n78 supports HPUE, HPUE power and SAR testing performed separately.
  15. 5G NR n77/n78 HUPE with higher power, 5G NR n77/n78 HUPE SAR can represent power class 3 level SAR.
  16. For 5G NR TDD supports SCS15KHz and SCS30KHz, chose higher power which is SCS30KHz to perform SAR testing.
  17. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
  18. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
  19. 5G NR NSA EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR , the result of EN-DC SAR is more conservatively.
  20. This device supports 5G NR FR1 bands as following table and limited NSA mode.

**<5G NR>**

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20, 40
	n77	TDD	15	10,15,20, 40, 50
			30	10,15,20, 40, 50, 60, 80, 90, 100
	n78	TDD	15	10,15,20, 40, 50
30			10,15, 20, 40, 50, 60, 70, 80, 90, 100	
SA	n78	TDD	15	10,15,20, 40, 50
			30	10,15, 20, 40, 50, 60, 70, 80, 90, 100





4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56ZU1																																																														
Equipment Name	Mobile Cellular Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz LTE Band 66: 1710 MHz ~ 1780 MHz																																																														
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 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 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R18, Cat13																																																														
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="3">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (<math>N_{RB}</math>)</th> <th rowspan="3">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 ( $N_{RB}$ )						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
Modulation	Channel bandwidth / Transmission bandwidth ( $N_{RB}$ )						MPR (dB)																																																								
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256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 14.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for 7C/38C/41C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 3 carriers in the downlink and 2 carriers in the uplink.																																																														



Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
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 42												
	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	42115	3452.5	42140	3455	42165	3457.5	42190	3460				
M	42590	3500	42590	3500	42590	3500	42590	3500				
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540				
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

**4.3 General 5G NR SAR Test and Reporting Considerations**

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz, 40MHz 5G NR n77-SCS15KHz: 10MHz,15MHz, 20MHz, 40MHz, 50MHz 5G NR n77-SCS30KHz: 10MHz,15MHz, 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz 5G NR n78-SCS15KHz: 10MHz,15MHz, 20MHz, 40MHz, 50MHz 5G NR n78-SCS30KHz: 10MHz,15MHz, 20MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
SCS	FDD: SCS15KHz, TDD: SCS15KHz /SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n7	LTE 2/5/66
LTE Anchor Bands for n66	LTE B5/7
LTE Anchor Bands for n77	LTE B41
LTE Anchor Bands for n78	LTE B4/5/7/38/41

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band								
NR Band 5								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 7								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510
M	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560

NR Band 66								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720
M	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770

NR Band 77 SCS30KHz																		
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664834	3972.51	664668	3970.02	664000	3960	663668	3955.02	663334	3950.01	662668	3940.02	662334	3935.01	662000	3930

NR Band 77 SCS15KHz										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664000	3960	663666	3954.99



NR Band 78 SCS30KHz																				
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652834	3792.51	652668	3790.02	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

NR Band 78 SCS15KHz										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652832	3792.48	652666	3789.99	652000	3780	651666	3774.99

**For 3450 MHz ~ 3550 MHz**

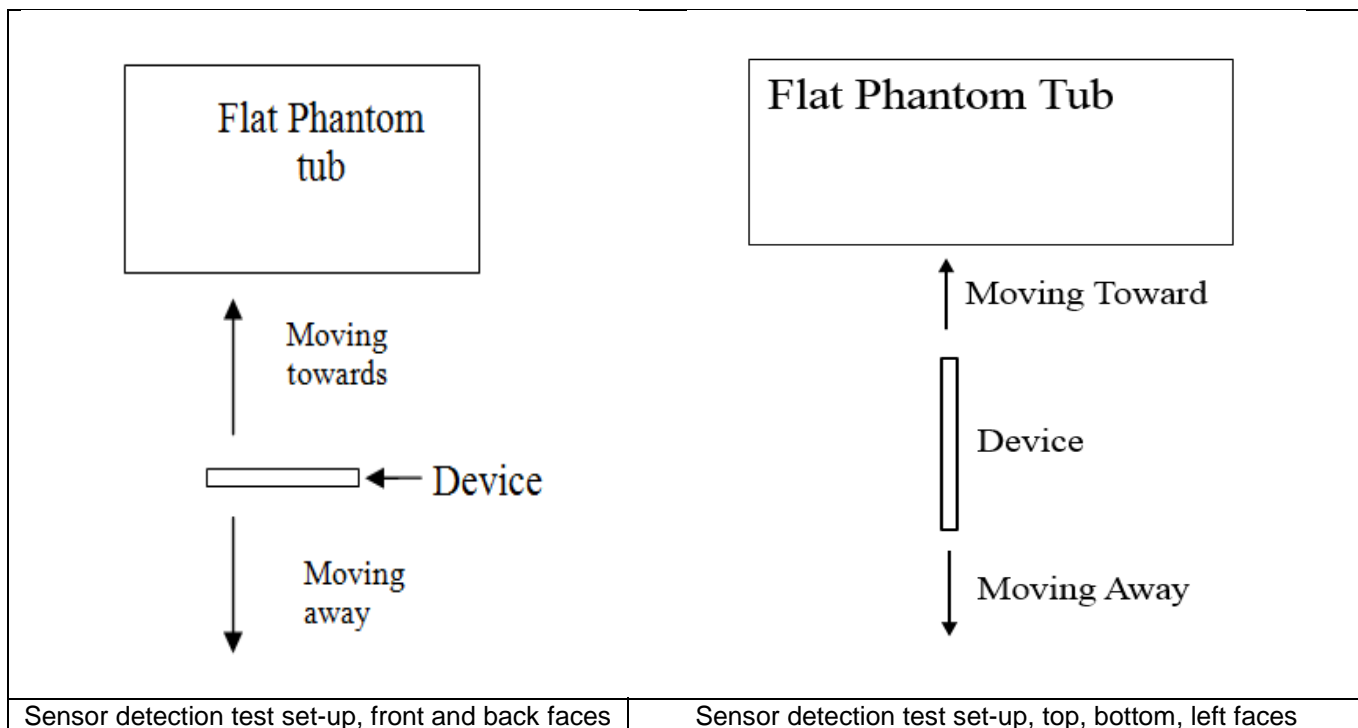
NR Band 77										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	631334	3470.01	631668	3475.02
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636332	3544.98	636166	3542.49	636000	3540	635332	3529.98	635000	3525

NR Band 78										
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	631334	3470.01	631668	3475.02
M	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H	636332	3544.98	636166	3542.49	636000	3540	635332	3529.98	635000	3525

## 5. Proximity Sensor Triggering Test

### <Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according 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 (3900MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left side of the device. When front/back/top/bottom/left side of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



**<P-Sensor>**

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	11	15	15	18

**<Handheld for Antenna 0>**

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	9	12	11	14	12	14

**<Handheld for Antenna 1>**

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	3	4	5	7	4	6

**<Handheld for Antenna 4>**

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Top Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	7	9	11	14	9	12	6	8

**<Handheld for Antenna 5>**

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	3	4	5	6	5	7

## **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:

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

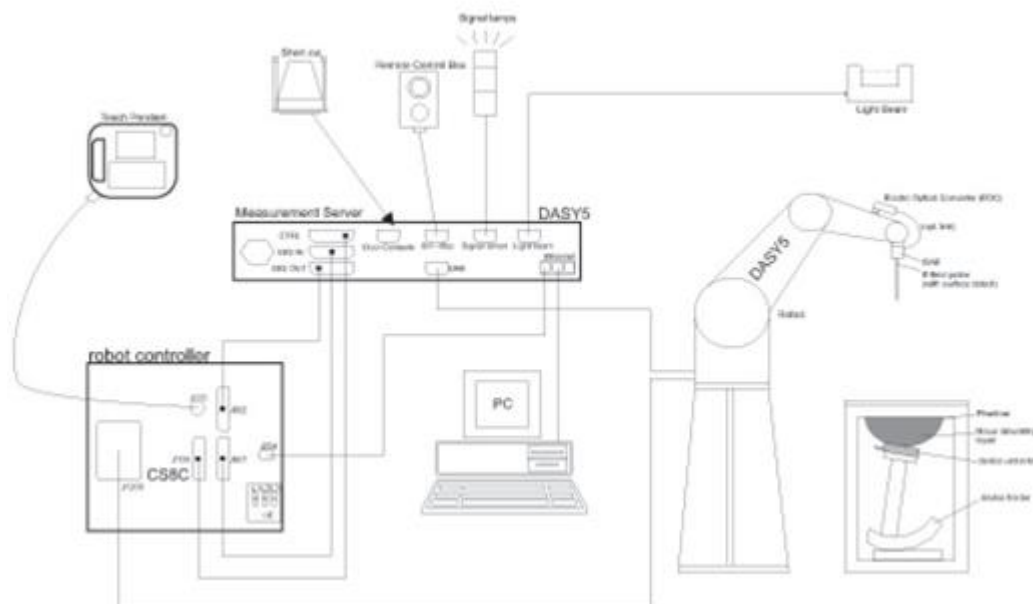
SAR is expressed in units of Watts per kilogram (W/kg)

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

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	

**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**

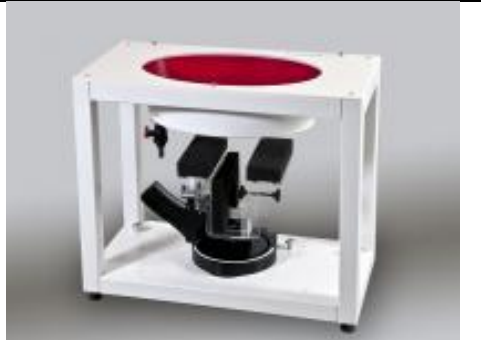
### 8.3 Phantom

#### <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	2022/3/24
SPEAG	835MHz System Validation Kit	D835V2	4d258	2020/5/7	2023/5/6
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/25
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/24
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2022/3/23
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2021/11/25
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2020/11/25	2021/11/24
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2021/11/24
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/13
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/23
SPEAG	Data Acquisition Electronics	DAE4	690	2021/3/17	2022/3/16
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2020/9/25	2021/9/24
SPEAG	Dosimetric E-Field Probe	EX3DV4	7630	2021/2/10	2022/2/9
SPEAG	SAM Twin Phantom	SAM Twin	TP-2022	NCR	NCR
Testo	Hygrometer	608-H1	1241332102	2021/1/7	2022/1/6
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2021/4/13	2022/4/12
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2020/8/1	2021/7/31
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2020/12/2	2021/12/1
Anritsu	Vector Signal Generator	MG3710A	6201682672	2021/1/7	2022/1/6
Rohde & Schwarz	Power Meter	NRVD	102081	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2020/8/13	2021/8/12
R&S	CBT BLUETOOTH TESTER	CBT	101246	2021/4/12	2022/4/11
EXA	Spectrum Analyzer	FSV7	101632	2021/1/7	2022/1/6
FLUKE	DIGITAC THERMOMETER	51II	97240029	2020/8/14	2021/8/13
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	

**Note:**

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

## 11. System Verification

### 11.1 Tissue Simulating Liquids

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

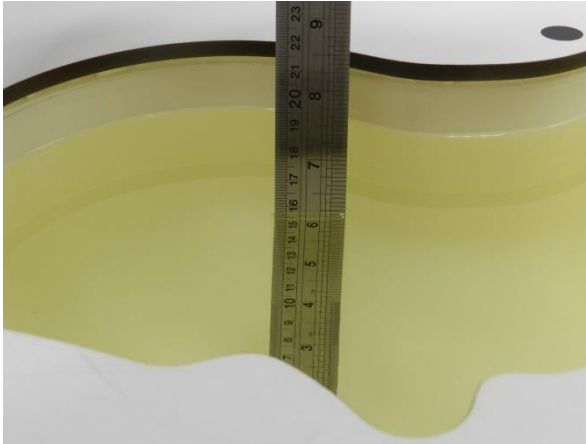


Fig 11.1 Photo of Liquid Height for Head SAR



Fig 11.2 Photo of Liquid Height for Body SAR

### 11.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity ( $\sigma$ )	Permittivity ( $\epsilon_r$ )
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 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	22.8	0.909	42.693	0.89	41.90	2.13	1.89	±5	2021/6/1
835	Head	22.6	0.938	42.449	0.90	41.50	4.22	2.29	±5	2021/6/3
1750	Head	22.8	1.340	40.360	1.37	40.10	-2.19	0.65	±5	2021/6/4
1900	Head	22.9	1.436	40.117	1.40	40.00	2.57	0.29	±5	2021/6/5
2450	Head	22.6	1.808	38.519	1.80	39.20	0.44	-1.74	±5	2021/6/7
2600	Head	22.6	1.926	38.228	1.96	39.00	-1.73	-1.98	±5	2021/6/9
3500	Head	22.7	2.850	38.606	2.91	37.90	-2.06	1.86	±5	2021/6/10
3700	Head	22.6	3.044	38.163	3.12	37.70	-2.44	1.23	±5	2021/6/10
3900	Head	22.5	3.247	37.755	3.32	37.50	-2.20	0.68	±5	2021/6/10
5250	Head	22.6	4.601	36.253	4.71	35.90	-2.31	0.98	±5	2021/6/11
5600	Head	22.6	4.978	35.704	5.07	35.50	-1.81	0.57	±5	2021/6/11
5750	Head	22.6	5.146	35.523	5.22	35.40	-1.42	0.35	±5	2021/6/13
750	Head	22.8	0.909	42.687	0.89	41.90	2.13	1.88	±5	2021/6/14
835	Head	22.6	0.938	42.446	0.90	41.50	4.22	2.28	±5	2021/6/16
1750	Head	22.8	1.342	40.449	1.37	40.10	-2.04	0.87	±5	2021/6/17
1900	Head	22.9	1.439	40.202	1.40	40.00	2.79	0.50	±5	2021/6/18
2450	Head	22.6	1.824	39.188	1.80	39.20	1.33	-0.03	±5	2021/6/20
2600	Head	22.6	1.929	39.002	1.96	39.00	-1.58	0.01	±5	2021/6/22
3500	Head	22.7	2.833	39.049	2.91	37.90	-2.65	3.03	±5	2021/6/23
3700	Head	22.6	3.023	38.717	3.12	37.70	-3.11	2.70	±5	2021/6/23
3900	Head	22.8	3.229	38.425	3.32	37.50	-2.74	2.47	±5	2021/6/23
5250	Head	22.6	4.583	36.299	4.71	35.90	-2.70	1.11	±5	2021/6/24
5600	Head	22.6	4.960	35.745	5.07	35.50	-2.17	0.69	±5	2021/6/24
5750	Head	22.6	5.142	35.575	5.22	35.40	-1.49	0.49	±5	2021/6/26
750	Head	22.7	0.906	42.762	0.89	41.90	1.80	2.06	±5	2021/6/27
835	Head	22.6	0.935	42.525	0.90	41.50	3.89	2.47	±5	2021/6/27
1750	Head	22.5	1.343	40.482	1.37	40.10	-1.97	0.95	±5	2021/6/27
1900	Head	22.9	1.438	40.236	1.40	40.00	2.71	0.59	±5	2021/6/28
2450	Head	22.7	1.810	38.618	1.80	39.20	0.56	-1.48	±5	2021/6/30
2600	Head	22.6	1.927	38.321	1.96	39.00	-1.68	-1.74	±5	2021/6/30
3500	Head	22.7	2.806	38.997	2.91	37.90	-3.57	2.89	±5	2021/7/1
3700	Head	22.6	2.992	38.678	3.12	37.70	-4.10	2.59	±5	2021/7/1
3900	Head	22.6	3.193	38.383	3.32	37.50	-3.83	2.35	±5	2021/7/1
5250	Head	22.6	4.561	36.109	4.71	35.90	-3.16	0.58	±5	2021/7/2
5600	Head	22.6	4.933	35.580	5.07	35.50	-2.70	0.23	±5	2021/7/3
5750	Head	22.5	5.108	35.391	5.22	35.40	-2.15	-0.03	±5	2021/7/3



### 11.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2021/6/1	750	Head	50	1087	7630	690	0.398	8.36	7.96	-4.78
2021/6/3	835	Head	50	4d258	7630	690	0.494	9.44	9.88	4.66
2021/6/4	1750	Head	50	1090	7630	690	1.810	36.40	36.2	-0.55
2021/6/5	1900	Head	50	5d170	7630	690	2.070	39.00	41.4	6.15
2021/6/7	2450	Head	50	908	7630	690	2.510	52.80	50.2	-4.92
2021/6/9	2600	Head	50	1061	7630	690	2.610	56.60	52.2	-7.77
2021/6/10	3500	Head	50	1037	7630	690	3.150	68.00	63	-7.35
2021/6/10	3700	Head	50	1008	7630	690	3.120	67.60	62.4	-7.69
2021/6/10	3900	Head	50	1048	3857	690	3.600	70.20	72	2.56
2021/6/11	5250	Head	50	1113	7630	690	3.790	80.50	75.8	-5.84
2021/6/11	5600	Head	50	1113	7630	690	4.230	83.40	84.6	1.44
2021/6/13	5750	Head	50	1113	7630	690	3.820	80.00	76.4	-4.50
2021/6/14	750	Head	50	1087	7630	690	0.408	8.36	8.16	-2.39
2021/6/16	835	Head	50	4d258	7630	690	0.494	9.44	9.88	4.66
2021/6/17	1750	Head	50	1090	7630	690	1.830	36.40	36.6	0.55
2021/6/18	1900	Head	50	5d170	7630	690	2.050	39.00	41	5.13
2021/6/20	2450	Head	50	908	7630	690	2.540	52.80	50.8	-3.79
2021/6/22	2600	Head	50	1061	7630	690	2.680	56.60	53.6	-5.30
2021/6/23	3500	Head	50	1037	7630	690	3.460	68.00	69.2	1.76
2021/6/23	3700	Head	50	1008	7630	690	3.550	67.60	71	5.03
2021/6/23	3900	Head	50	1048	3857	690	3.580	70.20	71.6	1.99
2021/6/24	5250	Head	50	1113	7630	690	3.760	80.50	75.2	-6.58
2021/6/24	5600	Head	50	1113	7630	690	4.150	83.40	83	-0.48
2021/6/26	5750	Head	50	1113	7630	690	3.770	80.00	75.4	-5.75
2021/6/27	750	Head	50	1087	7630	690	0.410	8.36	8.2	-1.91
2021/6/27	835	Head	50	4d258	7630	690	0.489	9.44	9.78	3.60
2021/6/27	1750	Head	50	1090	7630	690	1.820	36.40	36.4	0.00
2021/6/28	1900	Head	50	5d170	7630	690	2.060	39.00	41.2	5.64
2021/6/30	2450	Head	50	908	7630	690	2.440	52.80	48.8	-7.58
2021/6/30	2600	Head	50	1061	7630	690	2.610	56.60	52.2	-7.77
2021/7/1	3500	Head	50	1037	7630	690	3.130	68.00	62.6	-7.94
2021/7/1	3700	Head	50	1008	7630	690	3.140	67.60	62.8	-7.10
2021/7/1	3900	Head	50	1048	3857	690	3.290	70.20	65.8	-6.27
2021/7/2	5250	Head	50	1113	7630	690	3.770	80.50	75.4	-6.34
2021/7/3	5600	Head	50	1113	7630	690	4.240	83.40	84.8	1.68
2021/7/3	5750	Head	50	1113	7630	690	3.790	80.00	75.8	-5.25

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2021/6/1	750	Head	50	1087	7630	690	0.278	5.65	5.56	-1.59
2021/6/3	835	Head	50	4d258	7630	690	0.318	6.13	6.36	3.75
2021/6/4	1750	Head	50	1090	7630	690	0.956	19.20	19.12	-0.42
2021/6/5	1900	Head	50	5d170	7630	690	1.060	20.30	21.2	4.43
2021/6/7	2450	Head	50	908	7630	690	1.200	24.20	24	-0.83
2021/6/9	2600	Head	50	1061	7630	690	1.160	25.10	23.2	-7.57
2021/6/10	3500	Head	50	1037	7630	690	1.180	25.40	23.6	-7.09
2021/6/10	3700	Head	50	1008	7630	690	1.140	24.40	22.8	-6.56
2021/6/10	3900	Head	50	1048	3857	690	1.210	24.40	24.2	-0.82
2021/6/11	5250	Head	50	1113	7630	690	1.100	23.10	22	-4.76
2021/6/11	5600	Head	50	1113	7630	690	1.200	23.80	24	0.84
2021/6/13	5750	Head	50	1113	7630	690	1.100	22.80	22	-3.51
2021/6/14	750	Head	50	1087	7630	690	0.264	5.65	5.28	-6.55
2021/6/16	835	Head	50	4d258	7630	690	0.318	6.13	6.36	3.75
2021/6/17	1750	Head	50	1090	7630	690	0.956	19.20	19.12	-0.42
2021/6/18	1900	Head	50	5d170	7630	690	1.060	20.30	21.2	4.43
2021/6/20	2450	Head	50	908	7630	690	1.180	24.20	23.6	-2.48
2021/6/22	2600	Head	50	1061	7630	690	1.160	25.10	23.2	-7.57
2021/6/23	3500	Head	50	1037	7630	690	1.310	25.40	26.2	3.15
2021/6/23	3700	Head	50	1008	7630	690	1.230	24.40	24.6	0.82
2021/6/23	3900	Head	50	1048	3857	690	1.310	24.40	26.2	7.38
2021/6/24	5250	Head	50	1113	7630	690	1.090	23.10	21.8	-5.63
2021/6/24	5600	Head	50	1113	7630	690	1.170	23.80	23.4	-1.68
2021/6/26	5750	Head	50	1113	7630	690	1.080	22.80	21.6	-5.26
2021/6/27	750	Head	50	1087	7630	690	0.264	5.65	5.28	-6.55
2021/6/27	835	Head	50	4d258	7630	690	0.314	6.13	6.28	2.45
2021/6/27	1750	Head	50	1090	7630	690	0.982	19.20	19.64	2.29
2021/6/28	1900	Head	50	5d170	7630	690	1.080	20.30	21.6	6.40
2021/6/30	2450	Head	50	908	7630	690	1.130	24.20	22.6	-6.61
2021/6/30	2600	Head	50	1061	7630	690	1.180	25.10	23.6	-5.98
2021/7/1	3500	Head	50	1037	7630	690	1.200	25.40	24	-5.51
2021/7/1	3700	Head	50	1008	7630	690	1.170	24.40	23.4	-4.10
2021/7/1	3900	Head	50	1048	3857	690	1.250	24.40	25	2.46
2021/7/2	5250	Head	50	1113	7630	690	1.090	23.10	21.8	-5.63
2021/7/3	5600	Head	50	1113	7630	690	1.210	23.80	24.2	1.68
2021/7/3	5750	Head	50	1113	7630	690	1.090	22.80	21.8	-4.39

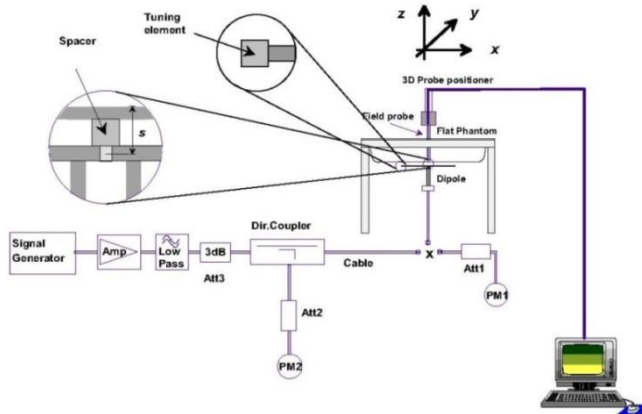


Fig 11.3.1 System Performance Check Setup



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.

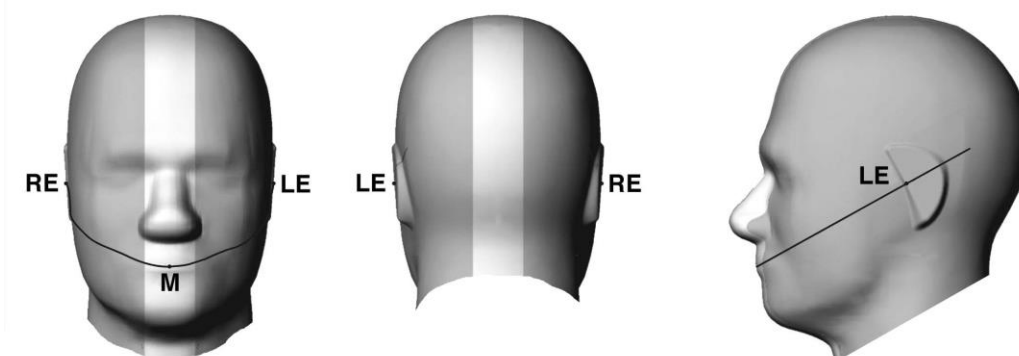


Fig 12.1.1 Front, back, and side views of SAM twin phantom

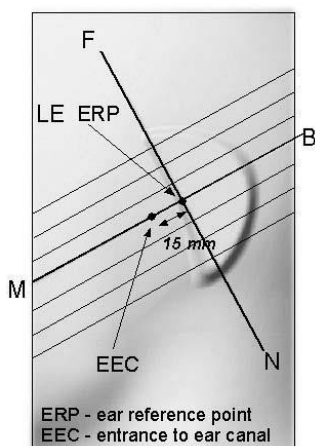


Fig 12.1.2 Close-up side view of phantom showing the ear region.

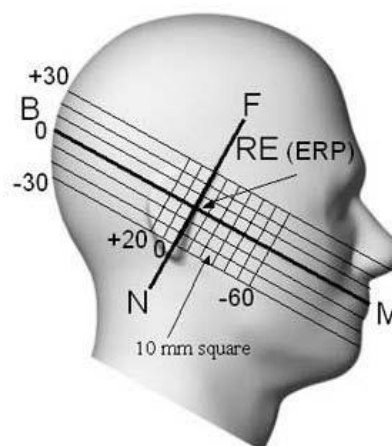


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

### 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.

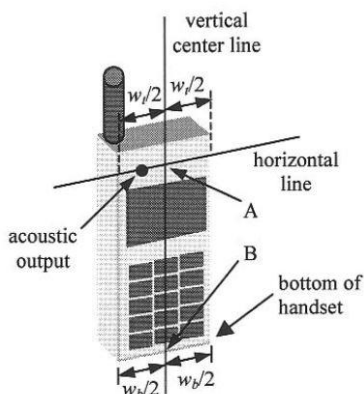


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

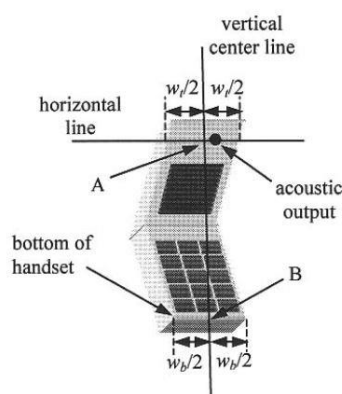


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

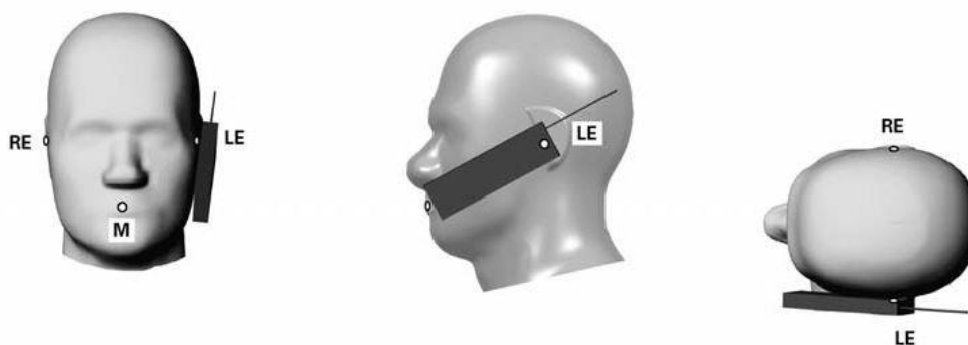


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

### 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

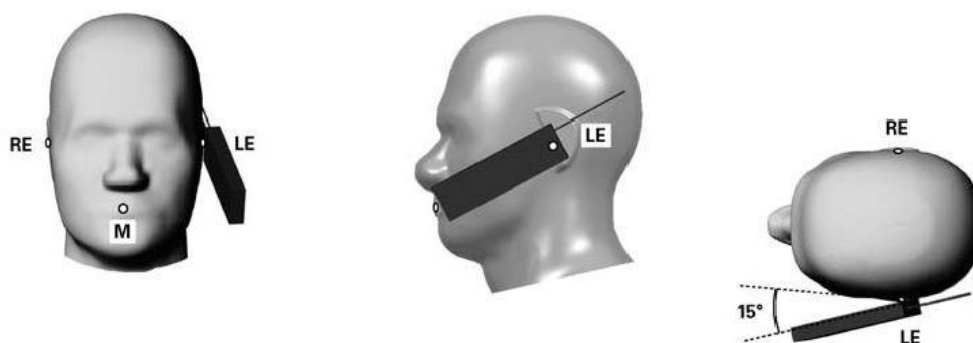


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.



## 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.

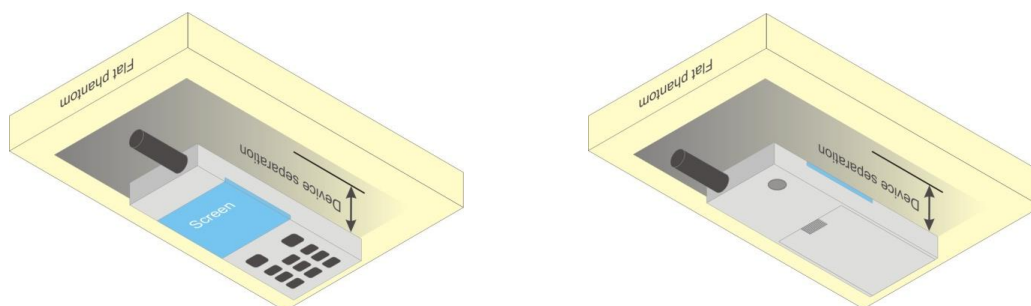


Fig 12.4 Body Worn Position

## 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  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

## 12.6 Wireless Router

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

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

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

The detailed conducted power table can refer to Appendix E.

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

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

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

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

A summary of these settings are illustrated below:

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

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

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

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

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

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

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

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

**Setup Configuration**

**HSUPA Setup Configuration:**

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

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

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (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 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:**

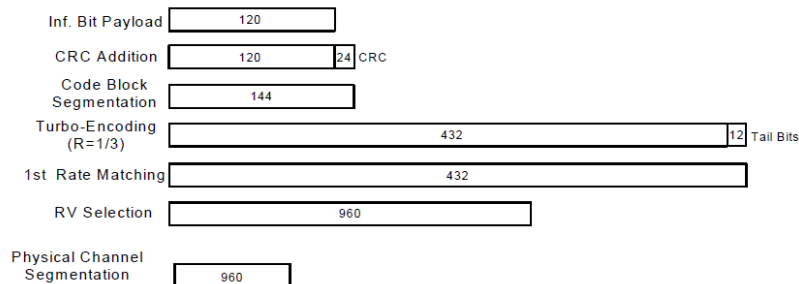
- a. The EUT was connected to Base Station referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
  - i. Set RMC 12.2Kbps + HSDPA mode.
  - ii. Set Cell Power = -25 dBm
  - 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.		



**Setup Configuration**

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

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

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

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

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

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

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

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

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

**Setup Configuration**

**<WCDMA Conducted Power>**

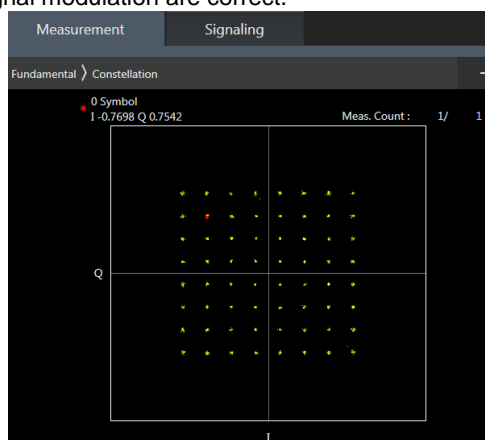
**General Note:**

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

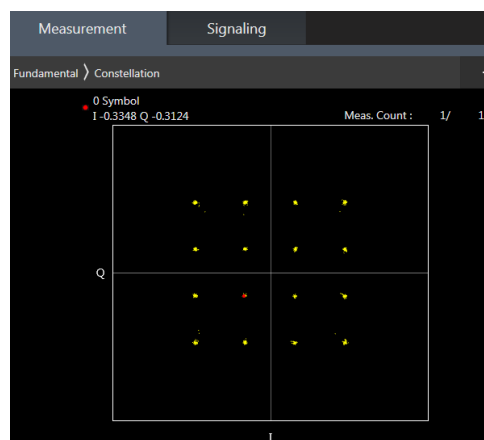
<LTE Conducted Power>

General Note:

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

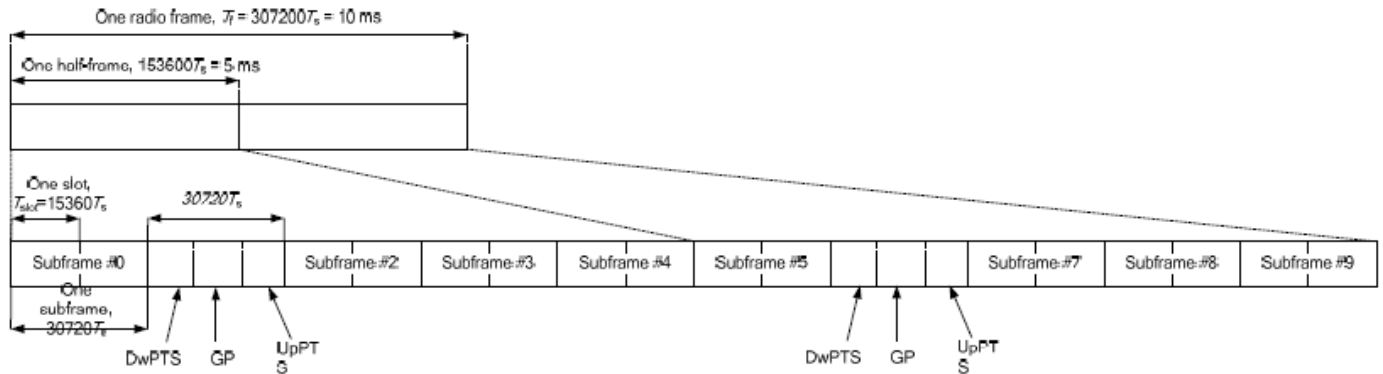


**<TDD LTE SAR Measurement>**

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 · Ts	2192 · Ts	2560 · Ts	7680 · Ts	2192 · Ts	2560 · Ts
1	19760 · Ts			20480 · Ts		
2	21952 · Ts			23040 · Ts		
3	24144 · Ts			25600 · Ts		
4	26336 · Ts	4384 · Ts	5120 · Ts	7680 · Ts	4384 · Ts	5120 · Ts
5	6592 · Ts			20480 · Ts		
6	19760 · Ts			23040 · Ts		
7	21952 · Ts			12800 · Ts		
8	24144 · Ts			-		
9	13168 · Ts	-	-	-	-	-

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

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

The highest duty factor is resulted from:

- 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.



**<LTE Carrier Aggregation>**

**General Note:**

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. The gray color table is covered by other combinations and no need to verify power.

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	CA_2A-4A			1	CA_2A-7C	7C	
2	CA_2A-5A			2	CA_4A-7C	4A,7C	
3	CA_2A-7A			3	CA_5A-7C	7C	
4	CA_4A-4A	4A		4	CA_7C-66A	7C	
5	CA_4A-5A	4A		5	CA_7A-66A-66A	7A	
6	CA_4A-7A	4A,7A		6	CA_26A-41C	41C	
7	CA_5A-7A	7A					
8	CA_5A-38A	38A					
9	CA_5A-41A	41A					
10	CA_5A-66A						
11	CA_7B	7B					
12	CA_7C	7C	3CC-3				
13	CA_7A-7A	7A					
14	CA_7A-66A	7A	3CC-5				
15	CA_26A-41A	41A					
16	CA_38C	38C					
17	CA_41C	41C	3CC-6				
18	CA_41A-41A	41A					
19	CA_66B						
20	CA_66C						
21	CA_66A-66A		3CC-5				

**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 three 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 4x4 MIMO (Downlink)**

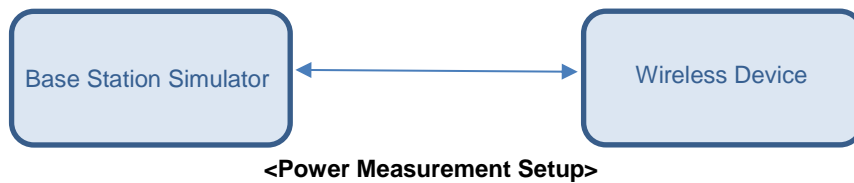
This device supports downlink 4x4 MIMO operations for LTE Bands 4/7/38/41 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

Per FCC Guidance, SAR for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25 dB higher than the maximum output power with downlink 4x4 MIMO inactive. When carrier aggregation is applicable, power measurements were performed with the downlink carrier aggregation and 4x4 DL MIMO active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

4X4 MIMO	WWAN Band
	LTE Band: B4/B7/B38/B41

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

1. This device supports uplink carrier aggregation for LTE CA\_7C, LTE CA\_38C, 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.



### **5G NR Output Power (Unit: dBm)**

#### **General Note:**

1. 5G NR n5 / n7 / n66 / n77 / n78 supports NSA operations, and n78 supports SA operations.
2. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
  - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT- QPSK and the reported SAR for the DFT- QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
  - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
  - c. SAR testing 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
  - d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
  - e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
  - f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
  - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
3. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
4. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
5. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.
6. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
7. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
8. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.

<3GPP 38.101 MPR for EN-DC>

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 <sup>2</sup>
	QPSK		$\leq 1$	0
	16 QAM		$\leq 2$	$\leq 1$
	64 QAM			
CP-OFDM	256 QAM		$\leq 2.5$	
	QPSK		$\leq 4.5$	
	16 QAM	$\leq 3$		$\leq 1.5$
	64 QAM	$\leq 3$		$\leq 2$
	256 QAM		$\leq 3.5$	
			$\leq 6.5$	

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5$	$\leq 0.5$	0
	QPSK	$\leq 3.5$	$\leq 1$	0
	16 QAM	$\leq 3.5$	$\leq 2$	$\leq 1$
	64 QAM	$\leq 3.5$		$\leq 2.5$
	256 QAM		$\leq 4.5$	
CP-OFDM	QPSK	$\leq 3.5$	$\leq 3$	$\leq 1.5$
	16 QAM	$\leq 3.5$	$\leq 3$	$\leq 2$
	64 QAM		$\leq 3.5$	
	256 QAM		$\leq 6.5$	

En-DC	UL LTE LTE TX Ant	UL nR nR Ant	CA
DC_7A_n5A	ANT4	ANT0	DC_5A_7A_n78A
DC_2A_n7A	ANT4	ANT1	DC_7C_n78A
DC_5A_n7A	ANT0	ANT4	DC_5A_7A_n66A
DC_66A_n7A	ANT0	ANT1	DC_66A_66A_n7A
DC_5A_n66A	ANT0	ANT4	DC_7C_n5A
DC_7A_n66A	ANT1	ANT0	
DC_41A_n77A	ANT1	ANT5	
DC_5A_n78A	ANT0	ANT5	
DC_4A_n78A	ANT0	ANT5	
DC_7A_n78A	ANT1	ANT5	
DC_38A_n78A	ANT1	ANT5	
DC_41A_n78A	ANT1	ANT5	

Note: 1. For EN-DC component, LTE band 66 for ANT 0 is limited to EN-DC active and they will act as anchor mode. When EN-DC is not active, LTE band 66 will not transmit.

2. For EN-DC component, LTE band 7 for ANT 4 is limited to EN-DC active and they will act as anchor mode. When EN-DC is not active, LTE band 7 will not transmit.

**<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.

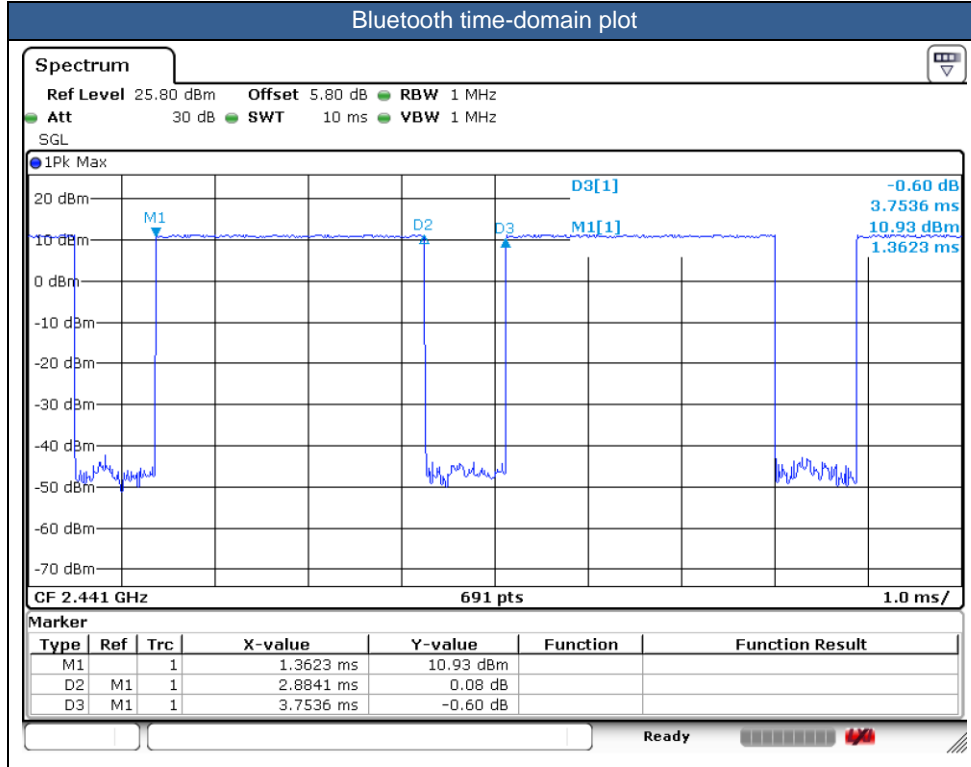




<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.84 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation





## **14. Antenna Location**

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



## **15. SAR Test Results**

### **General Note:**

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
  - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
  - b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
  - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor
  - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
  - 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. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table.
5. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
6. For some WWAN bands, receiver off/sensor off reduced power level is higher than hotspot reduced power level, so front/back receiver off SAR can represent hotspot conservatively.
7. There are three types of EUT, the differences between sample 1 and sample 2 are only for SIM slot, sample 1 is single SIM slot and sample 2 is dual SIM slot. The differences between the sample 1 and sample 3 could refer the Operation Description exhibit submitted. According to the differences, we choose sample 1 to perform full test.
8. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
9. There are three headsets, only supplier different, so only chose one headset to perform SAR testing.
10. NSA and SA mode should perform SAR separately. For the maximum power of SA mode is the same as NSA total power level, so SA standalone total power level SAR can represent NSA mode SAR.
11. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
12. 5G NR n77/n78 supports HPUE, HPUE power and SAR testing performed separately.
13. 5G NR n77/n78 HUPE with higher power, 5G NR n77/n78 HUPE SAR can represent power class 3 level SAR.
14. For 5G NR TDD supports SCS15KHz and SCS30KHz, chose higher power which is SCS30KHz to perform SAR testing.
15. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
16. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
17. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension  $> 15.0$  cm or an overall diagonal dimension  $> 16.0$  cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR  $> 1.2$  W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
  - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/7/66/38/41/42, 5G NR n7/n66/n78, WLAN 5.2GHz/5.8GHz, therefore product specific 10g SAR is necessary.
  - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
  - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test



reduction and exclusion should be multiplied by 2.5.

**GSM Note:**

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 4Tx slots for GSM850/GSM1900 are considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq$  ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

**WCDMA Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA/HSPA+ is  $\leq$  ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA/HSPA+ to RMC12.2Kbps and the adjusted SAR is  $\leq$  1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA/HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA/HSPA+) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA/HSPA+.

**LTE Note:**

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq$  0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $>$  1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is  $>$  not ½ 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 ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq$  1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B5 / B17 / B38 SAR test was covered by LTE 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

**5G NR Note:**

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
  - a. SAR testing 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.
  - b. 50% RB allocation for QPSK SAR testing follows QPSK allocation procedure.
  - c. 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.
  - d.  $\pi/2$  BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not  $\frac{1}{2}$  dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg,  $\pi/2$  BPSK /16QAM/64QAM/256QAM SAR testing are not required.
  - e. Smaller bandwidth output power for each RB allocation configuration for this device will 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, smaller bandwidth SAR testing is not required for this device
  - f. For 5G FR1 n5 the maximum bandwidth does not support three non-overlapping channels, 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.

**WLAN Note:**

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



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																
	LTE Band 12	10M	QPSK	1	0	Right Cheek	Ant 0	Full	23095	707.5	23.02	24.00	1.253	-0.02	0.145	0.182
	LTE Band 12	10M	QPSK	25	0	Right Cheek	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.03	0.116	0.144
	LTE Band 12	10M	QPSK	1	0	Right Tilted	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.01	0.107	0.134
	LTE Band 12	10M	QPSK	25	0	Right Tilted	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.06	0.075	0.093
	LTE Band 12	10M	QPSK	1	0	Left Cheek	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.05	0.143	0.179
	LTE Band 12	10M	QPSK	25	0	Left Cheek	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.09	0.115	0.143
	LTE Band 12	10M	QPSK	1	0	Left Tilted	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.01	0.079	0.099
	LTE Band 12	10M	QPSK	25	0	Left Tilted	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.05	0.062	0.077
01	LTE Band 13	10M	QPSK	1	0	Right Cheek	Ant 0	Full	23230	782	22.59	24.00	1.384	-0.09	0.266	<b>0.368</b>
	LTE Band 13	10M	QPSK	25	0	Right Cheek	Ant 0	Full	23230	782	21.53	23.00	1.403	0.05	0.207	0.290
	LTE Band 13	10M	QPSK	1	0	Right Tilted	Ant 0	Full	23230	782	22.59	24.00	1.384	-0.02	0.186	0.257
	LTE Band 13	10M	QPSK	25	0	Right Tilted	Ant 0	Full	23230	782	21.53	23.00	1.403	0.06	0.147	0.206
	LTE Band 13	10M	QPSK	1	0	Left Cheek	Ant 0	Full	23230	782	22.59	24.00	1.384	-0.07	0.247	0.342
	LTE Band 13	10M	QPSK	25	0	Left Cheek	Ant 0	Full	23230	782	21.53	23.00	1.403	-0.02	0.197	0.276
	LTE Band 13	10M	QPSK	1	0	Left Tilted	Ant 0	Full	23230	782	22.59	24.00	1.384	0.05	0.149	0.206
	LTE Band 13	10M	QPSK	25	0	Left Tilted	Ant 0	Full	23230	782	21.53	23.00	1.403	0.08	0.117	0.164
02	LTE Band 12	10M	QPSK	1	0	Right Cheek	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169	-0.03	1.110	<b>1.298</b>
	LTE Band 12	10M	QPSK	25	0	Right Cheek	Ant 4	Reduced	23095	707.5	20.50	21.50	1.259	0.07	0.863	1.086
	LTE Band 12	10M	QPSK	50	0	Right Cheek	Ant 4	Reduced	23095	707.5	20.47	21.50	1.268	0.06	0.834	1.057
	LTE Band 12	10M	QPSK	1	0	Right Tilted	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169	-0.07	0.976	1.141
	LTE Band 12	10M	QPSK	25	0	Right Tilted	Ant 4	Reduced	23095	707.5	20.50	21.50	1.259	-0.02	0.749	0.943
	LTE Band 12	10M	QPSK	50	0	Right Tilted	Ant 4	Reduced	23095	707.5	20.47	21.50	1.268	0.05	0.676	0.857
	LTE Band 12	10M	QPSK	1	0	Left Cheek	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169	0.08	0.749	0.876
	LTE Band 12	10M	QPSK	25	0	Left Cheek	Ant 4	Reduced	23095	707.5	20.50	21.50	1.259	0.06	0.580	0.730
	LTE Band 12	10M	QPSK	50	0	Left Cheek	Ant 4	Reduced	23095	707.5	20.47	21.50	1.268	-0.07	0.534	0.677
	LTE Band 12	10M	QPSK	1	0	Left Tilted	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169	-0.02	0.785	0.918
	LTE Band 12	10M	QPSK	25	0	Left Tilted	Ant 4	Reduced	23095	707.5	20.50	21.50	1.259	0.05	0.608	0.765
	LTE Band 12	10M	QPSK	50	0	Left Tilted	Ant 4	Reduced	23095	707.5	20.47	21.50	1.268	0.09	0.604	0.766



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
835MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 0	Full	189	836.4	27.94	29.00	1.276	0.02	0.497	0.634	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 0	Full	128	824.2	27.82	29.00	1.312	0.09	0.456	0.598	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 0	Full	251	848.8	27.85	29.00	1.303	-0.05	0.521	0.679	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	Ant 0	Full	189	836.4	27.94	29.00	1.276	0.08	0.321	0.410	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 0	Full	189	836.4	27.94	29.00	1.276	0.06	0.484	0.618	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 0	Full	128	824.2	27.82	29.00	1.312	-0.07	0.477	0.626	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 0	Full	251	848.8	27.85	29.00	1.303	0.02	0.490	0.639	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	Ant 0	Full	189	836.4	27.94	29.00	1.276	-0.08	0.300	0.383	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 0	Full	4182	836.4	23.27	24.00	1.183	0.08	0.321	0.380	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 0	Full	4182	836.4	23.27	24.00	1.183	0.06	0.196	0.232	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 0	Full	4182	836.4	23.27	24.00	1.183	-0.07	0.288	0.341	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 0	Full	4182	836.4	23.27	24.00	1.183	0.07	0.183	0.216	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 0	Full	4132	826.4	23.26	24.00	1.186	0.05	0.281	0.333	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 0	Full	4233	846.6	23.14	24.00	1.219	-0.08	0.387	0.472	
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.03	0.172	0.199	
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	Ant 0	Full	26865	831.5	22.38	23.00	1.153	0.02	0.140	0.161	
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.09	0.081	0.094	
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	Ant 0	Full	26865	831.5	22.38	23.00	1.153	0.08	0.064	0.074	
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.06	0.166	0.192	
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	Ant 0	Full	26865	831.5	22.38	23.00	1.153	-0.07	0.134	0.155	
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.01	0.089	0.103	
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	Ant 0	Full	26865	831.5	22.38	23.00	1.153	0.09	0.071	0.082	
EN-DC																		
	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	Ant 0	Full	20525	836.5	23.14	24.00	1.219	-0.11	0.184	0.224	
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	Ant 0	Full	20525	836.5	22.27	23.00	1.183	0.1	0.144	0.170	
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	Ant 0	Full	20525	836.5	23.14	24.00	1.219	0.06	0.113	0.138	
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	Ant 0	Full	20525	836.5	22.27	23.00	1.183	0.17	0.088	0.104	
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	Ant 0	Full	20525	836.5	23.14	24.00	1.219	0.06	0.165	0.201	
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	Ant 0	Full	20525	836.5	22.27	23.00	1.183	0.05	0.129	0.153	
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	Ant 0	Full	20525	836.5	23.14	24.00	1.219	-0.1	0.098	0.119	
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	Ant 0	Full	20525	836.5	22.27	23.00	1.183	0.1	0.076	0.090	
EN-DC																		
03	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Right Cheek	Ant 0	Full	167300	836.5	23.27	24.00	1.183	0.08	0.165	0.195	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Right Cheek	Ant 0	Full	167300	836.5	23.12	24.00	1.225	-0.08	0.196	<b>0.240</b>	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Right Tilted	Ant 0	Full	167300	836.5	23.27	24.00	1.183	0.06	0.068	0.080	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Right Tilted	Ant 0	Full	167300	836.5	23.12	24.00	1.225	0.06	0.079	0.097	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Left Cheek	Ant 0	Full	167300	836.5	23.27	24.00	1.183	0.04	0.157	0.186	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Left Cheek	Ant 0	Full	167300	836.5	23.12	24.00	1.225	0.05	0.177	0.217	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Left Tilted	Ant 0	Full	167300	836.5	23.27	24.00	1.183	0.03	0.076	0.090	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Left Tilted	Ant 0	Full	167300	836.5	23.12	24.00	1.225	-0.13	0.087	0.107	
EN-DC																		
04	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 4	Reduced	189	836.4	24.53	25.00	1.114	0.08	0.919	1.024	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 4	Reduced	128	824.2	24.41	25.00	1.146	0.06	1.010	1.157	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 4	Reduced	251	848.8	24.49	25.00	1.125	-0.09	1.150	<b>1.293</b>	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	Ant 4	Reduced	189	836.4	24.53	25.00	1.114	0.02	0.697	0.777	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	Ant 4	Reduced	128	824.2	24.41	25.00	1.146	-0.05	0.759	0.869	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	Ant 4	Reduced	251	848.8	24.49	25.00	1.125	0.08	0.852	0.958	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 4	Reduced	189	836.4	24.53	25.00	1.114	0.06	0.702	0.782	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 4	Reduced	128	824.2	24.41	25.00	1.146	-0.07	0.779	0.892	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 4	Reduced	251	848.8	24.49	25.00	1.125	-0.06	0.991	1.114	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	Ant 4	Reduced	189	836.4	24.53	25.00	1.114	0.02	0.547	0.610	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	4182	836.4	21.51	22.00	1.119	0.02	0.638	0.714	



	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	4132	826.4	21.41	22.00	1.146	0.09	0.764	0.875
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	4233	846.6	21.48	22.00	1.127	0.08	1.060	1.195
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	4182	836.4	21.51	22.00	1.119	0.06	0.644	0.721
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	4132	826.4	21.41	22.00	1.146	-0.07	0.739	0.847
05	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	4233	846.6	21.48	22.00	1.127	0.03	1.070	1.206
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 4	Reduced	4182	836.4	21.51	22.00	1.119	0.15	0.501	0.561
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 4	Reduced	4132	826.4	21.41	22.00	1.146	0.06	0.580	0.664
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 4	Reduced	4233	846.6	21.48	22.00	1.127	0.08	0.815	0.919
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	4182	836.4	21.51	22.00	1.119	0.06	0.496	0.555
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	4132	826.4	21.41	22.00	1.146	-0.07	0.575	0.659
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	4233	846.6	21.48	22.00	1.127	0.04	0.834	0.940
06	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	Ant 4	Full	26865	831.5	23.12	24.00	1.225	0.01	1.050	1.286
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.07	0.837	1.119
	LTE Band 26	15M	QPSK	75	0	-	Right Cheek	Ant 4	Full	26865	831.5	21.77	23.00	1.327	-0.02	0.811	1.077
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	Ant 4	Full	26865	831.5	23.12	24.00	1.225	0.08	0.752	0.921
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.06	0.549	0.734
	LTE Band 26	15M	QPSK	75	0	-	Right Tilted	Ant 4	Full	26865	831.5	21.77	23.00	1.327	0.09	0.522	0.693
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	Ant 4	Full	26865	831.5	23.12	24.00	1.225	-0.07	0.901	1.103
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.02	0.666	0.890
	LTE Band 26	15M	QPSK	75	0	-	Left Cheek	Ant 4	Full	26865	831.5	21.77	23.00	1.327	-0.03	0.701	0.931
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	Ant 4	Full	26865	831.5	23.12	24.00	1.225	0.09	0.570	0.698
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.07	0.549	0.734





FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																	
07	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 0	Full	1413	1732.6	22.99	24.00	1.262	0.14	0.192	0.242
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 0	Full	1413	1732.6	22.99	24.00	1.262	0.06	0.098	0.124
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 0	Full	1413	1732.6	22.99	24.00	1.262	-0.07	0.160	0.202
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 0	Full	1413	1732.6	22.99	24.00	1.262	0.08	0.138	0.174
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	0.08	0.150	0.186
08	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	Ant 0	Full	20175	1732.5	22.24	23.00	1.191	0.02	0.198	0.236
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	0.08	0.159	0.197
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	Ant 0	Full	20175	1732.5	22.24	23.00	1.191	0.06	0.120	0.143
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	-0.07	0.121	0.150
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	Ant 0	Full	20175	1732.5	22.24	23.00	1.191	0.01	0.170	0.203
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	0.02	0.164	0.203
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	Ant 0	Full	20175	1732.5	22.24	23.00	1.191	0.09	0.175	0.208
EN-DC																	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	Ant 0	Full	132322	1745	22.71	24.00	1.346	0.04	0.147	0.198
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	Ant 0	Full	132322	1745	21.82	23.00	1.312	0.17	0.124	0.163
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	Ant 0	Full	132322	1745	22.71	24.00	1.346	0.03	0.081	0.109
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	Ant 0	Full	132322	1745	21.82	23.00	1.312	0.06	0.067	0.088
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	Ant 0	Full	132322	1745	22.71	24.00	1.346	0.09	0.143	0.192
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	Ant 0	Full	132322	1745	21.82	23.00	1.312	-0.18	0.104	0.136
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	Ant 0	Full	132322	1745	22.71	24.00	1.346	0.08	0.116	0.156
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	Ant 0	Full	132322	1745	21.82	23.00	1.312	0.16	0.082	0.108
EN-DC																	
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Right Cheek	Ant 0	Full	349000	1745	22.71	24.00	1.346	0.12	0.148	0.199
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Right Cheek	Ant 0	Full	349000	1745	23.30	24.00	1.175	0.04	0.144	0.169
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Right Tilted	Ant 0	Full	349000	1745	22.71	24.00	1.346	0.08	0.073	0.098
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Right Tilted	Ant 0	Full	349000	1745	23.30	24.00	1.175	0.02	0.077	0.090
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Cheek	Ant 0	Full	349000	1745	22.71	24.00	1.346	0.03	0.114	0.153
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Cheek	Ant 0	Full	349000	1745	23.30	24.00	1.175	0.03	0.116	0.136
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Tilted	Ant 0	Full	349000	1745	22.71	24.00	1.346	0.04	0.085	0.114
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Tilted	Ant 0	Full	349000	1745	23.30	24.00	1.175	-0.03	0.098	0.115
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	132322	1745	18.66	19.50	1.213	0.02	0.968	1.175
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	132072	1720	18.41	19.50	1.285	0.09	0.893	1.148
09	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	132572	1770	18.65	19.50	1.216	-0.04	1.060	1.289
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	132322	1745	17.65	18.50	1.216	-0.05	0.781	0.950
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	132072	1720	17.57	18.50	1.239	0.06	0.716	0.887
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	132572	1770	17.64	18.50	1.219	-0.07	0.838	1.022
	LTE Band 66	20M	QPSK	100	0	-	Right Cheek	Ant 4	Reduced	132322	1745	17.53	18.50	1.250	-0.02	0.784	0.980
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	132322	1745	18.66	19.50	1.213	0.05	0.743	0.902
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	132072	1720	18.41	19.50	1.285	0.06	0.682	0.877
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	132572	1770	18.65	19.50	1.216	-0.07	0.825	1.003
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	132322	1745	17.65	18.50	1.216	0.06	0.596	0.725
	LTE Band 66	20M	QPSK	100	0	-	Right Tilted	Ant 4	Reduced	132322	1745	17.53	18.50	1.250	0.06	0.600	0.750
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	Ant 4	Reduced	132322	1745	18.66	19.50	1.213	-0.07	0.498	0.604
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	Ant 4	Reduced	132322	1745	17.65	18.50	1.216	-0.02	0.450	0.547
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	Ant 4	Reduced	132322	1745	18.66	19.50	1.213	0.05	0.593	0.720
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	Ant 4	Reduced	132322	1745	17.65	18.50	1.216	-0.12	0.477	0.580
EN-DC																	
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	132322	1745	14.56	16.00	1.393	0.06	0.403	0.561
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	132322	1745	13.60	15.00	1.380	0.17	0.297	0.410
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	132322	1745	14.56	16.00	1.393	0.05	0.282	0.393
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	132322	1745	13.60	15.00	1.380	0.1	0.227	0.313
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	Ant 4	Reduced	132322	1745	14.56	16.00	1.393	0.06	0.189	0.263
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	Ant 4	Reduced	132322	1745	13.60	15.00	1.380	-0.13	0.171	0.236

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	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	Ant 4	Reduced	132322	1745	14.56	16.00	1.393	0.04	0.225	0.313
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	Ant 4	Reduced	132322	1745	13.60	15.00	1.380	0.05	0.181	0.250
EN-DC																	
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Right Cheek	Ant 4	Reduced	349000	1745	16.97	18.00	1.268	-0.11	0.270	0.342
10	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Right Cheek	Ant 4	Reduced	349000	1745	16.87	18.00	1.297	0.1	0.416	0.540
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Right Tilted	Ant 4	Reduced	349000	1745	16.97	18.00	1.268	-0.16	0.183	0.232
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Right Tilted	Ant 4	Reduced	349000	1745	16.87	18.00	1.297	0.02	0.241	0.313
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Cheek	Ant 4	Reduced	349000	1745	16.97	18.00	1.268	0.14	0.193	0.245
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Cheek	Ant 4	Reduced	349000	1745	16.87	18.00	1.297	0.06	0.221	0.287
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Tilted	Ant 4	Reduced	349000	1745	16.97	18.00	1.268	0.05	0.180	0.228
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Tilted	Ant 4	Reduced	349000	1745	16.87	18.00	1.297	-0.15	0.209	0.271

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1900MHz																	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	Ant 0	Full	661	1880	25.65	26.50	1.216	0.08	0.050	0.061
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	Ant 0	Full	661	1880	25.65	26.50	1.216	0.06	0.049	0.060
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	Ant 0	Full	661	1880	25.65	26.50	1.216	-0.07	0.055	0.067
11	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	Ant 0	Full	661	1880	25.65	26.50	1.216	-0.01	0.057	0.069
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	9400	1880	21.65	22.00	1.084	0.09	1.190	1.290
12	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	9262	1852.4	21.62	22.00	1.091	-0.02	1.200	1.310
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	Ant 4	Reduced	9538	1907.6	21.52	22.00	1.117	0.03	1.080	1.206
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	9400	1880	21.65	22.00	1.084	0.01	1.060	1.149
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	9262	1852.4	21.62	22.00	1.091	0.06	1.140	1.244
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	Ant 4	Reduced	9538	1907.6	21.52	22.00	1.117	0.05	1.100	1.229
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	Ant 4	Reduced	9400	1880	21.65	22.00	1.084	0.09	0.716	0.776
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	9400	1880	21.65	22.00	1.084	0.08	0.821	0.890
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	9262	1852.4	21.62	22.00	1.091	0.06	0.804	0.878
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	Ant 4	Reduced	9538	1907.6	21.52	22.00	1.117	-0.07	0.786	0.878
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	18900	1880	18.06	19.00	1.242	0.07	0.099	0.123
13	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	18700	1860	18.04	19.00	1.247	0.05	1.050	1.310
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	19100	1900	17.86	19.00	1.300	0.02	0.921	1.197
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	19100	1900	17.18	18.00	1.208	0.01	0.740	0.894
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	18900	1880	17.11	18.00	1.227	0.09	0.784	0.962
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	18700	1860	17.15	18.00	1.216	0.03	0.817	0.994
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	Ant 4	Reduced	18700	1860	17.10	18.00	1.230	0.06	0.784	0.965
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	18900	1880	18.06	19.00	1.242	0.05	0.752	0.934
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	18700	1860	18.04	19.00	1.247	0.09	0.756	0.943
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	19100	1900	17.86	19.00	1.300	0.01	0.728	0.947
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	19100	1900	17.18	18.00	1.208	0.09	0.648	0.783
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	18900	1880	17.11	18.00	1.227	0.05	0.632	0.776
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	18700	1860	17.15	18.00	1.216	0.02	0.676	0.822
	LTE Band 2	20M	QPSK	100	0	-	Right Tilted	Ant 4	Reduced	18700	1860	17.10	18.00	1.230	0.06	0.664	0.817
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	Ant 4	Reduced	18900	1880	18.06	19.00	1.242	-0.07	0.563	0.699
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	Ant 4	Reduced	19100	1900	17.18	18.00	1.208	-0.02	0.499	0.603
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	Ant 4	Reduced	18900	1880	18.06	19.00	1.242	0.05	0.591	0.734
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	Ant 4	Reduced	19100	1900	17.18	18.00	1.208	0.08	0.531	0.641
EN-DC																	
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	18900	1880	14.40	15.50	1.288	0.09	0.451	0.581
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	Ant 4	Reduced	19100	1900	13.21	14.50	1.346	0.13	0.337	0.454
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	18900	1880	14.40	15.50	1.288	0.02	0.323	0.416
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	Ant 4	Reduced	19100	1900	13.21	14.50	1.346	0.05	0.271	0.365
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	Ant 4	Reduced	18900	1880	14.40	15.50	1.288	0.03	0.242	0.312
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	Ant 4	Reduced	19100	1900	13.21	14.50	1.346	0.01	0.214	0.288
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	Ant 4	Reduced	18900	1880	14.40	15.50	1.288	0.07	0.254	0.327
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	Ant 4	Reduced	19100	1900	13.21	14.50	1.346	0.03	0.228	0.307



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																			
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.06	0.144	0.182
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	Ant 1	Full	21100	2535	21.87	23.00	1.297			-0.07	0.119	0.154
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	Ant 1	Full	21100	2535	22.98	24.00	1.265			-0.02	0.192	0.243
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.05	0.160	0.208
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.03	0.210	0.266
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.08	0.176	0.228
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.06	0.108	0.137
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	Ant 1	Full	21100	2535	21.87	23.00	1.297			-0.07	0.090	0.117
EN-DC																			
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.05	0.144	0.182
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.07	0.119	0.154
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.02	0.192	0.243
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.07	0.160	0.208
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.03	0.205	0.259
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.02	0.176	0.228
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.01	0.108	0.137
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.07	0.090	0.117
EN-DC																			
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	0.06	0.139	0.181
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	-0.07	0.110	0.141
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.02	0.175	0.228
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.05	0.141	0.181
14	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.09	0.190	<b>0.248</b>
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.02	0.159	0.204
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	0.09	0.105	0.137
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.02	0.084	0.108
EN-DC																			
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.05	0.139	0.181
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	-0.01	0.110	0.141
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	0.05	0.175	0.228
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.14	0.141	0.181
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.09	0.190	0.248
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.12	0.159	0.204
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	0.05	0.105	0.137
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	0.07	0.084	0.108
EN-DC																			
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Right Cheek	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.02	0.165	0.201
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Right Cheek	Ant 1	Full	507000	2535	23.07	24.00	1.239			0.04	0.180	0.223
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Right Tilted	Ant 1	Full	507000	2535	23.14	24.00	1.219			-0.05	0.163	0.199
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Right Tilted	Ant 1	Full	507000	2535	23.07	24.00	1.239			0.06	0.183	0.227
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Cheek	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.08	0.212	0.258
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Left Cheek	Ant 1	Full	507000	2535	23.07	24.00	1.239			-0.02	0.206	0.255
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Tilted	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.12	0.120	0.146
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Left Tilted	Ant 1	Full	507000	2535	23.07	24.00	1.239			-0.13	0.116	0.144
EN-DC																			
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	Ant 4	Reduced	21100	2535	12.61	14.00	1.377			0.02	0.309	0.426
	LTE Band 7	20M	QPSK	50	24	-	Right Cheek	Ant 4	Reduced	21100	2535	12.53	14.00	1.403			-0.1	0.240	0.337
15	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	Ant 4	Reduced	21100	2535	12.61	14.00	1.377			0.06	0.394	<b>0.543</b>
	LTE Band 7	20M	QPSK	50	24	-	Right Tilted	Ant 4	Reduced	21100	2535	12.53	14.00	1.403			0.18	0.293	0.411
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	Ant 4	Reduced	21100	2535	12.61	14.00	1.377			-0.08	0.119	0.164
	LTE Band 7	20M	QPSK	50	24	-	Left Cheek	Ant 4	Reduced	21100	2535	12.53	14.00	1.403			0.06	0.097	0.136
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	Ant 4	Reduced	21100	2535	12.61	14.00	1.377			-0.15	0.155	0.213
	LTE Band 7	20M	QPSK	50	24	-	Left Tilted	Ant 4	Reduced	21100	2535	12.53	14.00	1.403			-0.02	0.128	0.180
EN-DC																			



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	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Right Cheek	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			0.05	0.364	0.406
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Right Cheek	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			0.12	0.374	0.419
16	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Right Tilted	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			0.03	0.494	<b>0.550</b>
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Right Tilted	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			0.1	0.371	0.415
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Cheek	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			0.02	0.146	0.163
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Left Cheek	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			-0.12	0.131	0.147
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Tilted	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			-0.18	0.183	0.204
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Left Tilted	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			-0.18	0.151	0.169



Table with 20 columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Antenna, Power Reduction, Ch., Freq. (MHz), Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Duty Cycle %, Duty Cycle Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows include 3500MHz LTE Band 42 tests and EN-DC FR1 n77/n78 tests.

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19	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Left Cheek	Ant 5	Reduced	650000	3750	17.21	18.50	1.346			-0.05	0.777	<b>1.046</b>
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Left Cheek	Ant 5	Reduced	650000	3750	17.20	18.50	1.349			0.06	0.772	1.041
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Left Tilted	Ant 5	Reduced	650000	3750	17.41	18.50	1.285			-0.07	0.695	0.893
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Left Tilted	Ant 5	Reduced	650000	3750	17.21	18.50	1.346			-0.02	0.775	1.043
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Left Tilted	Ant 5	Reduced	650000	3750	17.20	18.50	1.349			0.05	0.767	1.035



**FCC SAR Test Report**

**Report No. : FA152401**

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN															
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Ant 3	Full	6	2437	18.28	20.00	1.486	100	1.000	0.09	0.222	0.330
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Ant 3	Full	6	2437	18.28	20.00	1.486	100	1.000	0.01	0.209	0.311
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant 3	Full	6	2437	18.28	20.00	1.486	100	1.000	0.05	0.458	0.681
20	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant 3	Full	6	2437	18.28	20.00	1.486	100	1.000	-0.07	0.581	<b>0.863</b>
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant 3	Full	11	2462	18.01	20.00	1.581	100	1.000	-0.03	0.400	0.632
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Ant 3	Simultaneous	6	2437	16.31	17.50	1.315	100	1.000	0.06	0.131	0.172
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Ant 3	Simultaneous	6	2437	16.31	17.50	1.315	100	1.000	0.09	0.124	0.163
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant 3	Simultaneous	6	2437	16.31	17.50	1.315	100	1.000	0.01	0.271	0.356
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant 3	Simultaneous	6	2437	16.31	17.50	1.315	100	1.000	0.05	0.344	0.452
21	Bluetooth	1Mbps	Left Tilted	Ant 3	Full	39	2441	10.59	11.50	1.232	76.84	1.301	0.01	0.112	<b>0.179</b>
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	Ant 3	Standalone	54	5270	14.93	16.50	1.435	97.19	1.029	0.09	0.322	0.476
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	Ant 3	Standalone	54	5270	14.93	16.50	1.435	97.19	1.029	0.01	0.362	0.535
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	Ant 3	Standalone	54	5270	14.93	16.50	1.435	97.19	1.029	0.05	0.475	0.702
22	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	Ant 3	Standalone	54	5270	14.93	16.50	1.435	97.19	1.029	-0.04	0.581	<b>0.858</b>
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	Ant 3	Standalone	62	5310	14.77	16.50	1.489	97.19	1.029	-0.09	0.489	0.749
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 3	Simultaneous	58	5290	11.09	13.00	1.552	94.75	1.055	-0.02	0.133	0.218
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 3	Simultaneous	58	5290	11.09	13.00	1.552	94.75	1.055	0.05	0.149	0.244
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Simultaneous	58	5290	11.09	13.00	1.552	94.75	1.055	0.07	0.195	0.319
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Simultaneous	58	5290	11.09	13.00	1.552	94.75	1.055	0.01	0.239	0.391
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 3	Standalone	138	5690	15.18	17.00	1.521	94.75	1.055	0.05	0.394	0.632
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 3	Standalone	138	5690	15.18	17.00	1.521	94.75	1.055	-0.07	0.477	0.765
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Standalone	138	5690	15.18	17.00	1.521	94.75	1.055	-0.03	0.524	0.841
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Standalone	122	5610	15.09	17.00	1.552	94.75	1.055	-0.03	0.468	0.766
23	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Standalone	138	5690	15.18	17.00	1.521	94.75	1.055	0.1	0.646	<b>1.036</b>
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Standalone	122	5610	15.09	17.00	1.552	94.75	1.055	-0.03	0.558	0.914
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 3	Simultaneous	138	5690	11.75	13.50	1.496	94.75	1.055	0.05	0.177	0.279
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 3	Simultaneous	138	5690	11.75	13.50	1.496	94.75	1.055	0.09	0.214	0.338
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Simultaneous	138	5690	11.75	13.50	1.496	94.75	1.055	0.11	0.235	0.371
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Simultaneous	138	5690	11.75	13.50	1.496	94.75	1.055	0.03	0.250	0.395
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 3	Standalone	155	5775	14.44	16.00	1.432	94.75	1.055	-0.02	0.578	0.873
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 3	Standalone	155	5775	14.44	16.00	1.432	94.75	1.055	0.05	0.670	1.012
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Standalone	155	5775	14.44	16.00	1.432	94.75	1.055	0.07	0.693	1.047
24	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Standalone	155	5775	14.44	16.00	1.432	94.75	1.055	0.13	0.789	<b>1.192</b>
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	Ant 3	Simultaneous	155	5775	11.05	12.50	1.396	94.75	1.055	0.06	0.186	0.274
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	Ant 3	Simultaneous	155	5775	11.05	12.50	1.396	94.75	1.055	0.05	0.227	0.334
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	Ant 3	Simultaneous	155	5775	11.05	12.50	1.396	94.75	1.055	0.07	0.235	0.346
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	Ant 3	Simultaneous	155	5775	11.05	12.50	1.396	94.75	1.055	0.02	0.267	0.393



15.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																	
	LTE Band 12	10M	QPSK	1	0	Front	5mm	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.04	0.224	0.281
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Ant 0	Full	23095	707.5	22.05	23.00	1.245	-0.09	0.172	0.214
	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 0	Full	23095	707.5	23.02	24.00	1.253	-0.05	0.326	0.409
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.01	0.261	0.325
	LTE Band 12	10M	QPSK	1	0	Left Side	5mm	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.11	0.236	0.296
	LTE Band 12	10M	QPSK	25	0	Left Side	5mm	Ant 0	Full	23095	707.5	22.05	23.00	1.245	-0.07	0.184	0.229
	LTE Band 12	10M	QPSK	1	0	Right Side	5mm	Ant 0	Full	23095	707.5	23.02	24.00	1.253	0.02	0.303	0.380
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.01	0.243	0.302
	LTE Band 12	10M	QPSK	1	0	Bottom Side	5mm	Ant 0	Full	23095	707.5	23.02	24.00	1.253	-0.1	0.243	0.305
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5mm	Ant 0	Full	23095	707.5	22.05	23.00	1.245	0.02	0.188	0.234
	LTE Band 13	10M	QPSK	1	0	Front	5mm	Ant 0	Full	23230	782	22.59	24.00	1.384	0.02	0.414	0.573
	LTE Band 13	10M	QPSK	25	0	Front	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	-0.11	0.322	0.452
25	LTE Band 13	10M	QPSK	1	0	Back	5mm	Ant 0	Full	23230	782	22.59	24.00	1.384	-0.02	0.579	<b>0.801</b>
	LTE Band 13	10M	QPSK	25	0	Back	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	-0.18	0.469	0.658
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	-0.1	0.432	0.606
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	Ant 0	Full	23230	782	22.59	24.00	1.384	0.18	0.277	0.383
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	0.02	0.215	0.302
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	Ant 0	Full	23230	782	22.59	24.00	1.384	0.01	0.351	0.486
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	0.12	0.279	0.391
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	Ant 0	Full	23230	782	22.59	24.00	1.384	-0.18	0.377	0.522
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5mm	Ant 0	Full	23230	782	21.53	23.00	1.403	0.07	0.289	0.405
	LTE Band 12	10M	QPSK	1	0	Front	5mm	Ant 4	Full	23095	707.5	22.75	24.00	1.334	0.03	0.561	0.748
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Ant 4	Full	23095	707.5	21.71	23.00	1.346	-0.12	0.446	0.600
26	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 4	Full	23095	707.5	22.75	24.00	1.334	-0.03	0.940	<b>1.254</b>
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Ant 4	Full	23095	707.5	21.71	23.00	1.346	0.13	0.763	1.027
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Ant 4	Full	23095	707.5	21.69	23.00	1.352	0.08	0.745	1.007
	LTE Band 12	10M	QPSK	1	0	Right Side	5mm	Ant 4	Full	23095	707.5	22.75	24.00	1.334	-0.02	0.205	0.273
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	Ant 4	Full	23095	707.5	21.71	23.00	1.346	0.05	0.164	0.221
	LTE Band 12	10M	QPSK	1	0	Top Side	5mm	Ant 4	Full	23095	707.5	22.75	24.00	1.334	0.06	0.639	0.852
	LTE Band 12	10M	QPSK	25	0	Top Side	5mm	Ant 4	Full	23095	707.5	21.71	23.00	1.346	0.18	0.556	0.748
	LTE Band 12	10M	QPSK	50	0	Top Side	5mm	Ant 4	Full	23095	707.5	21.69	23.00	1.352	-0.05	0.551	0.745





# FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	189	836.4	24.17	25.00	1.211	0.16	0.690	0.835	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	128	824.2	24.33	25.00	1.167	-0.07	0.572	0.667	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	251	848.8	24.39	25.00	1.151	-0.18	0.572	0.658	
27	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	189	836.4	24.17	25.00	1.211	0.01	1.090	<b>1.320</b>	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	128	824.2	24.33	25.00	1.167	0.06	0.907	1.058	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	251	848.8	24.39	25.00	1.151	0.05	1.070	1.231	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 0	Reduced	189	836.4	24.17	25.00	1.211	-0.16	0.280	0.339	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	5mm	Ant 0	Reduced	189	836.4	24.17	25.00	1.211	0.12	0.434	0.525	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	189	836.4	24.17	25.00	1.211	0.04	0.829	1.004	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	128	824.2	24.33	25.00	1.167	0.15	0.627	0.732	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	251	848.8	24.39	25.00	1.151	0.16	0.754	0.868	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	Reduced	4182	836.4	22.31	23.00	1.172	0.04	0.542	0.635	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	4182	836.4	22.31	23.00	1.172	-0.18	0.883	1.035	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	4132	826.4	22.24	23.00	1.191	-0.15	0.932	1.110	
28	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	4233	846.6	22.12	23.00	1.225	0.01	1.110	<b>1.359</b>	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	Reduced	4182	836.4	22.31	23.00	1.172	0.09	0.212	0.249	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	Reduced	4182	836.4	22.31	23.00	1.172	0.03	0.353	0.414	
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Reduced	4182	836.4	22.31	23.00	1.172	0.05	0.627	0.735	
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	26865	831.5	22.75	23.50	1.189	0.02	0.300	0.357	
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 0	Reduced	26865	831.5	21.70	22.50	1.202	0.07	0.241	0.290	
29	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	26865	831.5	22.75	23.50	1.189	0.04	0.709	<b>0.843</b>	
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 0	Reduced	26865	831.5	21.70	22.50	1.202	0.07	0.577	0.694	
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	Reduced	26865	831.5	21.61	22.50	1.227	-0.19	0.598	0.734	
	LTE Band 26	15M	QPSK	1	0	-	Left Side	5mm	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.07	0.141	0.163	
	LTE Band 26	15M	QPSK	36	0	-	Left Side	5mm	Ant 0	Full	26865	831.5	22.38	23.00	1.153	0.07	0.120	0.138	
	LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.03	0.266	0.308	
	LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant 0	Full	26865	831.5	22.38	23.00	1.153	-0.04	0.222	0.256	
	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Full	26865	831.5	23.36	24.00	1.159	0.02	0.362	0.419	
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	5mm	Ant 0	Full	26865	831.5	22.38	23.00	1.153	0.1	0.297	0.343	
EN-DC																			
	LTE Band 5	10M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	20525	836.5	19.54	20.00	1.112	0.02	0.382	0.425	
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 0	Reduced	20525	836.5	18.47	19.00	1.130	0.04	0.299	0.338	
	LTE Band 5	10M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	20525	836.5	19.54	20.00	1.112	0.01	0.491	0.546	
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 0	Reduced	20525	836.5	18.47	19.00	1.130	0.16	0.356	0.402	
	LTE Band 5	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	Reduced	20525	836.5	19.54	20.00	1.112	0.04	0.150	0.167	
	LTE Band 5	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	Reduced	20525	836.5	18.47	19.00	1.130	0.04	0.116	0.131	
	LTE Band 5	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	Reduced	20525	836.5	19.54	20.00	1.112	0.14	0.251	0.279	
	LTE Band 5	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	Reduced	20525	836.5	18.47	19.00	1.130	0.04	0.199	0.225	
	LTE Band 5	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Reduced	20525	836.5	19.54	20.00	1.112	0.08	0.473	0.526	
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	Reduced	20525	836.5	18.47	19.00	1.130	0.07	0.365	0.412	
EN-DC																			
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 0	Reduced	167300	836.5	21.48	22.00	1.127	0.14	0.230	0.259	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Front	5mm	Ant 0	Reduced	167300	836.5	21.44	22.00	1.138	0.08	0.271	0.308	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 0	Reduced	167300	836.5	21.48	22.00	1.127	0.18	0.429	0.484	
30	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Back	5mm	Ant 0	Reduced	167300	836.5	21.44	22.00	1.138	0.01	0.491	<b>0.559</b>	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Left Side	5mm	Ant 0	Reduced	167300	836.5	21.48	22.00	1.127	-0.08	0.108	0.122	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Left Side	5mm	Ant 0	Reduced	167300	836.5	21.44	22.00	1.138	0.13	0.114	0.130	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Right Side	5mm	Ant 0	Reduced	167300	836.5	21.48	22.00	1.127	0.09	0.171	0.193	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Right Side	5mm	Ant 0	Reduced	167300	836.5	21.44	22.00	1.138	0.08	0.206	0.234	
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Bottom Side	5mm	Ant 0	Reduced	167300	836.5	21.48	22.00	1.127	0.06	0.205	0.231	
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Bottom Side	5mm	Ant 0	Reduced	167300	836.5	21.44	22.00	1.138	0.17	0.266	0.303	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	Reduced	128	824.2	27.86	28.50	1.159	0.03	0.889	1.030	
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	Reduced	189	836.4	27.78	28.50	1.180	0.03	0.956	1.128	

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**FCC SAR Test Report**

**Report No. : FA152401**

GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	Reduced	251	848.8	27.74	28.50	1.191	0.07	0.908	1.082
GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	Reduced	128	824.2	27.86	28.50	1.159	0.03	1.090	1.263
GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	Reduced	189	836.4	27.78	28.50	1.180	0.16	0.917	1.082
GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	Reduced	251	848.8	27.74	28.50	1.191	-0.01	0.886	1.055
GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	5mm	Ant 4	Reduced	128	824.2	27.86	28.50	1.159	-0.03	0.364	0.422
GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	5mm	Ant 4	Reduced	128	824.2	27.86	28.50	1.159	0.13	0.819	0.949
GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	5mm	Ant 4	Reduced	189	836.4	27.78	28.50	1.180	0.09	0.845	0.997
GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	5mm	Ant 4	Reduced	251	848.8	27.74	28.50	1.191	-0.1	0.981	1.169
WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	Full	4182	836.4	23.35	24.00	1.161	-0.02	0.518	0.602
WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	Full	4182	836.4	23.35	24.00	1.161	0.08	0.461	0.535
WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 4	Full	4182	836.4	23.35	24.00	1.161	-0.09	0.132	0.153
WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Full	4182	836.4	23.35	24.00	1.161	0.17	0.618	0.718
WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Full	4132	826.4	23.22	24.00	1.197	0.07	0.616	0.737
WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Full	4233	846.6	23.29	24.00	1.178	-0.04	0.882	1.039
LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 4	Full	26865	831.5	23.12	24.00	1.225	-0.14	0.474	0.580
LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.11	0.302	0.404
LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 4	Full	26865	831.5	23.12	24.00	1.225	-0.08	0.205	0.251
LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.06	0.131	0.175
LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 4	Full	26865	831.5	23.12	24.00	1.225	-0.1	0.394	0.482
LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.14	0.240	0.321
LTE Band 26	15M	QPSK	1	0	-	Top Side	5mm	Ant 4	Full	26865	831.5	23.12	24.00	1.225	0.02	0.602	0.737
LTE Band 26	15M	QPSK	36	0	-	Top Side	5mm	Ant 4	Full	26865	831.5	21.74	23.00	1.337	0.02	0.534	0.714



# FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																		
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	Reduced	1413	1732.6	18.83	19.50	1.167	0.13	1.100	1.283
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	Reduced	1312	1712.4	18.72	19.50	1.197	-0.14	0.970	1.161
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	Reduced	1513	1752.6	18.82	19.50	1.169	0.09	1.110	1.298
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	1413	1732.6	18.83	19.50	1.167	0.13	1.060	1.237
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	1312	1712.4	18.72	19.50	1.197	0.07	0.847	1.014
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Reduced	1513	1752.6	18.82	19.50	1.169	0.09	1.020	1.193
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	Reduced	1513	1752.6	16.75	18.00	1.334	-0.11	0.056	0.075
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	Reduced	1513	1752.6	16.75	18.00	1.334	-0.11	0.136	0.181
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Reduced	1513	1752.6	16.75	18.00	1.334	-0.07	1.020	1.360
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Reduced	1312	1712.4	16.61	18.00	1.377	0.03	0.841	1.158
31	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	Reduced	1413	1732.6	16.72	18.00	1.343	-0.04	1.060	<b>1.423</b>
	LTE Band 4	20M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	20175	1732.5	18.46	19.50	1.271	0.19	0.960	1.220
	LTE Band 4	20M	QPSK	50	24	-	Front	5mm	Ant 0	Reduced	20175	1732.5	17.49	18.50	1.262	0.14	0.787	0.993
	LTE Band 4	20M	QPSK	100	0	-	Front	5mm	Ant 0	Reduced	20175	1732.5	17.35	18.50	1.303	-0.18	0.726	0.946
	LTE Band 4	20M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	20175	1732.5	18.46	19.50	1.271	0.06	0.872	1.108
	LTE Band 4	20M	QPSK	50	24	-	Back	5mm	Ant 0	Reduced	20175	1732.5	17.49	18.50	1.262	0.07	0.791	0.998
	LTE Band 4	20M	QPSK	100	0	-	Back	5mm	Ant 0	Reduced	20175	1732.5	17.35	18.50	1.303	-0.04	0.718	0.936
	LTE Band 4	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	Reduced	20175	1732.5	18.36	19.00	1.159	0.09	0.073	0.085
	LTE Band 4	20M	QPSK	50	24	-	Left Side	5mm	Ant 0	Reduced	20175	1732.5	17.42	18.00	1.143	0.07	0.057	0.065
	LTE Band 4	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	Reduced	20175	1732.5	18.36	19.00	1.159	-0.05	0.185	0.214
	LTE Band 4	20M	QPSK	50	24	-	Right Side	5mm	Ant 0	Reduced	20175	1732.5	17.42	18.00	1.143	-0.08	0.145	0.166
32	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Reduced	20175	1732.5	18.36	19.00	1.159	-0.06	1.120	<b>1.298</b>
	LTE Band 4	20M	QPSK	50	24	-	Bottom Side	5mm	Ant 0	Reduced	20175	1732.5	17.42	18.00	1.143	-0.05	0.914	1.045
	LTE Band 4	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	Reduced	20175	1732.5	17.18	18.00	1.208	0.03	0.874	1.056
EN-DC																		
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	132322	1745	15.57	17.00	1.390	-0.03	0.288	0.400
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 0	Reduced	132322	1745	15.77	17.00	1.327	0.05	0.279	0.370
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	132322	1745	15.57	17.00	1.390	0.02	0.289	0.402
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	Reduced	132322	1745	15.77	17.00	1.327	0.02	0.346	0.459
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	Reduced	132322	1745	14.14	15.50	1.368	0.06	0.020	0.027
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	Reduced	132322	1745	14.31	15.50	1.315	0.06	0.019	0.025
	LTE Band 66	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	Reduced	132322	1745	14.14	15.50	1.368	0.14	0.045	0.062
	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	Reduced	132322	1745	14.31	15.50	1.315	-0.01	0.047	0.062
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Reduced	132322	1745	14.14	15.50	1.368	-0.17	0.188	0.257
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	Reduced	132322	1745	14.31	15.50	1.315	0.05	0.316	0.416
EN-DC																		
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 0	Reduced	349000	1745	16.55	18.00	1.396	0.15	0.344	0.480
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Front	5mm	Ant 0	Reduced	349000	1745	16.52	18.00	1.406	-0.1	0.382	0.537
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 0	Reduced	349000	1745	16.55	18.00	1.396	-0.03	0.251	0.350
33	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Back	5mm	Ant 0	Reduced	349000	1745	16.52	18.00	1.406	0.02	0.421	<b>0.592</b>
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Side	5mm	Ant 0	Reduced	349000	1745	15.75	16.50	1.189	0.12	0.020	0.024
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Side	5mm	Ant 0	Reduced	349000	1745	15.71	16.50	1.199	0.18	0.022	0.026
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Right Side	5mm	Ant 0	Reduced	349000	1745	15.75	16.50	1.189	-0.07	0.043	0.051
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Right Side	5mm	Ant 0	Reduced	349000	1745	15.71	16.50	1.199	0.08	0.058	0.070
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Bottom Side	5mm	Ant 0	Reduced	349000	1745	15.75	16.50	1.189	0.06	0.401	0.477
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Bottom Side	5mm	Ant 0	Reduced	349000	1745	15.71	16.50	1.199	-0.1	0.489	0.587
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	132322	1745	20.35	21.00	1.161	-0.14	0.809	0.940
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	132072	1720	20.18	21.00	1.208	0.16	0.741	0.895
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	132572	1770	20.29	21.00	1.178	0.09	0.872	1.027
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	132322	1745	18.45	20.00	1.429	0.1	0.637	0.910
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	132072	1720	18.35	20.00	1.462	-0.14	0.587	0.858
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	132572	1770	18.42	20.00	1.439	0.01	0.682	0.981



**FCC SAR Test Report**

**Report No. : FA152401**

	LTE Band 66	20M	QPSK	100	0	-	Front	5mm	Ant 4	Reduced	132322	1745	18.40	20.00	1.445	0.06	0.637	0.921	
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	132322	1745	20.35	21.00	1.161	0.03	0.922	1.071	
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	132072	1720	20.18	21.00	1.208	-0.14	0.886	1.070	
34	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	132572	1770	20.29	21.00	1.178	0.06	0.985	1.160	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	132322	1745	18.45	20.00	1.429	0.05	0.746	1.066	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	132072	1720	18.35	20.00	1.462	0.08	0.709	1.037	
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	132572	1770	18.42	20.00	1.439	-0.16	0.782	1.125	
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 4	Reduced	132322	1745	18.40	20.00	1.445	0.05	0.746	1.078	
	LTE Band 66	20M	QPSK	1	0	-	Right Side	5mm	Ant 4	Reduced	132322	1745	20.35	21.00	1.161	0.14	0.150	0.174	
	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant 4	Reduced	132322	1745	18.45	20.00	1.429	0.06	0.122	0.174	
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	132322	1745	20.35	21.00	1.161	0.1	0.945	1.098	
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	132072	1720	20.18	21.00	1.208	-0.16	0.859	1.038	
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	132572	1770	20.29	21.00	1.178	0.02	0.982	1.156	
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	132322	1745	18.45	20.00	1.429	0.06	0.740	1.057	
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	132072	1720	18.35	20.00	1.462	0.06	0.684	1.000	
	LTE Band 66	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	132572	1770	18.42	20.00	1.439	0.19	0.801	1.152	
	LTE Band 66	20M	QPSK	100	0	-	Top Side	5mm	Ant 4	Reduced	132322	1745	18.40	20.00	1.445	0.01	0.740	1.070	
EN-DC																			
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 4	Reduced	349000	1745	18.59	20.00	1.384	0.01	0.205	0.284	
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Front	5mm	Ant 4	Reduced	349000	1745	18.79	20.00	1.321	0.06	0.256	0.338	
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 4	Reduced	349000	1745	18.59	20.00	1.384	-0.13	0.334	0.462	
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Back	5mm	Ant 4	Reduced	349000	1745	18.79	20.00	1.321	-0.03	0.431	0.569	
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Left Side	5mm	Ant 4	Reduced	349000	1745	18.59	20.00	1.384	-0.17	0.115	0.159	
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Left Side	5mm	Ant 4	Reduced	349000	1745	18.79	20.00	1.321	0.18	0.159	0.210	
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Top Side	5mm	Ant 4	Reduced	349000	1745	18.59	20.00	1.384	-0.18	0.200	0.277	
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Top Side	5mm	Ant 4	Reduced	349000	1745	18.79	20.00	1.321	0.05	0.246	0.325	



FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	661	1880	19.48	20.00	1.127	0.02	0.779	0.878	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	512	1850.2	19.79	20.00	1.050	-0.07	0.826	0.867	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	Reduced	810	1909.8	19.60	20.00	1.096	0.09	0.813	0.891	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	661	1880	19.48	20.00	1.127	0.06	0.949	1.070	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	512	1850.2	19.79	20.00	1.050	0.05	1.090	1.144	
35	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Reduced	810	1909.8	19.60	20.00	1.096	-0.05	1.190	1.305	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 0	Reduced	661	1880	18.83	19.00	1.040	0.16	0.028	0.029	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Side	5mm	Ant 0	Reduced	661	1880	18.83	19.00	1.040	0.12	0.022	0.023	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	661	1880	18.83	19.00	1.040	0.08	0.793	0.825	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	512	1850.2	18.67	19.00	1.079	0.02	0.817	0.881	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	Reduced	810	1909.8	18.75	19.00	1.059	-0.11	0.900	0.953	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	Reduced	9400	1880	20.84	21.50	1.164	-0.05	0.922	1.073	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	Reduced	9262	1852.4	20.76	21.50	1.186	0.09	0.943	1.118	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	Reduced	9538	1907.6	20.65	21.50	1.216	0.06	0.833	1.013	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	Reduced	9400	1880	20.84	21.50	1.164	-0.06	0.915	1.065	
36	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	Reduced	9262	1852.4	20.76	21.50	1.186	0.03	1.060	1.257	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	Reduced	9538	1907.6	20.65	21.50	1.216	-0.17	0.984	1.197	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 4	Reduced	9400	1880	20.84	21.50	1.164	-0.13	0.114	0.133	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Reduced	9400	1880	20.84	21.50	1.164	0.01	0.922	1.073	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Reduced	9262	1852.4	20.76	21.50	1.186	0.08	0.985	1.168	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	5mm	Ant 4	Reduced	9538	1907.6	20.65	21.50	1.216	-0.18	0.961	1.169	
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	18900	1880	18.82	19.50	1.169	0.08	0.657	0.768	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	18900	1880	17.29	18.50	1.321	0.08	0.538	0.711	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	18900	1880	18.82	19.50	1.169	-0.17	1.030	1.205	
37	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	18700	1860	18.73	19.50	1.194	-0.03	1.050	1.254	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	19100	1900	18.69	19.50	1.205	-0.16	1.030	1.241	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	18900	1880	17.29	18.50	1.321	0.09	0.918	1.213	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	18700	1860	17.09	18.50	1.384	0.17	0.905	1.252	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	19100	1900	17.03	18.50	1.403	-0.16	0.844	1.184	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 4	Reduced	18900	1880	17.13	18.50	1.371	0.16	0.898	1.231	
	LTE Band 2	20M	QPSK	1	0	-	Right Side	5mm	Ant 4	Reduced	18900	1880	18.82	19.50	1.169	0.02	0.095	0.111	
	LTE Band 2	20M	QPSK	50	0	-	Right Side	5mm	Ant 4	Reduced	18900	1880	17.29	18.50	1.321	0.15	0.093	0.123	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	18900	1880	18.82	19.50	1.169	0.04	0.752	0.879	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	18700	1860	18.73	19.50	1.194	-0.04	0.771	0.921	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	19100	1900	18.69	19.50	1.205	0.02	0.761	0.917	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	18900	1880	17.29	18.50	1.321	0.08	0.666	0.880	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	18700	1860	17.09	18.50	1.384	0.05	0.638	0.883	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	19100	1900	17.03	18.50	1.403	0.05	0.662	0.929	
	LTE Band 2	20M	QPSK	100	0	-	Top Side	5mm	Ant 4	Reduced	18900	1880	17.13	18.50	1.371	0.02	0.657	0.901	
EN-DC																			
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	18900	1880	16.35	17.00	1.161	-0.12	0.298	0.346	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	18900	1880	15.39	16.00	1.151	0.05	0.244	0.281	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	18900	1880	16.35	17.00	1.161	0.05	0.507	0.589	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	18900	1880	15.39	16.00	1.151	0.08	0.416	0.479	
	LTE Band 2	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	Reduced	18900	1880	15.63	16.00	1.089	0.03	0.156	0.170	
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 4	Reduced	18900	1880	14.59	15.00	1.099	0.08	0.122	0.134	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	18900	1880	15.63	16.00	1.089	0.04	0.354	0.385	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	18900	1880	14.59	15.00	1.099	0.05	0.313	0.344	



# FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	21100	2535	16.70	18.00	1.349			0.08	0.581	0.784
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	21100	2535	15.77	17.00	1.327			-0.01	0.454	0.603
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	21100	2535	16.70	18.00	1.349			0.01	0.916	1.236
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	20850	2510	16.65	18.00	1.365			-0.19	0.892	1.217
38	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	21350	2560	16.66	18.00	1.361			0.17	0.929	1.265
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	21100	2535	15.77	17.00	1.327			0.16	0.763	1.013
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	20850	2510	15.76	17.00	1.330			0.05	0.711	0.946
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	21350	2560	15.70	17.00	1.349			-0.1	0.769	1.037
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant 1	Reduced	21100	2535	15.65	17.00	1.365			0.16	0.761	1.038
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	16.70	18.00	1.349			-0.13	0.375	0.506
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	15.77	17.00	1.327			-0.05	0.294	0.390
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	21100	2535	16.70	18.00	1.349			-0.02	0.268	0.362
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	21100	2535	15.77	17.00	1.327			0.15	0.206	0.273
EN-DC																				
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	21100	2535	13.18	14.50	1.355			-0.06	0.212	0.287
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	21100	2535	12.30	13.50	1.318			-0.15	0.166	0.219
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	21100	2535	13.18	14.50	1.355			0.09	0.338	0.458
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	21100	2535	12.30	13.50	1.318			-0.19	0.279	0.368
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	13.18	14.50	1.355			0.09	0.137	0.186
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	12.30	13.50	1.318			0.02	0.108	0.142
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	21100	2535	13.18	14.50	1.355			0.08	0.098	0.133
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	21100	2535	12.30	13.50	1.318			0.08	0.075	0.099
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.06	0.677	0.902
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	0.06	0.670	0.901
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	39750	2506	19.18	20.50	1.355	62.9	1.006	-0.09	0.674	0.919
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	41055	2636.5	19.20	20.50	1.349	62.9	1.006	0.09	0.650	0.882
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	41490	2680	19.16	20.50	1.361	62.9	1.006	0.09	0.598	0.819
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.08	0.562	0.812
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	40185	2549.5	17.88	19.50	1.452	62.9	1.006	0.08	0.550	0.803
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	39750	2506	17.82	19.50	1.472	62.9	1.006	-0.12	0.562	0.832
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	41055	2636.5	17.90	19.50	1.445	62.9	1.006	0.04	0.546	0.794
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	41490	2680	17.89	19.50	1.449	62.9	1.006	0.02	0.494	0.720
	LTE Band 41	20M	QPSK	100	0	-	Front	5mm	Ant 1	Reduced	41055	2636.5	17.88	19.50	1.452	62.9	1.006	-0.13	0.530	0.774
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.07	0.996	1.327
39	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	-0.13	1.050	1.412
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	39750	2506	19.18	20.50	1.355	62.9	1.006	0.07	1.030	1.404
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	41055	2636.5	19.20	20.50	1.349	62.9	1.006	-0.15	0.897	1.217
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	41490	2680	19.16	20.50	1.361	62.9	1.006	0.08	0.769	1.053
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.03	0.801	1.157
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	40185	2549.5	17.88	19.50	1.452	62.9	1.006	0.14	0.861	1.258
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	39750	2506	17.82	19.50	1.472	62.9	1.006	0.16	0.845	1.252
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	41055	2636.5	17.90	19.50	1.445	62.9	1.006	0.02	0.717	1.043
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	41490	2680	17.89	19.50	1.449	62.9	1.006	0.01	0.622	0.907
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant 1	Reduced	41055	2636.5	17.88	19.50	1.452	62.9	1.006	-0.11	0.793	1.158
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.1	0.462	0.616
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	0.02	0.434	0.584
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	39750	2506	19.18	20.50	1.355	62.9	1.006	0.09	0.450	0.613
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	41055	2636.5	19.20	20.50	1.349	62.9	1.006	0.17	0.442	0.600
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	41490	2680	19.16	20.50	1.361	62.9	1.006	0.02	0.410	0.562
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.04	0.359	0.518
	LTE Band 41	20M	QPSK	100	0	-	Left Side	5mm	Ant 1	Reduced	41055	2636.5	17.88	19.50	1.452	62.9	1.006	0.09	0.360	0.526
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.03	0.222	0.296
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.17	0.175	0.253



EN-DC																					
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	-0.03	0.268	0.365	
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	-0.12	0.222	0.310	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	0.02	0.394	0.537	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	0.15	0.317	0.442	
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	0.05	0.183	0.249	
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	0.08	0.142	0.198	
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	0.03	0.088	0.120	
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	-0.09	0.069	0.096	
EN-DC																					
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 1	Reduced	507000	2535	15.61	16.50	1.227			0.16	0.273	0.335	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Front	5mm	Ant 1	Reduced	507000	2535	15.59	16.50	1.233			0.04	0.265	0.327	
40	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 1	Reduced	507000	2535	15.61	16.50	1.227			-0.06	0.473	0.581	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Back	5mm	Ant 1	Reduced	507000	2535	15.59	16.50	1.233			-0.04	0.445	0.549	
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Side	5mm	Ant 1	Reduced	507000	2535	15.61	16.50	1.227			-0.1	0.196	0.241	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Left Side	5mm	Ant 1	Reduced	507000	2535	15.59	16.50	1.233			-0.08	0.200	0.247	
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Bottom Side	5mm	Ant 1	Reduced	507000	2535	15.61	16.50	1.227			0.06	0.130	0.160	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Bottom Side	5mm	Ant 1	Reduced	507000	2535	15.59	16.50	1.233			-0.12	0.160	0.197	
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 4	Reduced	21100	2535	17.65	18.50	1.216			0.07	0.530	0.645	
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 4	Reduced	21100	2535	17.20	18.50	1.349			-0.04	0.438	0.591	
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 4	Reduced	21100	2535	17.65	18.50	1.216			-0.07	0.462	0.562	
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 4	Reduced	21100	2535	17.20	18.50	1.349			0.09	0.321	0.433	
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	Reduced	21100	2535	15.32	16.50	1.312			0.13	0.099	0.130	
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 4	Reduced	21100	2535	15.22	16.50	1.343			0.18	0.159	0.213	
	LTE Band 7	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	Reduced	21100	2535	15.32	16.50	1.312			-0.01	0.339	0.445	
	LTE Band 7	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	Reduced	21100	2535	15.22	16.50	1.343			-0.18	0.329	0.442	
EN-DC																					
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 4	Reduced	507000	2535	13.93	14.50	1.140			0.05	0.219	0.250	
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Front	5mm	Ant 4	Reduced	507000	2535	13.87	14.50	1.156			0.05	0.177	0.205	
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 4	Reduced	507000	2535	13.93	14.50	1.140			-0.12	0.428	0.488	
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Back	5mm	Ant 4	Reduced	507000	2535	13.87	14.50	1.156			-0.01	0.483	0.558	
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Side	5mm	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			-0.1	0.279	0.311	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Left Side	5mm	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			0.02	0.281	0.315	
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Top Side	5mm	Ant 4	Reduced	507000	2535	13.53	14.00	1.114			-0.19	0.452	0.504	
	FR1 n7	20M	QPSK	50	0	SCS_15KHZ	Top Side	5mm	Ant 4	Reduced	507000	2535	13.51	14.00	1.119			-0.01	0.449	0.503	



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
3500MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 5	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.19	0.415	0.794
	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 5	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.14	0.467	0.608
41	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.12	0.788	1.019
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	Reduced	42190	3460	15.75	17.00	1.334	62.9	1.006	-0.14	0.699	0.938
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	Reduced	42990	3540	15.87	17.00	1.297	62.9	1.006	0.01	0.665	0.868
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 5	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.09	0.558	0.726
	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant 5	Reduced	42590	3500	14.39	16.00	1.449	62.9	1.006	0.07	0.518	0.755
	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 5	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.07	0.236	0.305
	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 5	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.08	0.173	0.225
	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant 5	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.18	0.705	0.912
	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant 5	Reduced	42190	3460	15.75	17.00	1.334	62.9	1.006	-0.07	0.713	0.957
	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant 5	Reduced	42990	3540	15.87	17.00	1.297	62.9	1.006	0.07	0.764	0.997
	LTE Band 42	20M	QPSK	50	0	-	Top Side	5mm	Ant 5	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	-0.12	0.585	0.762
	LTE Band 42	20M	QPSK	100	0	-	Top Side	5mm	Ant 5	Reduced	42590	3500	14.39	16.00	1.449	62.9	1.006	-0.02	0.543	0.791
EN-DC																				
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	Reduced	656000	3840	17.57	18.50	1.239			-0.02	0.414	0.513
42	FR1 n77	100M	QPSK	135	0	SCS_30KHZ	Front	5mm	Ant 5	Reduced	656000	3840	17.56	18.50	1.242			0.01	0.438	0.544
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	Reduced	656000	3840	17.57	18.50	1.239			0.1	0.380	0.471
	FR1 n77	100M	QPSK	135	0	SCS_30KHZ	Back	5mm	Ant 5	Reduced	656000	3840	17.56	18.50	1.242			-0.08	0.382	0.474
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	656000	3840	16.44	17.00	1.138			0.05	0.124	0.141
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	656000	3840	16.39	17.00	1.151			0.06	0.139	0.160
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	656000	3840	16.44	17.00	1.138			-0.1	0.409	0.465
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	656000	3840	16.39	17.00	1.151			-0.08	0.411	0.473
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	Reduced	633334	3500.01	17.59	18.50	1.233			0.19	0.293	0.361
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Front	5mm	Ant 5	Reduced	633334	3500.01	17.49	18.50	1.262			0.15	0.312	0.394
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	Reduced	633334	3500.01	17.59	18.50	1.233			-0.07	0.316	0.390
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	Reduced	633334	3500.01	17.49	18.50	1.262			0.07	0.391	0.493
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	633334	3500.01	16.06	17.00	1.242			0.04	0.098	0.122
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	633334	3500.01	15.95	17.00	1.274			0.05	0.102	0.130
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	633334	3500.01	16.06	17.00	1.242			-0.18	0.202	0.251
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	633334	3500.01	15.95	17.00	1.274			0.04	0.203	0.259
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	Reduced	650000	3750	19.41	20.50	1.285			0.01	0.273	0.351
43	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	5mm	Ant 5	Reduced	650000	3750	19.21	20.50	1.346			-0.05	0.741	0.997
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	Reduced	650000	3750	19.20	20.50	1.349			-0.13	0.327	0.441
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	Reduced	650000	3750	19.41	20.50	1.285			0.16	0.292	0.375
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	Reduced	650000	3750	19.21	20.50	1.346			-0.08	0.300	0.404
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	5mm	Ant 5	Reduced	650000	3750	19.20	20.50	1.349			0.03	0.346	0.467
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	650000	3750	17.21	18.00	1.199			0.14	0.080	0.096
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	650000	3750	17.18	18.00	1.208			0.04	0.099	0.120
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	650000	3750	17.21	18.00	1.199			-0.13	0.250	0.300
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	650000	3750	17.18	18.00	1.208			-0.01	0.325	0.393
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	650000	3750	17.15	18.00	1.216			0.09	0.320	0.389
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	Reduced	633334	3500.01	18.66	20.50	1.528			-0.1	0.561	0.857
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	5mm	Ant 5	Reduced	633334	3500.01	18.62	20.50	1.542			0.01	0.644	0.993
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	Reduced	633334	3500.01	18.61	20.50	1.545			0.06	0.577	0.892
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	Reduced	633334	3500.01	18.66	20.50	1.528			0.12	0.360	0.550
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	Reduced	633334	3500.01	18.62	20.50	1.542			-0.02	0.372	0.574
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	5mm	Ant 5	Reduced	633334	3500.01	18.61	20.50	1.545			0.18	0.368	0.569
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	633334	3500.01	16.06	18.00	1.563			0.02	0.157	0.245
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	633334	3500.01	16.03	18.00	1.574			0.13	0.233	0.367
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Right Side	5mm	Ant 5	Reduced	633334	3500.01	16.01	18.00	1.581			0.13	0.194	0.307
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	633334	3500.01	16.06	18.00	1.563			-0.1	0.564	0.882

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**FCC SAR Test Report**

**Report No. : FA152401**

FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	633334	3500.01	16.03	18.00	1.574			0.08	0.523	0.823
FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Top Side	5mm	Ant 5	Reduced	633334	3500.01	16.01	18.00	1.581			-0.13	0.544	0.860

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN																
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	Reduced	6	2437	16.31	17.50	1.315	100	1.000	0.02	0.205	0.270
44	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	6	2437	16.31	17.50	1.315	100	1.000	-0.08	0.224	<b>0.295</b>
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 3	Reduced	6	2437	16.31	17.50	1.315	100	1.000	-0.15	0.211	0.278
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 3	Reduced	6	2437	16.31	17.50	1.315	100	1.000	0.09	0.200	0.263
45	Bluetooth	1Mbps	Back	5mm	Ant 3	Full	39	2441	10.59	11.50	1.232	76.84	1.301	0.04	0.092	<b>0.147</b>
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Reduced	42	5210	13.63	14.50	1.222	94.75	1.055	0.18	0.120	0.155
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Reduced	42	5210	13.63	14.50	1.222	94.75	1.055	0.04	0.119	0.153
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3	Reduced	42	5210	13.63	14.50	1.222	94.75	1.055	0.04	0.073	0.094
46	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3	Reduced	42	5210	13.63	14.50	1.222	94.75	1.055	-0.07	0.325	<b>0.419</b>
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Reduced	155	5775	10.89	12.00	1.291	94.75	1.055	0.08	0.069	0.094
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	Reduced	155	5775	10.89	12.00	1.291	94.75	1.055	0.18	0.093	0.127
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 3	Reduced	155	5775	10.89	12.00	1.291	94.75	1.055	0.14	0.056	0.076
47	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 3	Reduced	155	5775	10.89	12.00	1.291	94.75	1.055	-0.01	0.229	<b>0.312</b>



15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																		
	LTE Band 12	10M	QPSK	1	0	Front	5mm	Ant 0	-	Full	23095	707.5	23.02	24.00	1.253	0.04	0.224	0.281
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Ant 0	-	Full	23095	707.5	22.05	23.00	1.245	-0.09	0.172	0.214
	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 0	-	Full	23095	707.5	23.02	24.00	1.253	-0.05	0.326	0.409
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Ant 0	-	Full	23095	707.5	22.05	23.00	1.245	0.01	0.261	0.325
	LTE Band 13	10M	QPSK	1	0	Front	5mm	Ant 0	-	Full	23230	782	22.59	24.00	1.384	0.02	0.414	0.573
	LTE Band 13	10M	QPSK	25	0	Front	5mm	Ant 0	-	Full	23230	782	21.53	23.00	1.403	-0.11	0.322	0.452
48	LTE Band 13	10M	QPSK	1	0	Back	5mm	Ant 0	-	Full	23230	782	22.59	24.00	1.384	-0.02	0.579	0.801
	LTE Band 13	10M	QPSK	25	0	Back	5mm	Ant 0	-	Full	23230	782	21.53	23.00	1.403	-0.18	0.469	0.658
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 0	-	Full	23230	782	21.53	23.00	1.403	-0.1	0.432	0.606
	LTE Band 12	10M	QPSK	1	0	Front	5mm	Ant 4	-	Full	23095	707.5	22.75	24.00	1.334	0.03	0.561	0.748
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Ant 4	-	Full	23095	707.5	21.71	23.00	1.346	-0.12	0.446	0.600
49	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 4	-	Full	23095	707.5	22.75	24.00	1.334	-0.03	0.940	1.254
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Ant 4	-	Full	23095	707.5	21.71	23.00	1.346	0.13	0.763	1.027
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Ant 4	-	Full	23095	707.5	21.69	23.00	1.352	0.08	0.745	1.007
	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 4	Headset	Full	23095	707.5	22.75	24.00	1.334	-0.09	0.928	1.238



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	189	836.4	24.17	25.00	1.211	0.16	0.690	0.835
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	128	824.2	24.33	25.00	1.167	-0.07	0.572	0.667
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	251	848.8	24.39	25.00	1.151	-0.18	0.572	0.658
50	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	189	836.4	24.17	25.00	1.211	0.01	1.090	<b>1.320</b>
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	128	824.2	24.33	25.00	1.167	0.06	0.907	1.058
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	251	848.8	24.39	25.00	1.151	0.05	1.070	1.231
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Headset	Reduced	189	836.4	24.17	25.00	1.211	-0.06	1.050	1.271
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	189	836.4	27.94	29.00	1.276	0.11	0.788	1.006
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	128	824.2	27.82	29.00	1.312	0.09	0.862	1.131
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	251	848.8	27.85	29.00	1.303	-0.05	0.811	1.057
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	13mm	Ant 0	-	Full	189	836.4	27.94	29.00	1.276	-0.08	0.784	1.001
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	-	Reduced	4182	836.4	22.31	23.00	1.172	0.04	0.542	0.635
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	4182	836.4	22.31	23.00	1.172	-0.18	0.883	1.035
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	4132	826.4	22.24	23.00	1.191	-0.15	0.932	1.110
51	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	4233	846.6	22.12	23.00	1.225	0.01	1.110	<b>1.359</b>
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	Headset	Reduced	4233	846.6	22.12	23.00	1.225	0.09	1.030	1.261
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	-	Full	4182	836.4	23.27	24.00	1.183	0.03	0.336	0.398
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	13mm	Ant 0	-	Full	4233	846.6	23.14	24.00	1.219	0.05	0.344	0.419
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	26865	831.5	22.75	23.50	1.189	0.02	0.300	0.357
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 0	-	Reduced	26865	831.5	21.70	22.50	1.202	0.07	0.241	0.290
52	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	26865	831.5	22.75	23.50	1.189	0.04	0.709	<b>0.843</b>
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 0	-	Reduced	26865	831.5	21.70	22.50	1.202	0.07	0.577	0.694
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	-	Reduced	26865	831.5	21.61	22.50	1.227	-0.19	0.598	0.734
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 0	-	Full	26865	831.5	23.36	24.00	1.159	-0.05	0.100	0.116
	LTE Band 26	15M	QPSK	1	0	-	Back	13mm	Ant 0	-	Full	26865	831.5	23.36	24.00	1.159	0.02	0.211	0.245
EN-DC																			
	LTE Band 5	10M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	20525	836.5	19.54	20.00	1.112	0.02	0.382	0.425
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 0	-	Reduced	20525	836.5	18.47	19.00	1.130	0.04	0.299	0.338
	LTE Band 5	10M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	20525	836.5	19.54	20.00	1.112	0.01	0.491	0.546
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 0	-	Reduced	20525	836.5	18.47	19.00	1.130	0.16	0.356	0.402
EN-DC																			
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 0	-	Reduced	167300	836.5	21.48	22.00	1.127	0.14	0.230	0.259
	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Front	5mm	Ant 0	-	Reduced	167300	836.5	21.44	22.00	1.138	0.08	0.271	0.308
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 0	-	Reduced	167300	836.5	21.48	22.00	1.127	0.18	0.429	0.484
53	FR1 n5	20M	QPSK	50	28	SCS_15KHZ	Back	5mm	Ant 0	-	Reduced	167300	836.5	21.44	22.00	1.138	0.01	0.491	<b>0.559</b>
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Front	10mm	Ant 0	-	Full	167300	836.5	23.27	24.00	1.183	-0.02	0.155	0.183
	FR1 n5	20M	QPSK	1	1	SCS_15KHZ	Back	13mm	Ant 0	-	Full	167300	836.5	23.27	24.00	1.183	0.08	0.165	0.195
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	-	Reduced	128	824.2	27.86	28.50	1.159	0.03	0.889	1.030
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	-	Reduced	189	836.4	27.78	28.50	1.180	0.03	0.956	1.128
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 4	-	Reduced	251	848.8	27.74	28.50	1.191	0.07	0.908	1.082
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	-	Reduced	128	824.2	27.86	28.50	1.159	0.03	1.090	1.263
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	-	Reduced	189	836.4	27.78	28.50	1.180	0.16	0.917	1.082
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	-	Reduced	251	848.8	27.74	28.50	1.191	-0.01	0.886	1.055
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 4	Headset	Reduced	128	824.2	27.86	28.50	1.159	-0.06	0.925	1.072
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 4	-	Full	128	824.2	28.26	29.00	1.186	0.15	0.794	0.942
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	13mm	Ant 4	-	Full	128	824.2	28.26	29.00	1.186	-0.11	0.757	0.898
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	-	Full	4182	836.4	23.35	24.00	1.161	-0.02	0.518	0.602
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	-	Full	4182	836.4	23.35	24.00	1.161	0.08	0.461	0.535
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 4	-	Full	26865	831.5	23.12	24.00	1.225	-0.14	0.474	0.580
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 4	-	Full	26865	831.5	21.74	23.00	1.337	0.11	0.302	0.404
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 4	-	Full	26865	831.5	23.12	24.00	1.225	-0.08	0.205	0.251
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 4	-	Full	26865	831.5	21.74	23.00	1.337	0.06	0.131	0.175



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	-	Reduced	1413	1732.6	18.83	19.50	1.167	0.13	1.100	1.283
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	-	Reduced	1312	1712.4	18.72	19.50	1.197	-0.14	0.970	1.161
54	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	-	Reduced	1513	1752.6	18.82	19.50	1.169	0.09	1.110	1.298
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	1413	1732.6	18.83	19.50	1.167	0.13	1.060	1.237
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	1312	1712.4	18.72	19.50	1.197	0.07	0.847	1.014
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	-	Reduced	1513	1752.6	18.82	19.50	1.169	0.09	1.020	1.193
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	Headset	Reduced	1513	1752.6	18.82	19.50	1.169	-0.05	0.989	1.157
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	-	Full	1513	1752.6	22.97	24.00	1.268	0.09	0.987	1.251
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	13mm	Ant 0	-	Full	1413	1732.6	22.99	24.00	1.262	0.03	0.782	0.987
55	LTE Band 4	20M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	20175	1732.5	18.46	19.50	1.271	0.19	0.960	1.220
	LTE Band 4	20M	QPSK	50	24	-	Front	5mm	Ant 0	-	Reduced	20175	1732.5	17.49	18.50	1.262	0.14	0.787	0.993
	LTE Band 4	20M	QPSK	100	0	-	Front	5mm	Ant 0	-	Reduced	20175	1732.5	17.35	18.50	1.303	-0.18	0.726	0.946
	LTE Band 4	20M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	20175	1732.5	18.46	19.50	1.271	0.06	0.872	1.108
	LTE Band 4	20M	QPSK	50	24	-	Back	5mm	Ant 0	-	Reduced	20175	1732.5	17.49	18.50	1.262	0.07	0.791	0.998
	LTE Band 4	20M	QPSK	100	0	-	Back	5mm	Ant 0	-	Reduced	20175	1732.5	17.35	18.50	1.303	-0.04	0.718	0.936
	LTE Band 4	20M	QPSK	1	0	-	Front	5mm	Ant 0	Headset	Reduced	20175	1732.5	18.46	19.50	1.271	0.1	0.825	1.048
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 0	-	Full	20175	1732.5	23.07	24.00	1.239	0.03	0.960	1.189
	LTE Band 4	20M	QPSK	1	0	-	Back	13mm	Ant 0	-	Full	20175	1732.5	23.07	24.00	1.239	0.11	0.740	0.917
EN-DC																			
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	132322	1745	15.57	17.00	1.390	-0.03	0.288	0.400
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 0	-	Reduced	132322	1745	15.77	17.00	1.327	0.05	0.279	0.370
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	132322	1745	15.57	17.00	1.390	0.02	0.289	0.402
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	-	Reduced	132322	1745	15.77	17.00	1.327	0.02	0.346	0.459
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 0	-	Full	132322	1745	23.27	24.00	1.183	-0.03	0.675	0.799
	LTE Band 66	20M	QPSK	1	0	-	Back	13mm	Ant 0	-	Full	132322	1745	23.27	24.00	1.183	0.02	0.461	0.545
EN-DC																			
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 0	-	Reduced	349000	1745	16.55	18.00	1.396	0.15	0.344	0.480
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Front	5mm	Ant 0	-	Reduced	349000	1745	16.52	18.00	1.406	-0.1	0.382	0.537
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 0	-	Reduced	349000	1745	16.55	18.00	1.396	-0.03	0.251	0.350
56	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Back	5mm	Ant 0	-	Reduced	349000	1745	16.52	18.00	1.406	0.02	0.421	0.592
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	10mm	Ant 0	-	Full	349000	1745	22.71	24.00	1.346	0.02	0.270	0.363
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	13mm	Ant 0	-	Full	349000	1745	22.71	24.00	1.346	0.06	0.379	0.510
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	132322	1745	20.35	21.00	1.161	-0.14	0.809	0.940
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	132072	1720	20.18	21.00	1.208	0.16	0.741	0.895
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	132572	1770	20.29	21.00	1.178	0.09	0.872	1.027
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	132322	1745	18.45	20.00	1.429	0.1	0.637	0.910
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	132072	1720	18.35	20.00	1.462	-0.14	0.587	0.858
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	132572	1770	18.42	20.00	1.439	0.01	0.682	0.981
	LTE Band 66	20M	QPSK	100	0	-	Front	5mm	Ant 4	-	Reduced	132322	1745	18.40	20.00	1.445	0.06	0.637	0.921
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	132322	1745	20.35	21.00	1.161	0.03	0.922	1.071
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	132072	1720	20.18	21.00	1.208	-0.14	0.886	1.070
57	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	132572	1770	20.29	21.00	1.178	0.06	0.985	1.160
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	132322	1745	18.45	20.00	1.429	0.05	0.746	1.066
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	132072	1720	18.35	20.00	1.462	0.08	0.709	1.037
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	132572	1770	18.42	20.00	1.439	-0.16	0.782	1.125
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 4	-	Reduced	132322	1745	18.40	20.00	1.445	0.05	0.746	1.078
	LTE Band 66	20M	QPSK	1	0	-	Front	10mm	Ant 4	-	Full	132572	1770	22.53	24.00	1.403	-0.13	0.554	0.777
	LTE Band 66	20M	QPSK	1	0	-	Back	13mm	Ant 4	-	Full	132572	1770	22.53	24.00	1.403	0.02	0.541	0.759
EN-DC																			
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 4	-	Reduced	349000	1745	18.59	20.00	1.384	0.01	0.205	0.284
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Front	5mm	Ant 4	-	Reduced	349000	1745	18.79	20.00	1.321	0.06	0.256	0.338
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 4	-	Reduced	349000	1745	18.59	20.00	1.384	-0.13	0.334	0.462
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Back	5mm	Ant 4	-	Reduced	349000	1745	18.79	20.00	1.321	-0.03	0.431	0.569



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	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Front	10mm	Ant 4	-	Full	349000	1745	23.07	24.00	1.239	0.01	0.179	0.222
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	13mm	Ant 4	-	Full	349000	1745	23.07	24.00	1.239	0.06	0.184	0.228

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	661	1880	19.48	20.00	1.127	0.02	0.779	0.878
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	512	1850.2	19.79	20.00	1.050	-0.07	0.826	0.867
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	-	Reduced	810	1909.8	19.60	20.00	1.096	0.09	0.813	0.891
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	661	1880	19.48	20.00	1.127	0.06	0.949	1.070
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	512	1850.2	19.79	20.00	1.050	0.05	1.090	1.144
58	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	-	Reduced	810	1909.8	19.60	20.00	1.096	-0.05	1.190	<b>1.305</b>
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	Headset	Reduced	810	1909.8	19.60	20.00	1.096	0.09	1.010	1.107
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	810	1909.8	25.36	26.50	1.300	0.11	0.953	1.239
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	661	1880	25.65	26.50	1.216	0.02	0.966	1.175
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	-	Full	512	1850.2	25.61	26.50	1.227	-0.07	0.938	1.151
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	13mm	Ant 0	-	Full	810	1909.8	25.36	26.50	1.300	0.16	0.908	1.181
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	-	Reduced	9400	1880	20.84	21.50	1.164	-0.05	0.922	1.073
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	-	Reduced	9262	1852.4	20.76	21.50	1.186	0.09	0.943	1.118
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 4	-	Reduced	9538	1907.6	20.65	21.50	1.216	0.06	0.833	1.013
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	-	Reduced	9400	1880	20.84	21.50	1.164	-0.06	0.915	1.065
59	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	-	Reduced	9262	1852.4	20.76	21.50	1.186	0.03	1.060	<b>1.257</b>
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	-	Reduced	9538	1907.6	20.65	21.50	1.216	-0.17	0.984	1.197
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 4	Headset	Reduced	9262	1852.4	20.76	21.50	1.186	-0.03	0.963	1.142
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	-	Full	9262	1852.4	23.13	24.00	1.222	0.05	0.870	1.063
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	13mm	Ant 4	-	Full	9262	1852.4	23.13	24.00	1.222	0.06	0.653	0.798
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	18900	1880	18.82	19.50	1.169	0.08	0.657	0.768
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	18900	1880	17.29	18.50	1.321	0.08	0.538	0.711
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	18900	1880	18.82	19.50	1.169	-0.17	1.030	1.205
60	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	18700	1860	18.73	19.50	1.194	-0.03	1.050	<b>1.254</b>
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	19100	1900	18.69	19.50	1.205	-0.16	1.030	1.241
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	18900	1880	17.29	18.50	1.321	0.09	0.918	1.213
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	18700	1860	17.09	18.50	1.384	0.17	0.905	1.252
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	19100	1900	17.03	18.50	1.403	-0.16	0.844	1.184
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 4	-	Reduced	18900	1880	17.13	18.50	1.371	0.16	0.898	1.231
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	Headset	Reduced	18700	1860	18.73	19.50	1.194	-0.09	1.030	1.230
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	-	Full	18900	1880	22.92	24.00	1.282	-0.12	0.950	1.218
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	-	Full	18700	1860	22.72	24.00	1.343	0.03	0.915	1.229
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	-	Full	19100	1900	22.71	24.00	1.346	-0.06	0.928	1.249
	LTE Band 2	20M	QPSK	1	0	-	Back	13mm	Ant 4	-	Full	18900	1880	22.92	24.00	1.282	0.05	0.854	1.095
EN-DC																			
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	18900	1880	16.35	17.00	1.161	-0.12	0.298	0.346
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	18900	1880	15.39	16.00	1.151	0.05	0.244	0.281
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	18900	1880	16.35	17.00	1.161	0.05	0.507	0.589
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	18900	1880	15.39	16.00	1.151	0.08	0.416	0.479



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	16.70	18.00	1.349			0.08	0.581	0.784
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	15.77	17.00	1.327			-0.01	0.454	0.603
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	16.70	18.00	1.349			0.01	0.916	1.236
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	20850	2510	16.65	18.00	1.365			-0.19	0.892	1.217
61	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	21350	2560	16.66	18.00	1.361			0.17	0.929	1.265
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	15.77	17.00	1.327			0.16	0.763	1.013
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	20850	2510	15.76	17.00	1.330			0.05	0.711	0.946
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	21350	2560	15.70	17.00	1.349			-0.1	0.769	1.037
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	15.65	17.00	1.365			0.16	0.761	1.038
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Headset	Reduced	21350	2560	16.66	18.00	1.361			-0.01	0.812	1.105
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 1	-	Full	21100	2535	22.98	24.00	1.265			-0.06	0.904	1.143
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 1	-	Full	20850	2510	22.66	24.00	1.361			-0.09	0.863	1.175
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 1	-	Full	21350	2560	22.67	24.00	1.358			0.01	0.811	1.102
	LTE Band 7	20M	QPSK	1	0	-	Back	13mm	Ant 1	-	Full	21100	2535	22.98	24.00	1.265			-0.15	0.903	1.142
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	13.18	14.50	1.355			-0.06	0.212	0.287
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	12.30	13.50	1.318			-0.15	0.166	0.219
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	13.18	14.50	1.355			0.09	0.338	0.458
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	12.30	13.50	1.318			-0.19	0.279	0.368
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.06	0.677	0.902
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	0.06	0.670	0.901
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	39750	2506	19.18	20.50	1.355	62.9	1.006	-0.09	0.674	0.919
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	41055	2636.5	19.20	20.50	1.349	62.9	1.006	0.09	0.650	0.882
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	41490	2680	19.16	20.50	1.361	62.9	1.006	0.09	0.598	0.819
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.08	0.562	0.812
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	40185	2549.5	17.88	19.50	1.452	62.9	1.006	0.08	0.550	0.803
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	39750	2506	17.82	19.50	1.472	62.9	1.006	-0.12	0.562	0.832
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	41055	2636.5	17.90	19.50	1.445	62.9	1.006	0.04	0.546	0.794
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	41490	2680	17.89	19.50	1.449	62.9	1.006	0.02	0.494	0.720
	LTE Band 41	20M	QPSK	100	0	-	Front	5mm	Ant 1	-	Reduced	41055	2636.5	17.88	19.50	1.452	62.9	1.006	-0.13	0.530	0.774
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	19.28	20.50	1.324	62.9	1.006	0.07	0.996	1.327
62	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	-0.13	1.050	1.412
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	39750	2506	19.18	20.50	1.355	62.9	1.006	0.07	1.030	1.404
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	41055	2636.5	19.20	20.50	1.349	62.9	1.006	-0.15	0.897	1.217
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	41490	2680	19.16	20.50	1.361	62.9	1.006	0.08	0.769	1.053
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	17.93	19.50	1.435	62.9	1.006	0.03	0.801	1.157
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	40185	2549.5	17.88	19.50	1.452	62.9	1.006	0.14	0.861	1.258
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	39750	2506	17.82	19.50	1.472	62.9	1.006	0.16	0.845	1.252
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	41055	2636.5	17.90	19.50	1.445	62.9	1.006	0.02	0.717	1.043
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	41490	2680	17.89	19.50	1.449	62.9	1.006	0.01	0.622	0.907
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant 1	-	Reduced	41055	2636.5	17.88	19.50	1.452	62.9	1.006	-0.11	0.793	1.158
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Headset	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	-0.03	0.965	1.298
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 1	-	Full	39750	2506	22.74	24.00	1.337	62.9	1.006	-0.06	0.648	0.871
	LTE Band 41	20M	QPSK	1	0	-	Back	13mm	Ant 1	-	Full	40185	2549.5	22.72	24.00	1.343	62.9	1.006	-0.15	0.628	0.848
EN-DC																					
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	-0.03	0.268	0.365
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	-0.12	0.222	0.310
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	15.68	17.00	1.355	62.9	1.006	0.02	0.394	0.537
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	14.58	16.00	1.387	62.9	1.006	0.15	0.317	0.442
EN-DC																					
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 1	-	Reduced	507000	2535	15.61	16.50	1.227			0.16	0.273	0.335
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Front	5mm	Ant 1	-	Reduced	507000	2535	15.58	16.50	1.236			0.04	0.265	0.328
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 1	-	Reduced	507000	2535	15.61	16.50	1.227			-0.06	0.473	0.581



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Back	5mm	Ant 1	-	Reduced	507000	2535	15.58	16.50	1.236			-0.04	0.445	0.550
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	10mm	Ant 1	-	Full	21100	2535	23.14	24.00	1.219			-0.06	0.589	0.718
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	13mm	Ant 1	-	Full	21100	2535	23.14	24.00	1.219			-0.15	0.534	0.651
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 4	-	Reduced	21100	2535	17.65	18.50	1.216			0.07	0.530	0.645
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 4	-	Reduced	21100	2535	17.20	18.50	1.349			-0.04	0.438	0.591
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 4	-	Reduced	21100	2535	17.65	18.50	1.216			-0.07	0.462	0.562
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 4	-	Reduced	21100	2535	17.20	18.50	1.349			0.09	0.321	0.433
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 4	-	Full	21100	2535	23.21	24.00	1.199			-0.06	0.486	0.583
	LTE Band 7	20M	QPSK	1	0	-	Back	13mm	Ant 4	-	Full	21100	2535	23.21	24.00	1.199			-0.15	0.666	0.799
EN-DC																					
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	5mm	Ant 4	-	Reduced	507000	2535	13.93	14.50	1.140			0.05	0.219	0.250
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Front	5mm	Ant 4	-	Reduced	507000	2535	13.87	14.50	1.156			0.05	0.177	0.205
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	5mm	Ant 4	-	Reduced	507000	2535	13.93	14.50	1.140			-0.12	0.428	0.488
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Back	5mm	Ant 4	-	Reduced	507000	2535	13.87	14.50	1.156			-0.01	0.483	0.558
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Front	10mm	Ant 4	-	Full	507000	2535	23.55	24.00	1.109			-0.06	0.556	0.617
63	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	13mm	Ant 4	-	Full	507000	2535	23.55	24.00	1.109			-0.01	0.699	0.775

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
3500MHz																					
	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 5	-	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.19	0.618	0.799
	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 5	-	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.14	0.467	0.608
64	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	-	Reduced	42590	3500	15.91	17.00	1.285	62.9	1.006	0.12	0.788	1.019
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	-	Reduced	42190	3460	15.75	17.00	1.334	62.9	1.006	-0.14	0.699	0.938
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	-	Reduced	42990	3540	15.87	17.00	1.297	62.9	1.006	0.01	0.665	0.868
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 5	-	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.09	0.558	0.726
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 5	-	Reduced	42590	3500	14.88	16.00	1.294	62.9	1.006	0.01	0.531	0.691
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 5	-	Reduced	42190	3460	14.83	16.00	1.309	62.9	1.006	-0.03	0.523	0.689
	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant 5	-	Reduced	42590	3500	14.39	16.00	1.449	62.9	1.006	0.07	0.518	0.755
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 5	-	Full	42590	3500	22.92	24.00	1.282	62.9	1.006	0.11	0.769	0.992
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 5	-	Full	42190	3460	22.53	24.00	1.403	62.9	1.006	0.02	0.563	0.795
	LTE Band 42	20M	QPSK	1	0	-	Front	10mm	Ant 5	-	Full	42990	3540	22.78	24.00	1.324	62.9	1.006	-0.08	0.611	0.814
	LTE Band 42	20M	QPSK	1	0	-	Back	13mm	Ant 5	-	Full	42590	3500	22.92	24.00	1.282	62.9	1.006	0.06	0.651	0.840
EN-DC																					
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	656000	3840	17.57	18.50	1.239			-0.02	0.414	0.513
	FR1 n77	100M	QPSK	135	0	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	656000	3840	17.56	18.50	1.242			0.01	0.408	0.507
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	656000	3840	17.57	18.50	1.239			0.1	0.380	0.471
	FR1 n77	100M	QPSK	135	0	SCS_30KHZ	Front	10mm	Ant 5	-	Reduced	656000	3840	17.56	18.50	1.242			-0.08	0.382	0.474
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	10mm	Ant 5	-	Full	656000	3840	26.44	27.00	1.138			-0.06	1.020	1.160
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Front	10mm	Ant 5	-	Full	650000	3750	26.24	27.00	1.191			0.02	0.923	1.100
	FR1 n77	100M	QPSK	270	0	SCS_30KHZ	Back	13mm	Ant 5	-	Full	662000	3930	25.43	26.00	1.140			-0.09	0.945	1.078
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	656000	3840	26.44	27.00	1.138			-0.15	1.000	1.138
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Back	13mm	Ant 5	-	Full	650000	3750	26.24	27.00	1.191			0.05	0.921	1.097
	FR1 n77	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	-	Full	662000	3930	25.43	26.00	1.140			0.01	0.908	1.035
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	633334	3500.01	17.59	18.50	1.233			0.19	0.322	0.397
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	633334	3500.01	17.49	18.50	1.262			0.15	0.312	0.394
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	633334	3500.01	17.59	18.50	1.233			-0.07	0.316	0.390
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Front	10mm	Ant 5	-	Reduced	633334	3500.01	17.49	18.50	1.262			0.07	0.391	0.493
65	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Front	10mm	Ant 5	-	Full	633334	3500.01	26.39	27.00	1.151			-0.06	1.060	1.220
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Front	10mm	Ant 5	-	Full	633334	3500.01	26.11	27.00	1.227			-0.03	0.973	1.194
	FR1 n77	100M	QPSK	270	0	SCS_30KHZ	Front	10mm	Ant 5	Headset	Full	633334	3500.01	25.30	26.00	1.175			0.01	0.962	1.130
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	26.39	27.00	1.151			0.02	0.993	1.143
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	26.39	27.00	1.151			-0.15	0.730	0.840
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	26.11	27.00	1.227			0.09	0.638	0.783
	FR1 n77	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	-	Full	633334	3500.01	25.30	26.00	1.175			0.08	0.711	0.835



**FCC SAR Test Report**

**Report No. : FA152401**

	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	650000	3750	19.41	20.50	1.285			0.01	0.273	0.351
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	650000	3750	19.21	20.50	1.346			-0.05	0.741	0.997
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	650000	3750	19.20	20.50	1.349			-0.13	0.327	0.441
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	650000	3750	19.41	20.50	1.285			0.16	0.292	0.375
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	650000	3750	19.21	20.50	1.346			-0.08	0.300	0.404
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	650000	3750	19.20	20.50	1.349			0.03	0.346	0.467
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	10mm	Ant 5	-	Full	650000	3750	25.78	27.00	1.324			0.03	0.935	1.238
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	10mm	Ant 5	-	Full	650000	3750	25.68	27.00	1.355			-0.06	0.875	1.186
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	10mm	Ant 5	-	Full	650000	3750	25.49	26.00	1.125			0.02	0.735	0.827
66	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	650000	3750	25.78	27.00	1.324			0.01	1.060	1.404
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	Headset	Full	650000	3750	25.78	27.00	1.324			0.01	0.942	1.248
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	650000	3750	25.68	27.00	1.355			0.01	0.968	1.312
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	650000	3750	25.49	26.00	1.125			0.08	0.826	0.929
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	633334	3500.01	18.66	20.50	1.528			-0.1	0.561	0.857
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	633334	3500.01	18.62	20.50	1.542			0.01	0.644	0.993
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	5mm	Ant 5	-	Reduced	633334	3500.01	18.61	20.50	1.545			0.06	0.577	0.892
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	633334	3500.01	18.66	20.50	1.528			0.12	0.360	0.550
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	633334	3500.01	18.62	20.50	1.542			-0.02	0.372	0.574
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	5mm	Ant 5	-	Reduced	633334	3500.01	18.61	20.50	1.545			0.18	0.368	0.569
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	10mm	Ant 5	-	Full	633334	3500.01	25.77	27.00	1.327			0.16	0.975	1.294
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	10mm	Ant 5		Full	633334	3500.01	25.56	27.00	1.393			-0.03	0.868	1.209
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	10mm	Ant 5		Full	633334	3500.01	25.33	26.00	1.167			0.08	0.726	0.847
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	25.77	27.00	1.327			0.07	0.985	1.307
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	Headset	Full	633334	3500.01	25.77	27.00	1.327			0.07	0.925	1.228
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	25.56	27.00	1.393			0.01	0.826	1.151
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	13mm	Ant 5	-	Full	633334	3500.01	25.33	26.00	1.167			-0.08	0.759	0.886





**FCC SAR Test Report**

**Report No. : FA152401**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
WLAN																		
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	-	Full	6	2437	18.28	20.00	1.486	100	1.000	0.05	0.421	0.626	
67	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Full	6	2437	18.28	20.00	1.486	100	1.000	-0.18	0.429	<b>0.637</b>	
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 3	-	Full	6	2437	18.28	20.00	1.486	100	1.000	0.01	0.166	0.247	
	WLAN2.4GHz	802.11b 1Mbps	Back	13mm	Ant 3	-	Full	6	2437	18.28	20.00	1.486	100	1.000	0.03	0.128	0.190	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	-	Simultaneous	6	2437	16.31	17.50	1.315	100	1.000	-0.08	0.144	0.189	
68	Bluetooth	1Mbps	Back	5mm	Ant 3	-	Full	39	2441	10.59	11.50	1.232	76.84	1.301	0.04	0.092	<b>0.147</b>	
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Front	5mm	Ant 3	-	Full	46	5230	16.01	18.00	1.581	97.75	1.023	0.01	0.161	0.260	
69	WLAN5.2GHz	802.11ac-VHT40 MCS0	Back	5mm	Ant 3	-	Full	46	5230	16.01	18.00	1.581	97.75	1.023	-0.07	0.204	<b>0.330</b>	
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Front	10mm	Ant 3	-	Full	46	5230	16.01	18.00	1.581	97.75	1.023	0.02	0.086	0.139	
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Back	13mm	Ant 3	-	Full	46	5230	16.01	18.00	1.581	97.75	1.023	0.05	0.089	0.144	
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	5mm	Ant 3	-	Full	54	5270	16.04	18.00	1.570	97.75	1.023	-0.03	0.264	0.424	
70	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	5mm	Ant 3	-	Full	54	5270	16.04	18.00	1.570	97.75	1.023	-0.02	0.448	<b>0.720</b>	
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	5mm	Ant 3	-	Simultaneous	54	5270	13.21	15.00	1.509	97.75	1.023	0.09	0.128	0.198	
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	5mm	Ant 3	-	Simultaneous	54	5270	13.21	15.00	1.509	97.75	1.023	0.02	0.172	0.265	
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	10mm	Ant 3	-	Full	54	5270	16.04	18.00	1.570	97.75	1.023	0.08	0.096	0.154	
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	13mm	Ant 3	-	Full	54	5270	16.04	18.00	1.570	97.75	1.023	0.07	0.108	0.173	
71	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Full	138	5690	16.22	18.00	1.000	94.75	1.055	0.03	0.806	<b>0.850</b>	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Full	122	5610	16.08	18.00	1.000	94.75	1.055	0.01	0.725	0.765	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Full	138	5690	16.22	18.00	1.000	94.75	1.055	0.04	0.513	0.541	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Simultaneous	138	5690	12.78	14.50	1.486	94.75	1.055	0.09	0.118	0.185	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Simultaneous	138	5690	12.78	14.50	1.486	94.75	1.055	0.01	0.210	0.329	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 3	-	Full	138	5690	16.22	18.00	1.000	94.75	1.055	0.05	0.101	0.107	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	13mm	Ant 3	-	Full	138	5690	16.22	18.00	1.000	94.75	1.055	0.02	0.136	0.143	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Full	155	5775	16.05	18.00	1.565	94.75	1.055	0.02	0.465	0.768	
72	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Full	155	5775	16.05	18.00	1.565	94.75	1.055	0.06	0.626	<b>1.034</b>	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 3	-	Simultaneous	155	5775	11.67	13.50	1.524	94.75	1.055	-0.05	0.163	0.262	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 3	-	Simultaneous	155	5775	11.67	13.50	1.524	94.75	1.055	0.05	0.204	0.328	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 3	-	Full	155	5775	16.05	18.00	1.565	94.75	1.055	0.06	0.120	0.198	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	13mm	Ant 3	-	Full	155	5775	16.05	18.00	1.565	94.75	1.055	0.05	0.110	0.182	



15.4 Product specific 10g SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
750MHz																	
73	LTE Band 12	10M	QPSK	1	0	Back	0mm	Ant 4	Full	23095	707.5	22.75	24.00	1.334	0.05	0.635	<b>0.847</b>
	LTE Band 12	10M	QPSK	25	0	Back	0mm	Ant 4	Full	23095	707.5	21.71	23.00	1.346	0.01	0.511	0.688

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
835MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	189	836.4	27.04	28.00	1.247	-0.08	1.920	2.395
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	128	824.2	26.96	28.00	1.271	0.07	2.220	2.821
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	251	848.8	26.79	28.00	1.321	-0.12	1.800	2.378
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	189	836.4	27.04	28.00	1.247	0.05	2.470	3.081
74	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	128	824.2	26.96	28.00	1.271	0.06	2.470	<b>3.138</b>
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	251	848.8	26.79	28.00	1.321	-0.14	2.280	3.013
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	0mm	Ant 0	Full	189	836.4	27.94	29.00	1.276	-0.01	1.260	1.608
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	189	836.4	27.04	28.00	1.247	0.16	2.190	2.732
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	128	824.2	26.96	28.00	1.271	0.03	1.870	2.376
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	251	848.8	26.79	28.00	1.321	0.03	2.190	2.894
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	8mm	Ant 0	Full	128	824.2	27.82	29.00	1.312	0.16	0.628	0.824
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	Full	128	824.2	27.82	29.00	1.312	-0.05	0.683	0.896
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	11mm	Ant 0	Full	251	848.8	27.85	29.00	1.303	0.06	0.331	0.431
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Full	4182	836.4	23.27	24.00	1.183	-0.12	1.990	2.354
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Full	4132	826.4	23.26	24.00	1.186	-0.1	2.000	2.372
75	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Full	4233	846.6	23.14	24.00	1.219	0.13	1.990	<b>2.426</b>
EN-DC																		
76	LTE Band 5	10M	QPSK	1	0	-	Back	0mm	Ant 0	Reduced	20525	836.5	20.63	21.00	1.089	-0.03	1.110	<b>1.209</b>
	LTE Band 5	10M	QPSK	1	0	-	Back	0mm	Ant 0	Reduced	20525	836.5	19.48	20.00	1.127	0.05	0.983	1.108
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 4	Full	189	836.4	28.41	29.00	1.146	0.06	1.890	2.165
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 4	Full	128	824.2	28.26	29.00	1.186	0.17	2.040	2.419
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 4	Full	251	848.8	28.36	29.00	1.159	0.04	2.690	3.117
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 4	Full	189	836.4	28.41	29.00	1.146	0.03	1.490	1.707
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 4	Full	128	824.2	28.26	29.00	1.186	0.05	1.390	1.648
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 4	Full	251	848.8	28.36	29.00	1.159	-0.01	1.530	1.773
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	0mm	Ant 4	Full	251	848.8	28.36	29.00	1.159	0.09	2.470	2.862
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	0mm	Ant 4	Full	128	824.2	28.26	29.00	1.186	0.03	1.360	1.613
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	0mm	Ant 4	Full	189	836.4	28.41	29.00	1.146	0.05	1.480	1.695



**FCC SAR Test Report**

**Report No. : FA152401**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 0	Reduced	1413	1732.6	21.57	22.00	1.104	-0.11	2.730	3.014	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 0	Reduced	1312	1712.4	21.52	22.00	1.117	0.13	2.520	2.814	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 0	Reduced	1513	1752.6	21.54	22.00	1.112	0.03	2.930	3.257	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Reduced	1413	1732.6	21.57	22.00	1.104	0.05	1.950	2.153	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Reduced	1312	1712.4	21.52	22.00	1.117	-0.15	1.950	2.178	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	Reduced	1513	1752.6	21.54	22.00	1.112	-0.04	2.380	2.646	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Reduced	1413	1732.6	21.57	22.00	1.104	0.08	2.520	2.782	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Reduced	1312	1712.4	21.52	22.00	1.117	-0.02	2.560	2.859	
77	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Reduced	1513	1752.6	21.54	22.00	1.112	-0.04	2.970	3.302	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	8mm	Ant 0	Full	1513	1752.6	22.97	24.00	1.268	0.07	1.060	1.344	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	Full	1513	1752.6	22.97	24.00	1.268	0.12	0.944	1.197	
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	11mm	Ant 0	Full	1513	1752.6	22.97	24.00	1.268	-0.03	0.912	1.156	
	LTE Band 4	20M	QPSK	1	0	-	Front	0mm	Ant 0	Reduced	20175	1732.5	22.03	23.00	1.250	0.08	1.650	2.063	
	LTE Band 4	20M	QPSK	50	0	-	Front	0mm	Ant 0	Reduced	20175	1732.5	20.99	22.00	1.262	0.09	1.420	1.792	
	LTE Band 4	20M	QPSK	100	0	-	Front	0mm	Ant 0	Reduced	20175	1732.5	21.01	22.00	1.256	-0.02	1.480	1.859	
	LTE Band 4	20M	QPSK	1	0	-	Back	0mm	Ant 0	Reduced	20175	1732.5	22.03	23.00	1.250	-0.17	1.570	1.963	
78	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	Reduced	20175	1732.5	22.03	23.00	1.250	0.06	2.540	3.176	
	LTE Band 4	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	Reduced	20175	1732.5	20.99	22.00	1.262	0.08	2.300	2.902	
	LTE Band 4	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 0	Reduced	20175	1732.5	21.01	22.00	1.256	0.18	2.260	2.839	
	LTE Band 4	20M	QPSK	1	0	-	Front	8mm	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	0.12	0.917	1.136	
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	-0.05	0.740	0.917	
	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	11mm	Ant 0	Full	20175	1732.5	23.07	24.00	1.239	0.08	0.696	0.862	
EN-DC																			
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	Reduced	132322	1745	19.51	20.50	1.256	-0.01	1.240	1.557	
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	Reduced	132322	1745	19.67	20.50	1.211	-0.03	1.270	1.537	
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	11mm	Ant 0	Full	132322	1745	22.71	24.00	1.346	0.04	0.657	0.884	
EN-DC																			
	FR1 n66	40M	QPSK	1	1	-	Bottom Side	0mm	Ant 0	Reduced	349000	1745	20.82	21.50	1.169	-0.1	1.010	1.181	
79	FR1 n66	40M	QPSK	108	54	-	Bottom Side	0mm	Ant 0	Reduced	349000	1745	20.75	21.50	1.189	-0.05	1.260	1.498	
	FR1 n66	40M	QPSK	1	1	-	Bottom Side	11mm	Ant 0	Full	349000	1745	23.07	24.00	1.239	0.08	0.322	0.399	
	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 4	Full	132322	1745	22.77	24.00	1.327	0.06	1.910	2.535	
	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 4	Full	132072	1720	22.64	24.00	1.368	0.06	1.790	2.448	
	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 4	Full	132572	1770	22.53	24.00	1.403	0.15	1.980	2.778	
	LTE Band 66	20M	QPSK	50	0	-	Front	0mm	Ant 4	Full	132322	1745	21.80	23.00	1.318	-0.01	1.510	1.991	
	LTE Band 66	20M	QPSK	100	0	-	Front	0mm	Ant 4	Full	132322	1745	21.75	23.00	1.334	-0.16	1.270	1.694	
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 4	Full	132322	1745	22.77	24.00	1.327	0.03	1.580	2.097	
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 4	Full	132322	1745	21.80	23.00	1.318	0.08	1.030	1.358	
	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	132322	1745	22.77	24.00	1.327	-0.07	1.560	2.071	
	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	132072	1720	22.64	24.00	1.368	0.04	1.620	2.216	
80	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	132572	1770	22.53	24.00	1.403	-0.11	2.010	2.820	
	LTE Band 66	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	Full	132322	1745	21.80	23.00	1.318	0.04	1.090	1.437	
	LTE Band 66	20M	QPSK	100	0	-	Top Side	0mm	Ant 4	Full	132322	1745	21.75	23.00	1.334	0.05	1.080	1.440	
EN-DC																			
	FR1 n66	40M	QPSK	1	1	SCS_15KHZ	Back	0mm	Ant 4	Full	349000	1745	23.07	24.00	1.239	0.05	0.880	1.090	
	FR1 n66	40M	QPSK	108	54	SCS_15KHZ	Back	0mm	Ant 4	Full	349000	1745	23.01	24.00	1.256	-0.03	0.930	1.168	



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	661	1880	24.75	25.50	1.189	-0.11	2.550	3.031	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	512	1850.2	24.81	25.50	1.172	0.07	2.760	3.235	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	0mm	Ant 0	Reduced	810	1909.8	24.97	25.50	1.130	0.02	2.320	2.621	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	661	1880	24.75	25.50	1.189	0.07	2.860	3.399	
81	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	512	1850.2	24.81	25.50	1.172	-0.02	3.050	3.575	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	810	1909.8	24.97	25.50	1.130	0.16	2.730	3.084	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	661	1880	24.75	25.50	1.189	0.02	2.030	2.413	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	512	1850.2	24.81	25.50	1.172	-0.06	2.180	2.555	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant 0	Reduced	810	1909.8	24.97	25.50	1.130	0.03	1.690	1.909	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	8mm	Ant 0	Full	512	1850.2	25.61	26.50	1.227	-0.08	1.200	1.473	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	Full	512	1850.2	25.61	26.50	1.227	-0.07	1.400	1.718	
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	11mm	Ant 0	Full	512	1850.2	25.61	26.50	1.227	-0.04	1.770	2.173	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 4	Full	9400	1880	23.14	24.00	1.219	0.04	1.590	1.938	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 4	Full	9400	1880	23.14	24.00	1.219	-0.18	1.470	1.792	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 4	Full	9400	1880	23.14	24.00	1.219	-0.05	1.650	2.011	
82	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 4	Full	9262	1852.4	23.13	24.00	1.222	-0.11	1.660	2.028	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 4	Full	9538	1907.6	22.97	24.00	1.268	0.05	1.530	1.940	
	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 4	Full	18900	1880	22.92	24.00	1.282	0.06	1.530	1.962	
	LTE Band 2	20M	QPSK	50	0	-	Front	0mm	Ant 4	Full	18900	1880	21.94	23.00	1.276	-0.05	1.390	1.774	
	LTE Band 2	20M	QPSK	1	0	-	Back	0mm	Ant 4	Full	18900	1880	22.92	24.00	1.282	0.15	1.420	1.821	
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 4	Full	18900	1880	21.94	23.00	1.276	-0.07	1.090	1.391	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	18900	1880	22.92	24.00	1.282	-0.05	2.050	2.629	
83	LTE Band 2	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	18700	1860	22.85	24.00	1.303	0.06	2.1	2.737	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Full	19100	1900	22.71	24.00	1.346	-0.11	2.000	2.692	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	Full	18900	1880	21.94	23.00	1.276	-0.11	1.700	2.170	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	Full	18700	1860	21.88	23.00	1.294	0.04	1.650	2.135	
	LTE Band 2	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	Full	19100	1900	21.91	23.00	1.285	-0.05	1.710	2.198	
	LTE Band 2	20M	QPSK	100	0	-	Top Side	0mm	Ant 4	Full	18900	1880	21.94	23.00	1.276	0.18	1.680	2.144	
EN-DC																			
	LTE Band 2	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Reduced	18900	1880	19.15	19.50	1.084	-0.03	0.946	1.025	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Reduced	18900	1880	19.12	18.50	0.867	0.04	0.822	0.713	
	LTE Band 2	20M	QPSK	1	0	-	Top Side	8mm	Ant 4	Full	18900	1880	22.92	24.00	1.282	-0.03	0.746	0.957	



# FCC SAR Test Report

Report No. : FA152401

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	21100	2535	20.70	21.50	1.202			0.06	1.730	2.080
	LTE Band 7	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	20850	2510	20.53	21.50	1.250			-0.1	1.640	2.050
	LTE Band 7	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	21350	2560	20.66	21.50	1.213			-0.08	1.710	2.075
	LTE Band 7	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	21100	2535	19.16	20.50	1.361			-0.14	1.380	1.879
	LTE Band 7	20M	QPSK	100	0	-	Front	0mm	Ant 1	Reduced	21100	2535	19.20	20.50	1.349			0.16	1.370	1.848
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	21100	2535	20.70	21.50	1.202			-0.15	2.460	2.958
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	20850	2510	20.53	21.50	1.250			0.03	2.410	3.013
84	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	21350	2560	20.66	21.50	1.213			-0.12	2.490	<b>3.021</b>
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	21100	2535	19.16	20.50	1.361			-0.14	2.000	2.723
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	20850	2510	19.20	20.50	1.349			0.05	1.910	2.577
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	21350	2560	19.11	20.50	1.377			-0.17	1.960	2.699
	LTE Band 7	20M	QPSK	100	0	-	Back	0mm	Ant 1	Reduced	21100	2535	19.20	20.50	1.349			-0.08	2.000	2.698
	LTE Band 7	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.02	2.000	2.529
	LTE Band 7	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	Full	20850	2510	22.66	24.00	1.361			-0.06	1.730	2.355
	LTE Band 7	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	Full	21350	2560	22.67	24.00	1.358			0.02	2.110	2.866
	LTE Band 7	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full	21100	2535	21.87	23.00	1.297			0.07	1.630	2.114
	LTE Band 7	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full	20850	2510	21.73	23.00	1.340			0.01	1.410	1.889
	LTE Band 7	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full	21350	2560	21.70	23.00	1.349			-0.08	1.680	2.266
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 1	Reduced	21100	2535	20.70	21.50	1.202			0.04	0.710	0.854
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 1	Reduced	21100	2535	19.16	20.50	1.361			-0.03	0.558	0.760
	LTE Band 7	20M	QPSK	1	0	-	Front	2mm	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.11	2.290	2.896
	LTE Band 7	20M	QPSK	1	0	-	Front	2mm	Ant 1	Full	20850	2510	22.66	24.00	1.361			0.11	2.020	2.750
	LTE Band 7	20M	QPSK	1	0	-	Front	2mm	Ant 1	Full	21350	2560	22.67	24.00	1.358			0.11	2.100	2.852
	LTE Band 7	20M	QPSK	1	0	-	Back	4mm	Ant 1	Full	21350	2560	22.67	24.00	1.358			0.09	2.180	2.961
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	3mm	Ant 1	Full	21100	2535	22.98	24.00	1.265			0.02	0.672	0.850
EN-DC																				
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	21100	2535	16.81	18.00	1.315			0.01	1.050	1.381
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	21100	2535	16.80	18.00	1.318			0.09	0.984	1.297
LTE Band 41																				
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	40620	2593	22.92	23.50	1.143	62.9	1.006	0.17	1.730	1.989
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	40185	2549.5	22.88	23.50	1.153	62.9	1.006	0.02	1.810	2.100
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	39750	2506	22.82	23.50	1.169	62.9	1.006	0.02	1.760	2.071
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	41055	2636.5	22.81	23.50	1.172	62.9	1.006	-0.04	1.680	1.981
	LTE Band 41	20M	QPSK	1	0	-	Front	0mm	Ant 1	Reduced	41490	2680	22.79	23.50	1.178	62.9	1.006	0.18	1.600	1.895
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	40620	2593	21.09	22.50	1.384	62.9	1.006	-0.03	1.360	1.893
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	40185	2549.5	21.20	22.50	1.349	62.9	1.006	0.15	1.350	1.832
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	39750	2506	21.12	22.50	1.374	62.9	1.006	0.18	1.430	1.977
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	41055	2636.5	21.13	22.50	1.371	62.9	1.006	0.04	1.400	1.931
	LTE Band 41	20M	QPSK	50	0	-	Front	0mm	Ant 1	Reduced	41490	2680	21.00	22.50	1.413	62.9	1.006	0.05	1.340	1.904
	LTE Band 41	20M	QPSK	100	0	-	Front	0mm	Ant 1	Reduced	40620	2593	21.12	22.50	1.374	62.9	1.006	0.04	1.280	1.769
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	40620	2593	22.92	23.50	1.143	62.9	1.006	0.13	2.410	2.771
85	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	40185	2549.5	22.88	23.50	1.153	62.9	1.006	-0.03	2.570	<b>2.982</b>
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	39750	2506	22.82	23.50	1.169	62.9	1.006	0.03	2.490	2.930
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	41055	2636.5	22.81	23.50	1.172	62.9	1.006	-0.09	2.300	2.712
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	41490	2680	22.79	23.50	1.178	62.9	1.006	0.09	2.180	2.583
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	40620	2593	21.09	22.50	1.384	62.9	1.006	0.15	1.930	2.686
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	40185	2549.5	21.20	22.50	1.349	62.9	1.006	-0.11	1.920	2.606
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	39750	2506	21.12	22.50	1.374	62.9	1.006	0.08	2.060	2.848
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	41055	2636.5	21.13	22.50	1.371	62.9	1.006	-0.14	2.010	2.772
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	41490	2680	21.00	22.50	1.413	62.9	1.006	-0.11	1.850	2.629
	LTE Band 41	20M	QPSK	100	0	-	Back	0mm	Ant 1	Reduced	40620	2593	21.12	22.50	1.374	62.9	1.006	0.01	1.770	2.447
	LTE Band 41	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.01	1.240	1.618
	LTE Band 41	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	-0.18	0.986	1.266
	LTE Band 41	20M	QPSK	1	0	-	Front	2mm	Ant 1	Full	40185	2549.5	22.72	24.00	1.343	62.9	1.006	0.05	1.320	1.783

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FCC ID : IHDT56ZU1

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Form version. : 200414



	LTE Band 41	20M	QPSK	1	0	-	Back	4mm	Ant 1	Full	40185	2549.5	22.72	24.00	1.343	62.9	1.006	-0.04	1.270	1.716
EN-DC																				
	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	40620	2593	18.76	20.00	1.330	62.9	1.006	0.01	1.110	1.486
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	40620	2593	17.63	19.00	1.371	62.9	1.006	0.03	0.938	1.294
	LTE Band 41	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	Full	40620	2593	22.87	24.00	1.297	62.9	1.006	-0.01	1.240	1.618
	LTE Band 41	20M	QPSK	50	0	-	Left Side	0mm	Ant 1	Full	40620	2593	21.94	23.00	1.276	62.9	1.006	-0.18	0.986	1.266
EN-DC																				
86	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	0mm	Ant 1	Reduced	507000	2535	20.82	21.50	1.169			-0.1	1.020	1.193
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Back	0mm	Ant 1	Reduced	507000	2535	20.75	21.50	1.189			0.07	0.986	1.172
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Left Side	0mm	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.01	0.960	1.170
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Left Side	0mm	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.03	0.950	1.158
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	4mm	Ant 1	Full	507000	2535	23.14	24.00	1.219			0.09	0.930	1.134
EN-DC																				
	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	Reduced	21100	2535	16.81	18.00	1.315			-0.09	0.913	1.201
	LTE Band 7	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	Reduced	21100	2535	16.80	18.00	1.318			0.08	0.888	1.171
	LTE Band 7	20M	QPSK	1	0	-	Top Side	8mm	Ant 4	Full	21100	2535	23.21	24.00	1.199			-0.09	0.880	1.056
EN-DC																				
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Top Side	0mm	Ant 4	Reduced	507000	2535	17.59	18.00	1.099			-0.09	0.812	0.892
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Top Side	0mm	Ant 4	Reduced	507000	2535	17.55	18.00	1.109			-0.02	0.704	0.781
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	0mm	Ant 4	Reduced	507000	2535	17.59	18.00	1.099			0.13	0.852	0.936
	FR1 n7	20M	QPSK	50	28	SCS_15KHZ	Back	0mm	Ant 4	Reduced	507000	2535	17.55	18.00	1.109			-0.08	0.928	1.029
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Back	10mm	Ant 4	Full	507000	2535	23.55	24.00	1.109			0.07	0.563	0.624
	FR1 n7	20M	QPSK	1	1	SCS_15KHZ	Top Side	8mm	Ant 4	Full	507000	2535	23.55	24.00	1.109			0.07	0.803	0.891



**FCC SAR Test Report**

**Report No. : FA152401**

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
3500MHz																				
87	LTE Band 42	20M	QPSK	1	0	-	Front	0mm	Ant 5	Reduced	42590	3500	20.94	22.00	1.276	62.9	1.006	0.04	1.660	2.132
	LTE Band 42	20M	QPSK	1	0	-	Front	0mm	Ant 5	Reduced	42190	3460	20.87	22.00	1.297	62.9	1.006	0.02	1.820	<b>2.375</b>
	LTE Band 42	20M	QPSK	1	0	-	Front	0mm	Ant 5	Reduced	42990	3540	20.71	22.00	1.346	62.9	1.006	-0.09	1.560	2.112
	LTE Band 42	20M	QPSK	50	0	-	Front	0mm	Ant 5	Reduced	42590	3500	19.97	21.00	1.268	62.9	1.006	0.09	1.360	1.734
	LTE Band 42	20M	QPSK	100	0	-	Front	0mm	Ant 5	Reduced	42590	3500	19.95	21.00	1.274	62.9	1.006	0.02	1.410	1.806
	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 5	Reduced	42590	3500	20.94	22.00	1.276	62.9	1.006	0.09	1.050	1.348
	LTE Band 42	20M	QPSK	50	0	-	Back	0mm	Ant 5	Reduced	42590	3500	19.97	21.00	1.268	62.9	1.006	-0.1	0.958	1.222
	LTE Band 42	20M	QPSK	1	0	-	Right Side	0mm	Ant 5	Full	42590	3500	22.92	24.00	1.282	62.9	1.006	0.07	0.963	1.242
	LTE Band 42	20M	QPSK	50	0	-	Right Side	0mm	Ant 5	Full	42590	3500	21.73	23.00	1.340	62.9	1.006	0.08	0.891	1.201
	LTE Band 42	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	Reduced	42590	3500	20.94	22.00	1.276	62.9	1.006	0.16	1.210	1.554
	LTE Band 42	20M	QPSK	50	0	-	Top Side	0mm	Ant 5	Reduced	42590	3500	19.97	21.00	1.268	62.9	1.006	-0.17	0.980	1.250
	LTE Band 42	20M	QPSK	1	0	-	Front	2mm	Ant 5	Full	42190	3460	22.53	24.00	1.403	62.9	1.006	0.03	1.680	2.371
	LTE Band 42	20M	QPSK	1	0	-	Back	4mm	Ant 5	Full	42590	3500	22.92	24.00	1.282	62.9	1.006	0.11	1.810	2.335
	LTE Band 42	20M	QPSK	1	0	-	Top Side	4mm	Ant 5	Full	42590	3500	22.92	24.00	1.282	62.9	1.006	0.09	1.630	2.103
FR1 n77																				
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Right Side	0mm	Ant 5	Full	656000	3840	26.44	27.00	1.138			0.05	1.100	1.251
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Right Side	0mm	Ant 5	Full	656000	3840	26.24	27.00	1.191			0.06	0.979	1.166
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	656000	3840	20.55	21.00	1.109			-0.1	1.040	1.154
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	656000	3840	20.49	21.00	1.125			-0.08	1.000	1.125
88	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	4mm	Ant 5	Full	656000	3840	26.44	27.00	1.138			0.06	2.050	<b>2.332</b>
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	4mm	Ant 5	Full	656000	3840	26.24	27.00	1.191			-0.01	1.950	2.323
	FR1 n77	100M	QPSK	270	0	SCS_30KHZ	Top Side	4mm	Ant 5	Full	656000	3840	25.43	26.00	1.140			0.09	1.780	2.030
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Right Side	0mm	Ant 5	Full	633334	3500.01	26.39	27.00	1.151			0.04	1.030	1.185
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Right Side	0mm	Ant 5	Full	633334	3500.01	26.11	27.00	1.227			0.05	0.979	1.202
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	633334	3500.01	19.05	21.00	1.567			0.03	0.752	1.178
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	633334	3500.01	18.94	21.00	1.607			0.04	0.741	1.191
	FR1 n77	100M	QPSK	1	1	SCS_30KHZ	Top Side	4mm	Ant 5	Full	633334	3500.01	26.39	27.00	1.151			0.01	1.410	1.623
	FR1 n77	100M	QPSK	135	69	SCS_30KHZ	Top Side	4mm	Ant 5	Full	633334	3500.01	26.11	27.00	1.227			0.01	1.350	1.657
FR1 n78																				
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	0mm	Ant 5	Reduced	650000	3750	23.45	24.00	1.135			0.09	1.950	2.213
89	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	0mm	Ant 5	Reduced	650000	3750	23.44	24.00	1.138			0.01	2.380	<b>2.708</b>
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	0mm	Ant 5	Reduced	650000	3750	23.25	24.00	1.189			0.1	2.190	2.603
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	0mm	Ant 5	Reduced	650000	3750	23.45	24.00	1.135			-0.07	1.330	1.510
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	0mm	Ant 5	Reduced	650000	3750	23.44	24.00	1.138			-0.14	1.660	1.888
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	0mm	Ant 5	Reduced	650000	3750	23.25	24.00	1.189			-0.17	1.530	1.818
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	650000	3750	23.45	24.00	1.135			0.05	1.480	1.680
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	650000	3750	23.44	24.00	1.138			-0.06	1.560	1.775
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	650000	3750	23.25	24.00	1.189			0.17	1.590	1.890
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	2mm	Ant 5	Full	650000	3750	25.78	27.00	1.324			0.03	1.950	2.582
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	4mm	Ant 5	Full	650000	3750	25.78	27.00	1.324			0.05	1.980	2.622
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	4mm	Ant 5	Full	650000	3750	25.78	27.00	1.324			0.02	2.020	2.675
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Front	0mm	Ant 5	Reduced	633334	3500.01	22.05	24.00	1.567			-0.03	1.520	2.381
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	0mm	Ant 5	Reduced	633334	3500.01	22.01	24.00	1.581			-0.1	1.610	2.546
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	0mm	Ant 5	Reduced	633334	3500.01	22.00	24.00	1.585			0.02	1.630	2.583
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	0mm	Ant 5	Reduced	633334	3500.01	22.05	24.00	1.567			0.08	0.899	1.409
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Back	0mm	Ant 5	Reduced	633334	3500.01	22.01	24.00	1.581			0.08	1.070	1.692
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Right Side	0mm	Ant 5	Full	633334	3500.01	25.77	27.00	1.327			0.02	1.010	1.341
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Right Side	0mm	Ant 5	Full	633334	3500.01	25.56	27.00	1.393			0.13	0.972	1.354
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Back	0mm	Ant 5	Reduced	633334	3500.01	22.00	24.00	1.585			-0.17	1.100	1.743
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	633334	3500.01	22.05	24.00	1.567			0.02	1.030	1.614
	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	633334	3500.01	22.01	24.00	1.581			-0.04	1.070	1.692
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Top Side	0mm	Ant 5	Reduced	633334	3500.01	22.00	24.00	1.585			0.14	1.160	1.838
	FR1 n78	100M	QPSK	270	0	SCS_30KHZ	Front	2mm	Ant 5	Full	633334	3500.01	25.77	27.00	1.327			-0.06	1.830	2.429
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	4mm	Ant 5	Full	633334	3500.01	25.77	27.00	1.327			0.16	1.580	2.097
	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Top Side	4mm	Ant 5	Full	633334	3500.01	25.77	27.00	1.327			0.07	1.870	2.482



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
WLAN																
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	0mm	Ant 3	Full	54	5270	16.04	18.00	1.570	97.75	1.023	0.06	0.133	0.214
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	0mm	Ant 3	Full	54	5270	16.04	18.00	1.570	97.75	1.023	-0.15	0.114	0.183
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Side	0mm	Ant 3	Full	54	5270	16.04	18.00	1.570	97.75	1.023	0.02	0.122	0.196
90	WLAN5.3GHz	802.11ac-VHT40 MCS0	Top Side	0mm	Ant 3	Full	54	5270	16.04	18.00	1.570	97.75	1.023	-0.05	0.610	0.980
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant 3	Full	138	5690	16.22	18.00	1.507	94.75	1.055	-0.06	0.273	0.434
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 3	Full	138	5690	16.22	18.00	1.507	94.75	1.055	0.02	0.187	0.297
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant 3	Full	138	5690	16.22	18.00	1.507	94.75	1.055	-0.08	0.131	0.208
91	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3	Full	138	5690	16.22	18.00	1.507	94.75	1.055	-0.03	0.661	1.051
92	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 3	Standalone	155	5775	16.82	18.00	1.312	94.75	1.055	0.05	0.568	0.786

### 15.5 Repeated SAR Measurement

#### <1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 12	10M	QPSK	1	0		Right Cheek	0mm	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169		1.000	-0.03	1.110	1	1.298
2nd	LTE Band 12	10M	QPSK	1	0		Right Cheek	0mm	Ant 4	Reduced	23095	707.5	21.82	22.50	1.169		1.000	-0.02	1.020	1.088	1.193
1st	GSM850					GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	Reduced	251	848.8	24.49	25.00	1.125		1.000	-0.09	1.150	1	1.293
2nd	GSM850					GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	Reduced	251	848.8	24.49	25.00	1.125		1.000	-0.09	1.060	1.085	1.192
1st	WCDMA II					RMC 12.2Kbps	Right Cheek	0mm	Ant 4	Reduced	9262	1852.4	21.62	22.00	1.091		1.000	-0.02	1.200	1	1.310
2nd	WCDMA II					RMC 12.2Kbps	Right Cheek	0mm	Ant 4	Reduced	9262	1852.4	21.62	22.00	1.091		1.000	-0.09	1.130	1.062	1.233
1st	LTE Band 4	20M	QPSK	1	0		Bottom Side	5mm	Ant 0	Reduced	20175	1732.5	18.36	19.00	1.159		1.000	-0.06	1.120	1	1.298
2nd	LTE Band 4	20M	QPSK	1	0		Bottom Side	5mm	Ant 0	Reduced	20175	1732.5	18.36	19.00	1.159		1.000	0.09	1.050	1.067	1.217
1st	LTE Band 41	20M	QPSK	1	0		Back	5mm	Ant 1	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	-0.13	1.050	1	1.412
2nd	LTE Band 41	20M	QPSK	1	0		Back	5mm	Ant 1	Reduced	40185	2549.5	19.24	20.50	1.337	62.9	1.006	-0.03	0.985	1.066	1.324
1st	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	Full	650000	3750	25.78	27.00	1.324		1.000	0.01	1.060	1	1.404
2nd	FR1 n78	100M	QPSK	1	1	SCS_30KHZ	Back	13mm	Ant 5	Full	650000	3750	25.78	27.00	1.324		1.000	-0.06	0.986	1.075	1.306
1st	WLAN5.5GHz					802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Full	138	5690	16.22	18.00	1.000	94.75	1.055	0.03	0.806	1	0.850
2nd	WLAN5.5GHz					802.11ac-VHT80 MCS0	Front	5mm	Ant 3	Full	138	5690	16.22	18.00	1.000	94.75	1.055	-0.01	0.752	1.072	0.793

#### <10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	GSM850					GPRS (4 Tx slots)	Front	0mm	Ant 4	Full	251	848.8	28.36	29.00	1.159		1.000	0.04	2.690	1	3.117
2nd	GSM850					GPRS (4 Tx slots)	Front	0mm	Ant 4	Full	251	848.8	28.36	29.00	1.159		1.000	-0.03	2.530	1.063	2.932
1st	WCDMA IV					RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Reduced	1513	1752.6	21.54	22.00	1.112		1.000	-0.04	2.970	1	3.302
2nd	WCDMA IV					RMC 12.2Kbps	Bottom Side	0mm	Ant 0	Reduced	1513	1752.6	21.54	22.00	1.112		1.000	-0.09	2.810	1.057	3.124
1st	GSM1900					GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	512	1850.2	24.81	25.50	1.172		1.000	-0.02	3.050	1	3.575
2nd	GSM1900					GPRS (4 Tx slots)	Back	0mm	Ant 0	Reduced	512	1850.2	24.81	25.50	1.172		1.000	-0.09	2.890	1.055	3.388
1st	LTE Band 41	20M	QPSK	1	0		Back	0mm	Ant 1	Reduced	40185	2549.5	22.88	23.50	1.153	62.9	1.006	-0.03	2.570	1	2.982
2nd	LTE Band 41	20M	QPSK	1	0		Back	0mm	Ant 1	Reduced	40185	2549.5	22.88	23.50	1.153	62.9	1.006	0.09	2.420	1.062	2.808
1st	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	0mm	Ant 5	Reduced	650000	3750	23.44	24.00	1.138		1.000	0.01	2.380	1	2.708
2nd	FR1 n78	100M	QPSK	135	69	SCS_30KHZ	Front	0mm	Ant 5	Reduced	650000	3750	23.44	24.00	1.138		1.000	-0.06	2.170	1.097	2.469

#### General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is  $\leq 1.2$  and the measured SAR  $< 1.45$ W/kg, only one repeated measurement is required.





3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

## 16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes

### General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. WWAN above includes 5G NR bands.
3. EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. 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.
5. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
6. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
7. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
8. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
9. According to the EUT characteristic, WLAN 5GHz and Bluetooth can't transmit simultaneously.
10. 5G NR NSA EN-DC mode, standalone SAR performed for 5GNR band with the maximum power, EN-DC SAR summed 5GNR standalone SAR and LTE standalone SAR , the result of EN-DC SAR is more conservatively.
11. The maximum SAR summation is calculated based on the same configuration and test position.
12. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
  - i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
  - ii)  $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ , where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - iii) If  $SPLSR \leq 0.04$  for 1g SAR and  $SPLSR \leq 0.10$  for 10g SAR , simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
  - v) The SPLSR calculated results please refer to section 16.5.



16.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3	1+4
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 12Ant 0	Right Cheek	0.182	0.172	0.279	0.179	0.35	0.46	0.36
	Right Tilted	0.134	0.163	0.338	0.179	0.30	0.47	0.31
	Left Cheek	0.179	0.356	0.371	0.179	0.54	0.55	0.36
	Left Tilted	0.099	0.452	0.395	0.179	0.55	0.49	0.28
LTE Band 13Ant 0	Right Cheek	0.368	0.172	0.279	0.179	0.54	0.65	0.55
	Right Tilted	0.257	0.163	0.338	0.179	0.42	0.60	0.44
	Left Cheek	0.342	0.356	0.371	0.179	0.70	0.71	0.52
	Left Tilted	0.206	0.452	0.395	0.179	0.66	0.60	0.39
LTE Band 12Ant 4	Right Cheek	1.298	0.172	0.279	0.179	1.47	1.58	1.48
	Right Tilted	1.141	0.163	0.338	0.179	1.30	1.48	1.32
	Left Cheek	0.876	0.356	0.371	0.179	1.23	1.25	1.06
	Left Tilted	0.918	0.452	0.395	0.179	1.37	1.31	1.10
GSM850Ant 0	Right Cheek	0.679	0.172	0.279	0.179	0.85	0.96	0.86
	Right Tilted	0.410	0.163	0.338	0.179	0.57	0.75	0.59
	Left Cheek	0.639	0.356	0.371	0.179	1.00	1.01	0.82
	Left Tilted	0.383	0.452	0.395	0.179	0.84	0.78	0.56
WCDMA VAnt 0	Right Cheek	0.472	0.172	0.279	0.179	0.64	0.75	0.65
	Right Tilted	0.232	0.163	0.338	0.179	0.40	0.57	0.41
	Left Cheek	0.341	0.356	0.371	0.179	0.70	0.71	0.52
	Left Tilted	0.216	0.452	0.395	0.179	0.67	0.61	0.40
LTE Band 26Ant 0	Right Cheek	0.199	0.172	0.279	0.179	0.37	0.48	0.38
	Right Tilted	0.094	0.163	0.338	0.179	0.26	0.43	0.27
	Left Cheek	0.192	0.356	0.371	0.179	0.55	0.56	0.37
	Left Tilted	0.103	0.452	0.395	0.179	0.56	0.50	0.28
GSM850Ant 4	Right Cheek	1.293	0.172	0.279	0.179	1.47	1.57	1.47
	Right Tilted	0.958	0.163	0.338	0.179	1.12	1.30	1.14
	Left Cheek	1.114	0.356	0.371	0.179	1.47	1.49	1.29
	Left Tilted	0.610	0.452	0.395	0.179	1.06	1.01	0.79
WCDMA VAnt 4	Right Cheek	1.195	0.172	0.279	0.179	1.37	1.47	1.37
	Right Tilted	1.206	0.163	0.338	0.179	1.37	1.54	1.39
	Left Cheek	0.919	0.356	0.371	0.179	1.28	1.29	1.10
	Left Tilted	0.940	0.452	0.395	0.179	1.39	1.34	1.12
LTE Band 26Ant 4	Right Cheek	1.286	0.172	0.279	0.179	1.46	1.57	1.47
	Right Tilted	0.921	0.163	0.338	0.179	1.08	1.26	1.10
	Left Cheek	1.103	0.356	0.371	0.179	1.46	1.47	1.28
	Left Tilted	0.734	0.452	0.395	0.179	1.19	1.13	0.91
WCDMA IVAnt 0	Right Cheek	0.242	0.172	0.279	0.179	0.41	0.52	0.42
	Right Tilted	0.124	0.163	0.338	0.179	0.29	0.46	0.30
	Left Cheek	0.202	0.356	0.371	0.179	0.56	0.57	0.38
	Left Tilted	0.174	0.452	0.395	0.179	0.63	0.57	0.35
LTE Band 4Ant 0	Right Cheek	0.236	0.172	0.279	0.179	0.41	0.52	0.42
	Right Tilted	0.197	0.163	0.338	0.179	0.36	0.54	0.38
	Left Cheek	0.203	0.356	0.371	0.179	0.56	0.57	0.38
	Left Tilted	0.208	0.452	0.395	0.179	0.66	0.60	0.39
LTE Band 66Ant 4	Right Cheek	1.289	0.172	0.279	0.179	1.46	1.57	1.47
	Right Tilted	1.003	0.163	0.338	0.179	1.17	1.34	1.18
	Left Cheek	0.604	0.356	0.371	0.179	0.96	0.98	0.78
	Left Tilted	0.720	0.452	0.395	0.179	1.17	1.12	0.90
GSM1900Ant 0	Right Cheek	0.061	0.172	0.279	0.179	0.23	0.34	0.24
	Right Tilted	0.060	0.163	0.338	0.179	0.22	0.40	0.24
	Left Cheek	0.067	0.356	0.371	0.179	0.42	0.44	0.25



	Left Tilted	0.069	0.452	0.395	0.179	0.52	0.46	0.25
WCDMA II Ant 4	Right Cheek	1.310	0.172	0.279	0.179	1.48	1.59	1.49
	Right Tilted	1.244	0.163	0.338	0.179	1.41	1.58	1.42
	Left Cheek	0.776	0.356	0.371	0.179	1.13	1.15	0.96
	Left Tilted	0.890	0.452	0.395	0.179	1.34	1.29	1.07
LTE Band 2 Ant 4	Right Cheek	1.310	0.172	0.279	0.179	1.48	1.59	1.49
	Right Tilted	0.947	0.163	0.338	0.179	1.11	1.29	1.13
	Left Cheek	0.699	0.356	0.371	0.179	1.06	1.07	0.88
	Left Tilted	0.734	0.452	0.395	0.179	1.19	1.13	0.91
LTE Band 7 Ant 1	Right Cheek	0.182	0.172	0.279	0.179	0.35	0.46	0.36
	Right Tilted	0.243	0.163	0.338	0.179	0.41	0.58	0.42
	Left Cheek	0.266	0.356	0.371	0.179	0.62	0.64	0.45
	Left Tilted	0.137	0.452	0.395	0.179	0.59	0.53	0.32
LTE Band 41 Ant 1	Right Cheek	0.181	0.172	0.279	0.179	0.35	0.46	0.36
	Right Tilted	0.228	0.163	0.338	0.179	0.39	0.57	0.41
	Left Cheek	0.248	0.356	0.371	0.179	0.60	0.62	0.43
	Left Tilted	0.137	0.452	0.395	0.179	0.59	0.53	0.32
LTE Band 42 Ant 5	Right Cheek	0.988	0.172	0.279	0.179	1.16	1.27	1.17
	Right Tilted	0.978	0.163	0.338	0.179	1.14	1.32	1.16
	Left Cheek	0.583	0.356	0.371	0.179	0.94	0.95	0.76
	Left Tilted	0.553	0.452	0.395	0.179	1.01	0.95	0.73
FR1 n78 Ant 5	Right Cheek	0.800	0.172	0.279	0.179	0.97	1.08	0.98
	Right Tilted	0.828	0.163	0.338	0.179	0.99	1.17	1.01
	Left Cheek	1.046	0.356	0.371	0.179	1.40	1.42	1.23
	Left Tilted	1.043	0.452	0.395	0.179	1.50	1.44	1.22



EN-DC

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2Ant 4	FR1 n7Ant 1	Right Cheek	0.581	0.223	0.172	0.279	0.179	0.98	1.08	0.98
		Right Tilted	0.416	0.227	0.163	0.338	0.179	0.81	0.98	0.82
		Left Cheek	0.312	0.258	0.356	0.371	0.179	0.93	0.94	0.75
		Left Tilted	0.327	0.146	0.452	0.395	0.179	0.93	0.87	0.65
LTE Band 4Ant 0	FR1 n77Ant 5(FR1 n78)	Right Cheek	0.198	0.379	0.172	0.279	0.179	0.75	0.86	0.76
		Right Tilted	0.109	0.376	0.163	0.338	0.179	0.65	0.82	0.66
		Left Cheek	0.192	0.414	0.356	0.371	0.179	0.96	0.98	0.79
		Left Tilted	0.156	0.474	0.452	0.395	0.179	1.08	1.03	0.81
LTE Band 5Ant 0	FR1 n7Ant 4	Right Cheek	0.224	0.419	0.172	0.279	0.179	0.82	0.92	0.82
		Right Tilted	0.138	0.550	0.163	0.338	0.179	0.85	1.03	0.87
		Left Cheek	0.201	0.163	0.356	0.371	0.179	0.72	0.74	0.54
		Left Tilted	0.119	0.204	0.452	0.395	0.179	0.78	0.72	0.50
LTE Band 5Ant 0	FR1 n66Ant 4	Right Cheek	0.224	0.540	0.172	0.279	0.179	0.94	1.04	0.94
		Right Tilted	0.138	0.313	0.163	0.338	0.179	0.61	0.79	0.63
		Left Cheek	0.201	0.287	0.356	0.371	0.179	0.84	0.86	0.67
		Left Tilted	0.119	0.271	0.452	0.395	0.179	0.84	0.79	0.57
LTE Band 5Ant 0	FR1 n77Ant 5(FR1 n78)	Right Cheek	0.224	0.379	0.172	0.279	0.179	0.78	0.88	0.78
		Right Tilted	0.138	0.376	0.163	0.338	0.179	0.68	0.85	0.69
		Left Cheek	0.201	0.414	0.356	0.371	0.179	0.97	0.99	0.79
		Left Tilted	0.119	0.474	0.452	0.395	0.179	1.05	0.99	0.77
LTE Band 7Ant 1	FR1 n66Ant 0	Right Cheek	0.182	0.199	0.172	0.279	0.179	0.55	0.66	0.56
		Right Tilted	0.243	0.098	0.163	0.338	0.179	0.50	0.68	0.52
		Left Cheek	0.259	0.153	0.356	0.371	0.179	0.77	0.78	0.59
		Left Tilted	0.137	0.115	0.452	0.395	0.179	0.70	0.65	0.43
LTE Band 7Ant 4	FR1 n5Ant 0	Right Cheek	0.426	0.240	0.172	0.279	0.179	0.84	0.95	0.85
		Right Tilted	0.543	0.097	0.163	0.338	0.179	0.80	0.98	0.82
		Left Cheek	0.164	0.217	0.356	0.371	0.179	0.74	0.75	0.56
		Left Tilted	0.213	0.107	0.452	0.395	0.179	0.77	0.72	0.50
LTE Band 7Ant 1	FR1 n77Ant 5(FR1 n78)	Right Cheek	0.182	0.379	0.172	0.279	0.179	0.73	0.84	0.74
		Right Tilted	0.243	0.376	0.163	0.338	0.179	0.78	0.96	0.80
		Left Cheek	0.259	0.414	0.356	0.371	0.179	1.03	1.04	0.85
		Left Tilted	0.137	0.474	0.452	0.395	0.179	1.06	1.01	0.79
LTE Band 66Ant 4	FR1 n7Ant 1	Right Cheek	0.561	0.223	0.172	0.279	0.179	0.96	1.06	0.96
		Right Tilted	0.393	0.227	0.163	0.338	0.179	0.78	0.96	0.80
		Left Cheek	0.263	0.258	0.356	0.371	0.179	0.88	0.89	0.70
		Left Tilted	0.313	0.146	0.452	0.395	0.179	0.91	0.85	0.64
LTE Band 41Ant 1	FR1 n77Ant 5	Right Cheek	0.181	0.379	0.172	0.279	0.179	0.73	0.84	0.74
		Right Tilted	0.228	0.376	0.163	0.338	0.179	0.77	0.94	0.78
		Left Cheek	0.248	0.414	0.356	0.371	0.179	1.02	1.03	0.84
		Left Tilted	0.137	0.474	0.452	0.395	0.179	1.06	1.01	0.79
LTE Band 41Ant 1	FR1 n78Ant 5	Right Cheek	0.181	0.379	0.172	0.279	0.179	0.73	0.84	0.74
		Right Tilted	0.228	0.376	0.163	0.338	0.179	0.77	0.94	0.78
		Left Cheek	0.248	0.414	0.356	0.371	0.179	1.02	1.03	0.84
		Left Tilted	0.137	0.474	0.452	0.395	0.179	1.06	1.01	0.79



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	3	4	5	1+3	1+4	1+5	Case No
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
LTE Band 12Ant 0	Front	0.281	0.270	0.155	0.147	0.55	0.44	0.43	
	Back	0.409	0.295	0.153	0.147	0.70	0.56	0.56	
	Left side	0.296			0.147	0.30	0.30	0.44	
	Right side	0.380	0.278	0.094	0.147	0.66	0.47	0.53	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.305			0.147	0.31	0.31	0.45	
LTE Band 13Ant 0	Front	0.573	0.270	0.155	0.147	0.84	0.73	0.72	
	Back	0.801	0.295	0.153	0.147	1.10	0.95	0.95	
	Left side	0.383			0.147	0.38	0.38	0.53	
	Right side	0.486	0.278	0.094	0.147	0.76	0.58	0.63	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.522			0.147	0.52	0.52	0.67	
LTE Band 12Ant 4	Front	0.748	0.270	0.155	0.147	1.02	0.90	0.90	
	Back	1.254	0.295	0.153	0.147	1.55	1.41	1.40	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.273	0.278	0.094	0.147	0.55	0.37	0.42	
	Top side	0.852	0.263	0.419	0.147	1.12	1.27	1.00	
	Bottom side				0.147	0.00	0.00	0.15	
GSM850Ant 0	Front	0.835	0.270	0.155	0.147	1.11	0.99	0.98	
	Back	1.320	0.295	0.153	0.147	1.62	1.47	1.47	#01
	Left side	0.339			0.147	0.34	0.34	0.49	
	Right side	0.525	0.278	0.094	0.147	0.80	0.62	0.67	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	1.004			0.147	1.00	1.00	1.15	
WCDMA Vant 0	Front	0.635	0.270	0.155	0.147	0.91	0.79	0.78	
	Back	1.359	0.295	0.153	0.147	1.65	1.51	1.51	#02
	Left side	0.249			0.147	0.25	0.25	0.40	
	Right side	0.414	0.278	0.094	0.147	0.69	0.51	0.56	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.735			0.147	0.74	0.74	0.88	
LTE Band 26Ant 0	Front	0.357	0.270	0.155	0.147	0.63	0.51	0.50	
	Back	0.843	0.295	0.153	0.147	1.14	1.00	0.99	
	Left side	0.163			0.147	0.16	0.16	0.31	
	Right side	0.308	0.278	0.094	0.147	0.59	0.40	0.46	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.419			0.147	0.42	0.42	0.57	
GSM850Ant 4	Front	1.128	0.270	0.155	0.147	1.40	1.28	1.28	
	Back	1.263	0.295	0.153	0.147	1.56	1.42	1.41	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.422	0.278	0.094	0.147	0.70	0.52	0.57	
	Top side	1.169	0.263	0.419	0.147	1.43	1.59	1.32	
	Bottom side				0.147	0.00	0.00	0.15	
WCDMA Vant 4	Front	0.602	0.270	0.155	0.147	0.87	0.76	0.75	
	Back	0.535	0.295	0.153	0.147	0.83	0.69	0.68	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.153	0.278	0.094	0.147	0.43	0.25	0.30	
	Top side	1.039	0.263	0.419	0.147	1.30	1.46	1.19	
	Bottom side				0.147	0.00	0.00	0.15	
LTE Band 26Ant 4	Front	0.580	0.270	0.155	0.147	0.85	0.74	0.73	
	Back	0.251	0.295	0.153	0.147	0.55	0.40	0.40	



	Left side				0.147	0.00	0.00	0.15	
	Right side	0.482	0.278	0.094	0.147	0.76	0.58	0.63	
	Top side	0.737	0.263	0.419	0.147	1.00	1.16	0.88	
	Bottom side				0.147	0.00	0.00	0.15	
WCDMA IV Ant 0	Front	1.298	0.270	0.155	0.147	1.57	1.45	1.45	
	Back	1.237	0.295	0.153	0.147	1.53	1.39	1.38	
	Left side	0.075			0.147	0.08	0.08	0.22	
	Right side	0.181	0.278	0.094	0.147	0.46	0.28	0.33	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	1.423			0.147	1.42	1.42	1.57	
LTE Band 4 Ant 0	Front	1.220	0.270	0.155	0.147	1.49	1.38	1.37	
	Back	1.108	0.295	0.153	0.147	1.40	1.26	1.26	
	Left side	0.085			0.147	0.09	0.09	0.23	
	Right side	0.214	0.278	0.094	0.147	0.49	0.31	0.36	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	1.298			0.147	1.30	1.30	1.45	
LTE Band 66 Ant 4	Front	1.027	0.270	0.155	0.147	1.30	1.18	1.17	
	Back	1.160	0.295	0.153	0.147	1.46	1.31	1.31	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.174	0.278	0.094	0.147	0.45	0.27	0.32	
	Top side	1.156	0.263	0.419	0.147	1.42	1.58	1.30	
	Bottom side				0.147	0.00	0.00	0.15	
GSM1900 Ant 0	Front	0.891	0.270	0.155	0.147	1.16	1.05	1.04	
	Back	1.305	0.295	0.153	0.147	1.60	1.46	1.45	#03
	Left side	0.029			0.147	0.03	0.03	0.18	
	Right side	0.023	0.278	0.094	0.147	0.30	0.12	0.17	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.953			0.147	0.95	0.95	1.10	
WCDMA II Ant 4	Front	1.118	0.270	0.155	0.147	1.39	1.27	1.27	
	Back	1.257	0.295	0.153	0.147	1.55	1.41	1.40	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.133	0.278	0.094	0.147	0.41	0.23	0.28	
	Top side	1.169	0.263	0.419	0.147	1.43	1.59	1.32	
	Bottom side				0.147	0.00	0.00	0.15	
LTE Band 2 Ant 4	Front	0.768	0.270	0.155	0.147	1.04	0.92	0.92	
	Back	1.254	0.295	0.153	0.147	1.55	1.41	1.40	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.123	0.278	0.094	0.147	0.40	0.22	0.27	
	Top side	0.929	0.263	0.419	0.147	1.19	1.35	1.08	
	Bottom side				0.147	0.00	0.00	0.15	
LTE Band 7 Ant 1	Front	0.784	0.270	0.155	0.147	1.05	0.94	0.93	
	Back	1.265	0.295	0.153	0.147	1.56	1.42	1.41	
	Left side	0.506			0.147	0.51	0.51	0.65	
	Right side		0.278	0.094	0.147	0.28	0.09	0.15	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.362			0.147	0.36	0.36	0.51	
LTE Band 41 Ant 1	Front	0.919	0.270	0.155	0.147	1.19	1.07	1.07	
	Back	1.412	0.295	0.153	0.147	1.71	1.57	1.56	#04
	Left side	0.616			0.147	0.62	0.62	0.76	
	Right side		0.278	0.094	0.147	0.28	0.09	0.15	
	Top side		0.263	0.419	0.147	0.26	0.42	0.15	
	Bottom side	0.296			0.147	0.30	0.30	0.44	
LTE Band 42 Ant 5	Front	0.794	0.270	0.155	0.147	1.06	0.95	0.94	
	Back	1.019	0.295	0.153	0.147	1.31	1.17	1.17	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.305	0.278	0.094	0.147	0.58	0.40	0.45	



	Top side	0.997	0.263	0.419	0.147	1.26	1.42	1.14	
	Bottom side				0.147	0.00	0.00	0.15	
FR1 n78Ant 5	Front	0.997	0.270	0.155	0.147	1.27	1.15	1.14	
	Back	0.574	0.295	0.153	0.147	0.87	0.73	0.72	
	Left side				0.147	0.00	0.00	0.15	
	Right side	0.367	0.278	0.094	0.147	0.65	0.46	0.51	
	Top side	0.882	0.263	0.419	0.147	1.15	1.30	1.03	
	Bottom side				0.147	0.00	0.00	0.15	

EN-DC

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2Ant 4	FR1 n7Ant 1	Front	0.346	0.335	0.270	0.155	0.147	0.95	0.84	0.83
		Back	0.589	0.581	0.295	0.153	0.147	1.47	1.32	1.32
		Left side	0.170	0.247			0.147	0.42	0.42	0.56
		Right side			0.278	0.094	0.147	0.28	0.09	0.15
		Top side	0.385		0.263	0.419	0.147	0.65	0.80	0.53
		Bottom side		0.197			0.147	0.20	0.20	0.34
LTE Band 4(66)Ant 0	FR1 n77 Ant 5 (FR1 n78)	Front	0.400	0.544	0.270	0.155	0.147	1.21	1.10	1.09
		Back	0.459	0.493	0.295	0.153	0.147	1.25	1.11	1.10
		Left side	0.027				0.147	0.03	0.03	0.17
		Right side	0.062	0.160	0.278	0.094	0.147	0.50	0.32	0.37
		Top side		0.473	0.263	0.419	0.147	0.74	0.89	0.62
		Bottom side	0.416				0.147	0.42	0.42	0.56
LTE Band 5Ant 0	FR1 n7Ant 4	Front	0.425	0.250	0.270	0.155	0.147	0.95	0.83	0.82
		Back	0.546	0.558	0.295	0.153	0.147	1.40	1.26	1.25
		Left side	0.167	0.315			0.147	0.48	0.48	0.63
		Right side	0.279		0.278	0.094	0.147	0.56	0.37	0.43
		Top side		0.504	0.263	0.419	0.147	0.77	0.92	0.65
		Bottom side	0.526				0.147	0.53	0.53	0.67
LTE Band 5Ant 0	FR1 n66Ant 4	Front	0.425	0.338	0.270	0.155	0.147	1.03	0.92	0.91
		Back	0.546	0.569	0.295	0.153	0.147	1.41	1.27	1.26
		Left side	0.167	0.210			0.147	0.38	0.38	0.52
		Right side	0.279		0.278	0.094	0.147	0.56	0.37	0.43
		Top side		0.325	0.263	0.419	0.147	0.59	0.74	0.47
		Bottom side	0.526				0.147	0.53	0.53	0.67
LTE Band 5Ant 0	FR1 n77 Ant 5 (FR1 n78)	Front	0.425	0.544	0.270	0.155	0.147	1.24	1.12	1.12
		Back	0.546	0.493	0.295	0.153	0.147	1.33	1.19	1.19
		Left side	0.167				0.147	0.17	0.17	0.31
		Right side	0.279	0.160	0.278	0.094	0.147	0.72	0.53	0.59
		Top side		0.473	0.263	0.419	0.147	0.74	0.89	0.62
		Bottom side	0.526				0.147	0.53	0.53	0.67
LTE Band 7Ant 1	FR1 n66Ant 0	Front	0.287	0.537	0.270	0.155	0.147	1.09	0.98	0.97
		Back	0.458	0.592	0.295	0.153	0.147	1.35	1.20	1.20
		Left side	0.186	0.026			0.147	0.21	0.21	0.36
		Right side		0.070	0.278	0.094	0.147	0.35	0.16	0.22
		Top side			0.263	0.419	0.147	0.26	0.42	0.15
		Bottom side	0.133	0.587			0.147	0.72	0.72	0.87
LTE Band 7Ant 4	FR1 n5Ant 0	Front	0.645	0.308	0.270	0.155	0.147	1.22	1.11	1.10
		Back	0.562	0.559	0.295	0.153	0.147	1.42	1.27	1.27
		Left side	0.213	0.130			0.147	0.34	0.34	0.49
		Right side		0.234	0.278	0.094	0.147	0.51	0.33	0.38
		Top side	0.445		0.263	0.419	0.147	0.71	0.86	0.59





		Bottom side		0.303			0.147	0.30	0.30	0.45
LTE Band 7Ant 1	FR1 n77 Ant 5 (FR1 n78)	Front	0.287	0.544	0.270	0.155	0.147	1.10	0.99	0.98
		Back	0.458	0.493	0.295	0.153	0.147	1.25	1.10	1.10
		Left side	0.186				0.147	0.19	0.19	0.33
		Right side		0.160	0.278	0.094	0.147	0.44	0.25	0.31
		Top side		0.473	0.263	0.419	0.147	0.74	0.89	0.62
		Bottom side	0.133				0.147	0.13	0.13	0.28
LTE Band 66Ant 0	FR1 n7Ant 1	Front	0.400	0.335	0.270	0.155	0.147	1.01	0.89	0.88
		Back	0.459	0.581	0.295	0.153	0.147	1.34	1.19	1.19
		Left side	0.027	0.247			0.147	0.27	0.27	0.42
		Right side	0.062		0.278	0.094	0.147	0.34	0.16	0.21
		Top side			0.263	0.419	0.147	0.26	0.42	0.15
		Bottom side	0.416	0.197			0.147	0.61	0.61	0.76
LTE Band 41Ant 1	FR1 n77Ant 5	Front	0.365	0.544	0.270	0.155	0.147	1.18	1.06	1.06
		Back	0.537	0.493	0.295	0.153	0.147	1.33	1.18	1.18
		Left side	0.249				0.147	0.25	0.25	0.40
		Right side		0.160	0.278	0.094	0.147	0.44	0.25	0.31
		Top side		0.473	0.263	0.419	0.147	0.74	0.89	0.62
		Bottom side	0.120				0.147	0.12	0.12	0.27
LTE Band 41Ant 1	FR1 n78 Ant 5	Front	0.365	0.544	0.270	0.155	0.147	1.18	1.06	1.06
		Back	0.537	0.493	0.295	0.153	0.147	1.33	1.18	1.18
		Left side	0.249				0.147	0.25	0.25	0.40
		Right side		0.544	0.278	0.094	0.147	0.82	0.64	0.69
		Top side		0.473	0.263	0.419	0.147	0.74	0.89	0.62
		Bottom side	0.120				0.147	0.12	0.12	0.27



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	3	4	5	1+3	1+4	1+5	Case No
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed	
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
LTE Band 12Ant 0	Front	0.281	0.189	0.262	0.147	0.47	0.54	0.43	
	Back	0.409	0.189	0.330	0.147	0.60	0.74	0.56	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
LTE Band 13Ant 0	Front	0.573	0.189	0.262	0.147	0.76	0.84	0.72	
	Back	0.801	0.189	0.330	0.147	0.99	1.13	0.95	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
LTE Band 12Ant 4	Front	0.748	0.189	0.262	0.147	0.94	1.01	0.90	
	Back	1.254	0.189	0.330	0.147	1.44	1.58	1.40	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.238				1.24	1.24	1.24	
GSM850Ant 0	Front	0.835	0.189	0.262	0.147	1.02	1.10	0.98	
	Back	1.320	0.189	0.330	0.147	1.51	1.65	1.47	#01
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.271				1.27	1.27	1.27	
WCDMA VAnt 0	Front	0.635	0.189	0.262	0.147	0.82	0.90	0.78	
	Back	1.359	0.189	0.330	0.147	1.55	1.69	1.51	#02
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.261				1.26	1.26	1.26	
LTE Band 26Ant 0	Front	0.357	0.189	0.262	0.147	0.55	0.62	0.50	
	Back	0.843	0.189	0.330	0.147	1.03	1.17	0.99	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
GSM850Ant 4	Front	1.128	0.189	0.262	0.147	1.32	1.39	1.28	
	Back	1.263	0.189	0.330	0.147	1.45	1.59	1.41	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.072				1.07	1.07	1.07	
WCDMA VAnt 4	Front	0.602	0.189	0.262	0.147	0.79	0.86	0.75	
	Back	0.535	0.189	0.330	0.147	0.72	0.87	0.68	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
LTE Band 26Ant 4	Front	0.580	0.189	0.262	0.147	0.77	0.84	0.73	
	Back	0.251	0.189	0.330	0.147	0.44	0.58	0.40	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
WCDMA IVAnt 0	Front	1.298	0.189	0.262	0.147	1.49	1.56	1.45	
	Back	1.237	0.189	0.330	0.147	1.43	1.57	1.38	
	Front with Headset	1.157				1.16	1.16	1.16	
	Back with Headset					0.00	0.00	0.00	
LTE Band 4Ant 0	Front	1.220	0.189	0.262	0.147	1.41	1.48	1.37	
	Back	1.108	0.189	0.330	0.147	1.30	1.44	1.26	
	Front with Headset	1.048				1.05	1.05	1.05	
	Back with Headset					0.00	0.00	0.00	
LTE Band 66Ant 4	Front	1.027	0.189	0.262	0.147	1.22	1.29	1.17	
	Back	1.160	0.189	0.330	0.147	1.35	1.49	1.31	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
GSM1900Ant 0	Front	0.891	0.189	0.262	0.147	1.08	1.15	1.04	
	Back	1.305	0.189	0.330	0.147	1.49	1.64	1.45	#03



	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.107				1.11	1.11	1.11	
WCDMA II Ant 4	Front	1.118	0.189	0.262	0.147	1.31	1.38	1.27	
	Back	1.257	0.189	0.330	0.147	1.45	1.59	1.40	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.142				1.14	1.14	1.14	
LTE Band 2 Ant 4	Front	0.768	0.189	0.262	0.147	0.96	1.03	0.92	
	Back	1.254	0.189	0.330	0.147	1.44	1.58	1.40	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.230				1.23	1.23	1.23	
LTE Band 7 Ant 1	Front	0.784	0.189	0.262	0.147	0.97	1.05	0.93	
	Back	1.265	0.189	0.330	0.147	1.45	1.60	1.41	#04
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.105				1.11	1.11	1.11	
LTE Band 41 Ant 1	Front	0.919	0.189	0.262	0.147	1.11	1.18	1.07	
	Back	1.412	0.189	0.330	0.147	1.60	1.74	1.56	#06/#05
	Front with Headset					0.00	0.00	0.00	
	Back with Headset	1.298				1.30	1.30	1.30	
LTE Band 42 Ant 5	Front	0.799	0.189	0.262	0.147	0.99	1.06	0.95	
	Back	1.019	0.189	0.330	0.147	1.21	1.35	1.17	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	
FR1 n78 Ant 5	Front	0.997	0.189	0.262	0.147	1.19	1.26	1.14	
	Back	0.574	0.189	0.330	0.147	0.76	0.90	0.72	
	Front with Headset					0.00	0.00	0.00	
	Back with Headset					0.00	0.00	0.00	

EN-DC

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 4	FR1 n7 Ant 1	Front	0.346	0.335	0.189	0.262	0.147	0.87	0.94	0.83
		Back	0.589	0.581	0.189	0.330	0.147	1.36	1.50	1.32
LTE Band 66 Ant 0 (LTE Band 4)	FR1 n77 Ant 5 (FR1 n78)	Front	0.400	0.513	0.189	0.262	0.147	1.10	1.18	1.06
		Back	0.459	0.493	0.189	0.330	0.147	1.14	1.28	1.10
LTE Band 5 Ant 0	FR1 n7 Ant 4	Front	0.425	0.250	0.189	0.262	0.147	0.86	0.94	0.82
		Back	0.546	0.558	0.189	0.330	0.147	1.29	1.43	1.25
LTE Band 5 Ant 0	FR1 n66 Ant 4	Front	0.425	0.338	0.189	0.262	0.147	0.95	1.03	0.91
		Back	0.546	0.569	0.189	0.330	0.147	1.30	1.45	1.26
LTE Band 5 Ant 0	FR1 n77 Ant 5 (FR1 n78)	Front	0.425	0.513	0.189	0.262	0.147	1.13	1.20	1.09
		Back	0.546	0.493	0.189	0.330	0.147	1.23	1.37	1.19
LTE Band 7 Ant 1	FR1 n66 Ant 0	Front	0.287	0.537	0.189	0.262	0.147	1.01	1.09	0.97
		Back	0.458	0.592	0.189	0.330	0.147	1.24	1.38	1.20
LTE Band 7 Ant 4	FR1 n5 Ant 0	Front	0.645	0.308	0.189	0.262	0.147	1.14	1.22	1.10
		Back	0.562	0.559	0.189	0.330	0.147	1.31	1.45	1.27
LTE Band 7 Ant 1	FR1 n77 Ant 5 (FR1 n78)	Front	0.287	0.513	0.189	0.262	0.147	0.99	1.06	0.95
		Back	0.458	0.493	0.189	0.330	0.147	1.14	1.28	1.10
LTE Band 66 Ant 0	FR1 n7 Ant 1	Front	0.400	0.335	0.189	0.262	0.147	0.92	1.00	0.88
		Back	0.459	0.581	0.189	0.330	0.147	1.23	1.37	1.19
LTE Band 41 Ant 1	FR1 n77 Ant 5	Front	0.365	0.513	0.189	0.262	0.147	1.07	1.14	1.03
		Back	0.537	0.493	0.189	0.330	0.147	1.22	1.36	1.18
LTE Band 41 Ant 1	FR1 n78 Ant 5	Front	0.365	0.513	0.189	0.262	0.147	1.07	1.14	1.03
		Back	0.537	0.493	0.189	0.330	0.147	1.22	1.36	1.18



Sensor Off

WWAN Band	Exposure Position	1	3	4	5	1+3	1+4	1+5
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM850Ant 0	Front at 10mm	1.131	0.247	0.198	0.147	1.38	1.33	1.28
	Back at 13mm	1.001	0.190	0.182	0.147	1.19	1.18	1.15
WCDMA VAnt 0	Front at 10mm	0.398	0.247	0.198	0.147	0.65	0.60	0.55
	Back at 13mm	0.419	0.190	0.182	0.147	0.61	0.60	0.57
GSM850Ant 4	Front at 10mm	0.942	0.247	0.198	0.147	1.19	1.14	1.09
	Back at 13mm	0.898	0.190	0.182	0.147	1.09	1.08	1.05
WCDMA IVAnt 0	Front at 10mm	1.251	0.247	0.198	0.147	1.50	1.45	1.40
	Back at 13mm	0.987	0.190	0.182	0.147	1.18	1.17	1.13
LTE Band 4Ant 0	Front at 10mm	1.189	0.247	0.198	0.147	1.44	1.39	1.34
	Back at 13mm	0.917	0.190	0.182	0.147	1.11	1.10	1.06
LTE Band 66Ant 4	Front at 10mm	0.777	0.247	0.198	0.147	1.02	0.98	0.92
	Back at 13mm	0.759	0.190	0.182	0.147	0.95	0.94	0.91
GSM1900Ant 0	Front at 10mm	1.239	0.247	0.198	0.147	1.49	1.44	1.39
	Back at 13mm	1.181	0.190	0.182	0.147	1.37	1.36	1.33
WCDMA IIAnt 4	Front at 10mm	1.063	0.247	0.198	0.147	1.31	1.26	1.21
	Back at 13mm	0.798	0.190	0.182	0.147	0.99	0.98	0.95
LTE Band 2Ant 4	Front at 10mm	1.249	0.247	0.198	0.147	1.50	1.45	1.40
	Back at 13mm	1.147	0.190	0.182	0.147	1.34	1.33	1.29
LTE Band 7Ant 1	Front at 10mm	1.175	0.247	0.198	0.147	1.42	1.37	1.32
	Back at 13mm	1.142	0.190	0.182	0.147	1.33	1.32	1.29
LTE Band 41Ant 1	Front at 10mm	0.871	0.247	0.198	0.147	1.12	1.07	1.02
	Back at 13mm	0.848	0.190	0.182	0.147	1.04	1.03	1.00
LTE Band 42Ant 5	Front at 10mm	0.992	0.247	0.198	0.147	1.24	1.19	1.14
	Back at 13mm	0.840	0.190	0.182	0.147	1.03	1.02	0.99
FR1 n78Ant 5	Front at 10mm	1.294	0.247	0.198	0.147	1.54	1.49	1.44
	Back at 13mm	1.404	0.190	0.182	0.147	1.59	1.59	1.55
LTE Band 26Ant 0	Front at 10mm	0.116	0.247	0.198	0.147	0.36	0.31	0.26
	Back at 13mm	0.245	0.190	0.182	0.147	0.44	0.43	0.39

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3	1+4
		WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3	Summed	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 66Ant 0	Front at 10mm	0.799	0.247	0.198	0.147	1.05	1.00	0.95
	Back at 13mm	0.545	0.190	0.182	0.147	0.74	0.73	0.69
LTE Band 7Ant 4	Front at 10mm	0.583	0.247	0.198	0.147	0.83	0.78	0.73
	Back at 13mm	0.799	0.190	0.182	0.147	0.99	0.98	0.95
FR1 n5Ant 0	Front at 10mm	0.183	0.247	0.198	0.147	0.43	0.38	0.33
	Back at 13mm	0.195	0.190	0.182	0.147	0.39	0.38	0.34
FR1 n66Ant 0	Front at 10mm	0.363	0.247	0.198	0.147	0.61	0.56	0.51
	Back at 13mm	0.510	0.190	0.182	0.147	0.70	0.69	0.66
FR1 n66Ant 4	Front at 10mm	0.222	0.247	0.198	0.147	0.47	0.42	0.37
	Back at 13mm	0.228	0.190	0.182	0.147	0.42	0.41	0.38
FR1 n7Ant 1	Front at 10mm	0.718	0.247	0.198	0.147	0.97	0.92	0.87
	Back at 13mm	0.651	0.190	0.182	0.147	0.84	0.83	0.80
FR1 n7Ant 4	Front at 10mm	0.617	0.247	0.198	0.147	0.86	0.82	0.76
	Back at 13mm	0.775	0.190	0.182	0.147	0.97	0.96	0.92
FR1 n77Ant 5	Front at 10mm	1.220	0.247	0.198	0.147	1.47	1.42	1.37
	Back at 13mm	1.138	0.190	0.182	0.147	1.33	1.32	1.29



16.4 Product specific 10g SAR Exposure Conditions

WWAN Band	Exposure Position	1	4	1+4
		WWAN	5GHz WLAN Ant 3	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band 12Ant 4	Back	0.847	0.297	1.14
GSM850Ant 0	Front	2.821	0.434	3.26
	Back	3.138	0.297	3.44
	Right side	1.608	0.208	1.82
	Bottom side	2.894		2.89
WCDMA VAnt 0	Back	2.426	0.297	2.72
GSM850Ant 4	Front	3.117	0.434	3.55
	Back	1.773	0.297	2.07
	Top side	2.862	1.051	3.91
WCDMA IVAnt 0	Front	3.257	0.434	3.69
	Back	2.646	0.297	2.94
	Bottom side	3.302		3.30
LTE Band 4Ant 0	Front	2.063	0.434	2.50
	Back	1.963	0.297	2.26
	Bottom side	3.176		3.18
LTE Band 66Ant 4	Front	2.778	0.434	3.21
	Back	2.097	0.297	2.39
	Top side	2.820	1.051	3.87
GSM1900Ant 0	Front	3.235	0.434	3.67
	Back	3.575	0.297	3.87
	Bottom side	2.555		2.56
WCDMA IIAnt 4	Front	1.938	0.434	2.37
	Back	1.792	0.297	2.09
	Top side	2.028	1.051	3.08
LTE Band 2Ant 4	Front	1.962	0.434	2.40
	Back	1.821	0.297	2.12
	Top side	2.820	1.051	3.87
LTE Band 7Ant 1	Front	2.080	0.434	2.51
	Back	3.021	0.297	3.32
	Left side	2.866		2.87
	Bottom side	0.854		0.85
LTE Band 41Ant 1	Front	2.100	0.434	2.53
	Back	2.982	0.297	3.28
	Left side	1.618		1.62
LTE Band 42Ant 5	Front	2.375	0.434	2.81
	Back	1.348	0.297	1.65
	Right side	1.242	0.208	1.45
	Top side	1.554	1.051	2.61
FR1 n78Ant 5	Front	2.708	0.434	3.14
	Back	1.888	0.297	2.19
	Right side	1.354	0.208	1.56
	Top side	1.775	1.051	2.83



EN-DC

WWAN Band	FR1 Band	Exposure Position	1	2	4	1+2+4
			WWAN	FR1	5GHz WLAN Ant 3	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band 2Ant 4	FR1 n7Ant 1	Front			0.434	0.43
		Back		1.193	0.297	1.49
		Left side		1.170		1.17
		Right side			0.208	0.21
		Top side	1.025		1.051	2.08
		Bottom side				0.00
LTE Band 4(66)Ant 0	FR1 n77Ant 5 (FR1 n78)	Front			0.434	0.43
		Back			0.297	0.30
		Left side				0.00
		Right side		1.251	0.208	1.46
		Top side		1.191	1.051	2.24
		Bottom side	1.557			1.56
LTE Band 5Ant 0	FR1 n7Ant 4	Front			0.434	0.43
		Back	1.209	1.029	0.297	2.54
		Left side				0.00
		Right side			0.208	0.21
		Top side		0.892	1.051	1.94
		Bottom side				0.00
LTE Band 5Ant 0	FR1 n66Ant 4	Front			0.434	0.43
		Back	1.209	1.168	0.297	2.67
		Left side				0.00
		Right side			0.208	0.21
		Top side			1.051	1.05
		Bottom side				0.00
LTE Band 5Ant 0	FR1 n77Ant 5 (FR1 n78)	Front			0.434	0.43
		Back	1.209		0.297	1.51
		Left side				0.00
		Right side		1.251	0.208	1.46
		Top side		1.191	1.051	2.24
		Bottom side				0.00
LTE Band 7Ant 1	FR1 n66Ant 0	Front			0.434	0.43
		Back	1.381		0.297	1.68
		Left side	2.866			2.87
		Right side			0.208	0.21
		Top side			1.051	1.05
		Bottom side		1.498		1.50
LTE Band 7Ant 4	FR1 n5Ant 0	Front			0.434	0.43
		Back			0.297	0.30
		Left side				0.00
		Right side			0.208	0.21
		Top side	1.201		1.051	2.25
		Bottom side				0.00
LTE Band 7Ant 1	FR1 n77Ant 5 (FR1 n78)	Front			0.434	0.43
		Back	1.381		0.297	1.68
		Left side	2.866			2.87
		Right side		1.251	0.208	1.46
		Top side		1.191	1.051	2.24
		Bottom side				0.00
LTE Band 66Ant 0	FR1 n7Ant 1	Front			0.434	0.43
		Back		1.193	0.297	1.49

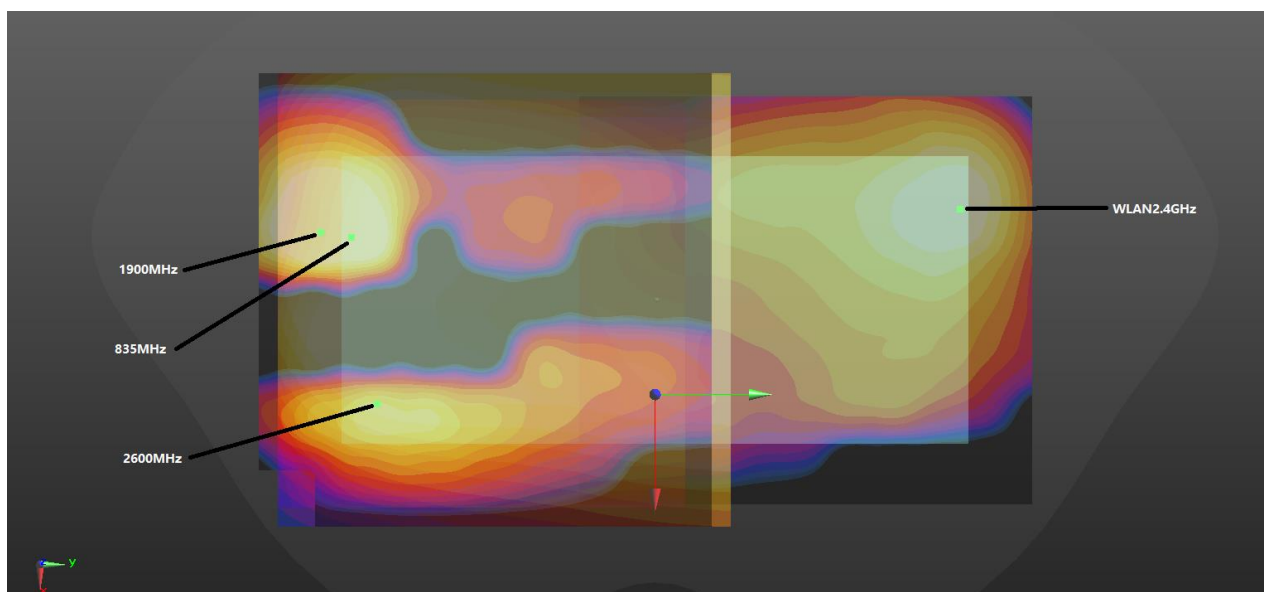


		Left side		1.170		1.17
		Right side			0.208	0.21
		Top side			1.051	1.05
		Bottom side	1.557			1.56
LTE Band 38Ant 1	FR1 n77Ant 5 (FR1 n78)	Front			0.434	0.43
		Back	1.486		0.297	1.78
		Left side	1.618			1.62
		Right side		1.251	0.208	1.46
		Top side		1.191	1.051	2.24
		Bottom side				0.00
LTE Band 41Ant 1	FR1 n77Ant 5	Front			0.434	0.43
		Back	1.486		0.297	1.78
		Left side	1.618			1.62
		Right side		1.251	0.208	1.46
		Top side		1.154	1.051	2.21
		Bottom side				0.00
LTE Band 41Ant 1	FR1 n77Ant 5 (FR1 n78)	Front			0.434	0.43
		Back	1.486		0.297	1.78
		Left side	1.618			1.62
		Right side		1.251	0.208	1.46
		Top side		1.191	1.051	2.24
		Bottom side				0.00

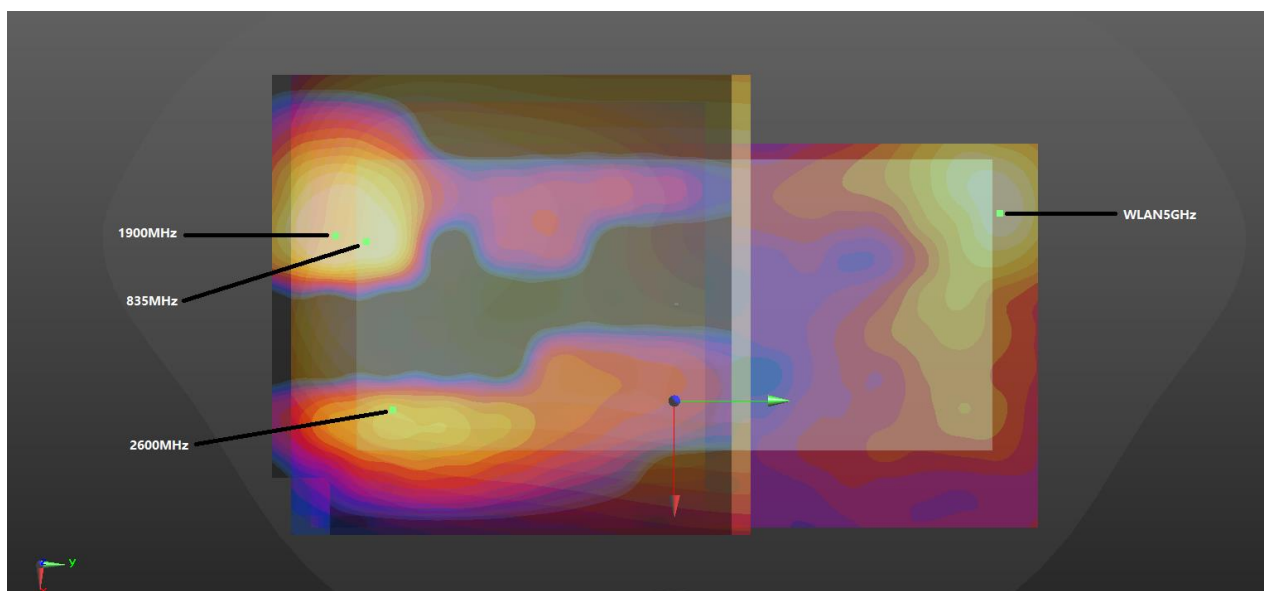
### 16.5 SPLSR Evaluation and Analysis

**General Note:**

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



**WWAN+WLAN2.4GHz\_Back 5mm**



**WWAN+WLAN5GHz+Bluetooth\_Back 5mm**





Hotspot											
Case No	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 No 1	GSM850	Back	1.32	5mm	-10.6	-84.6	0.6	164.9	1.62	0.01	Not required
	WLAN2.4GHz		0.295	5mm	-24	79.8	0.45				
Case No 2	WCDMA V	Back	1.359	5mm	-22.9	-80.5	0.48	160.3	1.65	0.01	Not required
	WLAN2.4GHz		0.295	5mm	-24	79.8	0.45				
Case No 3	GSM1900	Back	1.305	5mm	-10	-83.7	0.61	164.1	1.60	0.01	Not required
	WLAN2.4GHz		0.295	5mm	-24	79.8	0.45				
Case No 4	LTE Band 41	Back	1.412	5mm	26.4	-76.6	0.74	105.0	1.71	0.02	Not required
	WLAN2.4GHz		0.295	5mm	-5	23.6	0.26				

Body-Worn											
Case No	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 No 1	GSM850	Back	1.32	5mm	-10.6	-84.6	0.6	168.6	1.65	0.01	Not required
	WLAN5GHz		0.33	5mm	-33.8	82.4	-1.21				
Case No 2	WCDMA V	Back	1.359	5mm	-22.9	-80.5	0.48	163.3	1.69	0.01	Not required
	WLAN5GHz		0.33	5mm	-33.8	82.4	-1.21				
Case No 3	GSM1900	Back	1.305	5mm	-10	-83.7	0.61	167.8	1.64	0.01	Not required
	WLAN5GHz		0.33	5mm	-33.8	82.4	-1.21				
Case No 4	LTE Band 7	Back	1.265	5mm	24	-69.4	0.67	162.4	1.60	0.01	Not required
	WLAN5GHz		0.33	5mm	-33.8	82.4	-1.21				
Case No 5	LTE Band 41	Back	1.412	5mm	26.4	-76.6	0.74	170.0	1.74	0.01	Not required
	WLAN5GHz		0.33	5mm	-33.8	82.4	-1.21				
Case No 6	LTE Band 41	Back	1.412	5mm	26.4	-76.6	0.74	164.3	1.60	0.01	Not required
	WLAN2.4GHzAnt 3		0.189	5mm	-24	79.8	0.45				

Test Engineer : Nick Hu, Seven Xu, Hank 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; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: HSL\_750 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.909 \text{ S/m}$ ;  $\epsilon_r = 42.693$ ;  $\rho = 1000 \text{ kg/m}^3$

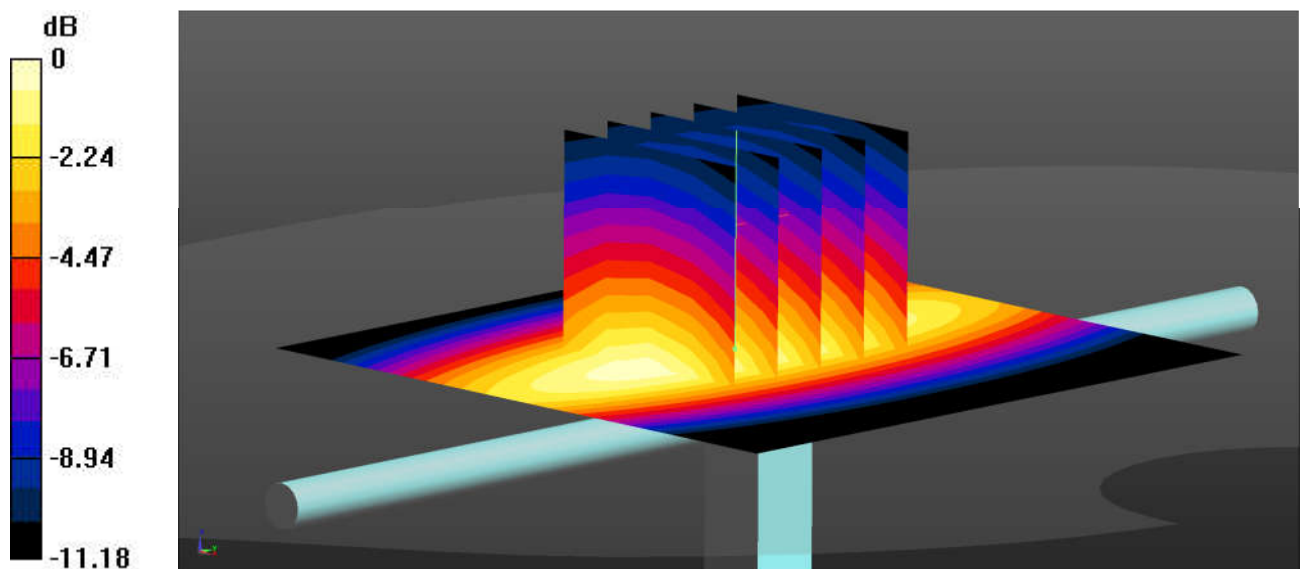
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(10.38, 10.38, 10.38) @ 750 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) = 0.513 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 21.73 V/m; Power Drift = -0.11 dB  
Peak SAR (extrapolated) = 0.615 W/kg  
**SAR(1 g) = 0.398 W/kg; SAR(10 g) = 0.278 W/kg**  
Maximum value of SAR (measured) = 0.515 W/kg



0 dB = 0.515 W/kg = -2.88 dBW/kg

### System Check\_Head\_835MHz

**DUT: D835V2 - SN:4d258**

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: HSL\_835 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.938 \text{ S/m}$ ;  $\epsilon_r = 42.449$ ;  $\rho = 1000 \text{ kg/m}^3$

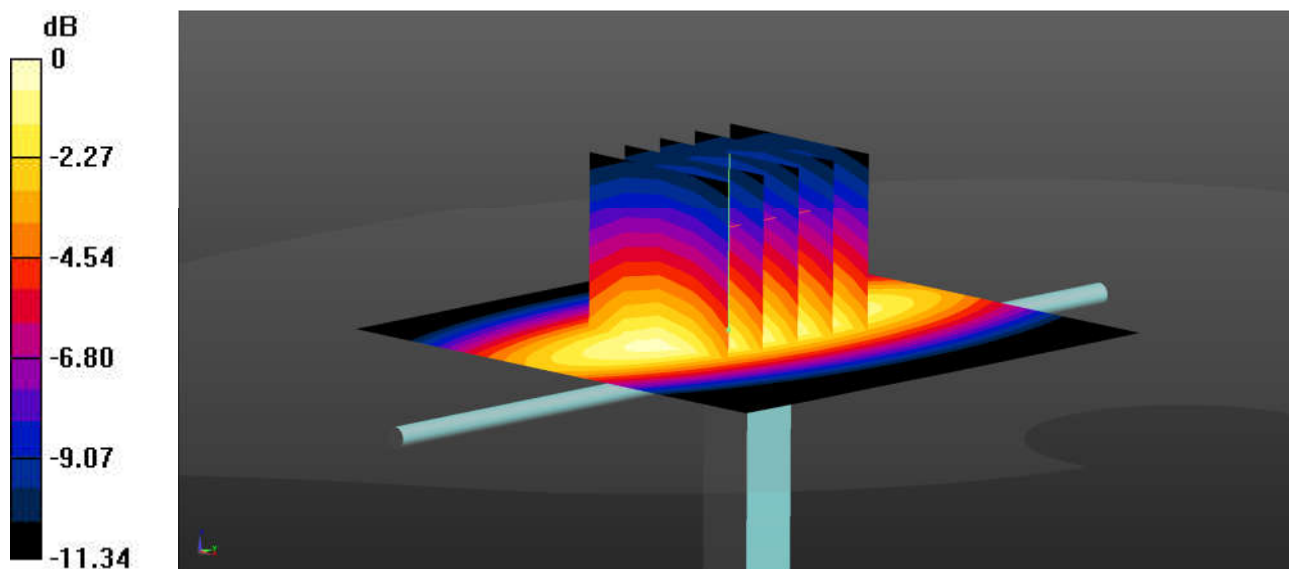
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(10.24, 10.24, 10.24) @ 835 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) = 0.680 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 27.55 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 0.787 W/kg  
**SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.318 W/kg**  
Maximum value of SAR (measured) = 0.685 W/kg



0 dB = 0.685 W/kg = -1.64 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;  $\sigma = 1.34$  S/m;  $\epsilon_r = 40.36$ ;  $\rho = 1000$  kg/m<sup>3</sup>

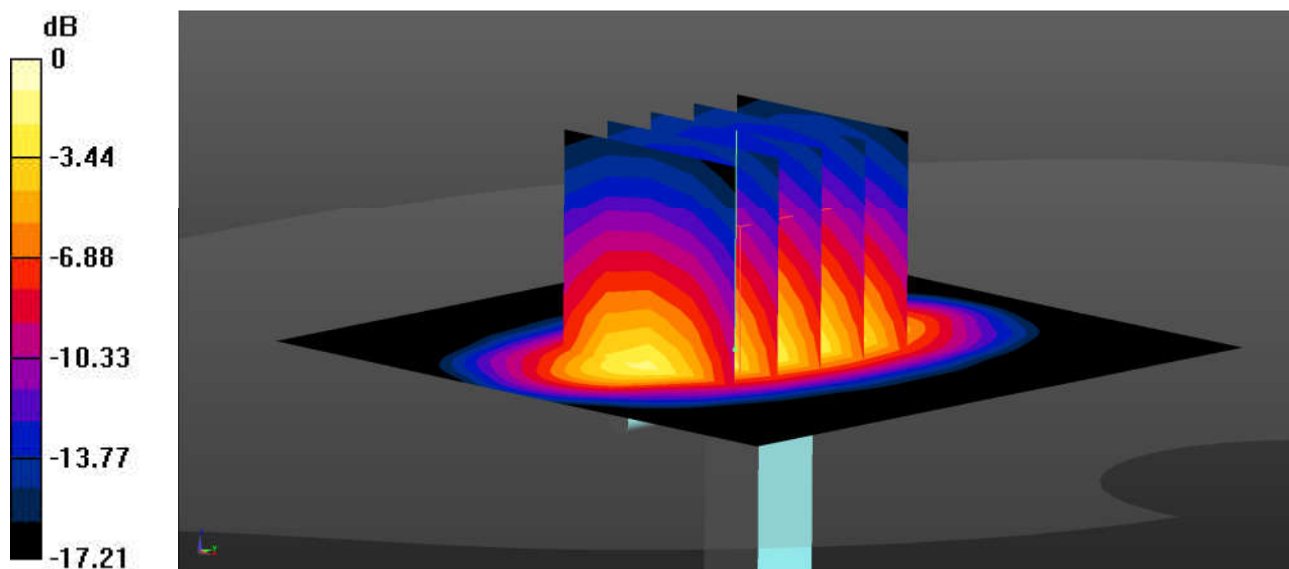
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.8 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(8.86, 8.86, 8.86) @ 1750 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 2.63 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 38.30 V/m; Power Drift = -0.04 dB  
Peak SAR (extrapolated) = 3.34 W/kg  
**SAR(1 g) = 1.81 W/kg; SAR(10 g) = 0.956 W/kg**  
Maximum value of SAR (measured) = 2.60 W/kg



0 dB = 2.60 W/kg = 4.15 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;  $\sigma = 1.436$  S/m;  $\epsilon_r = 40.117$ ;  $\rho = 1000$  kg/m<sup>3</sup>

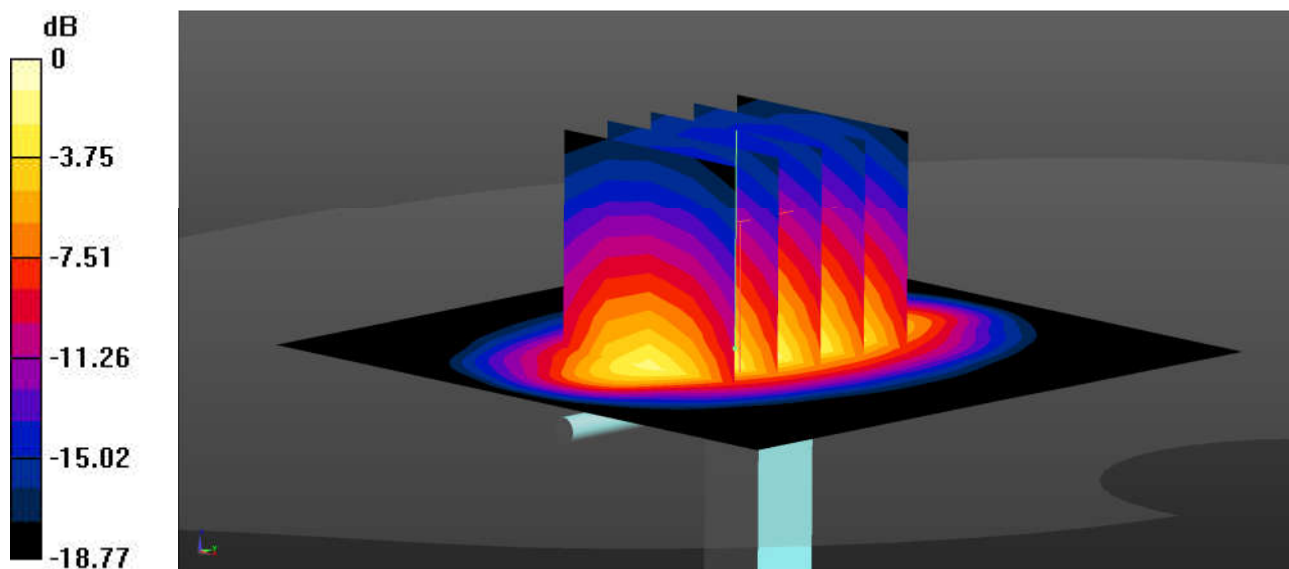
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.9 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(8.56, 8.56, 8.56) @ 1900 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 3.33 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 48.90 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 4.09 W/kg  
**SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.06 W/kg**  
Maximum value of SAR (measured) = 3.33 W/kg



0 dB = 3.33 W/kg = 5.22 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:  $f = 2450$  MHz;  $\sigma = 1.808$  S/m;  $\epsilon_r = 38.519$ ;  $\rho = 1000$  kg/m<sup>3</sup>

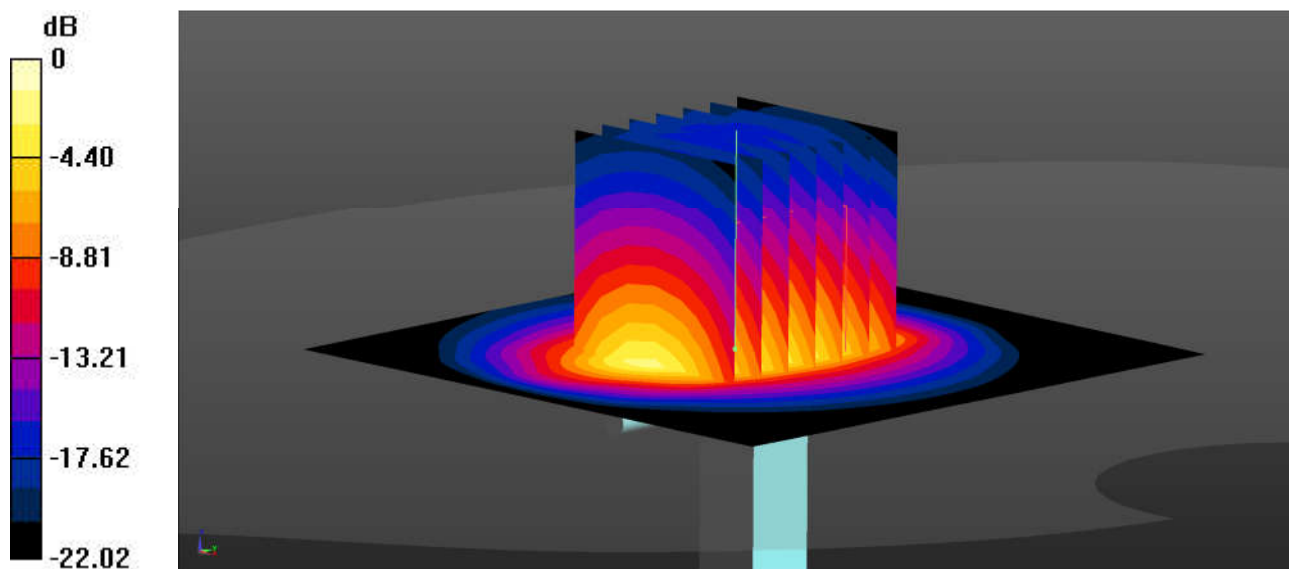
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(8.14, 8.14, 8.14) @ 2450 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 4.44 W/kg

**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 48.62 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 5.43 W/kg  
**SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.2 W/kg**  
Maximum value of SAR (measured) = 4.36 W/kg



0 dB = 4.36 W/kg = 6.39 dBW/kg

### System Check\_Head\_2600MHz

**DUT: D2600V2 - SN:1061**

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1  
Medium: HSL\_2600 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.926$  S/m;  $\epsilon_r = 38.228$ ;  $\rho = 1000$  kg/m<sup>3</sup>

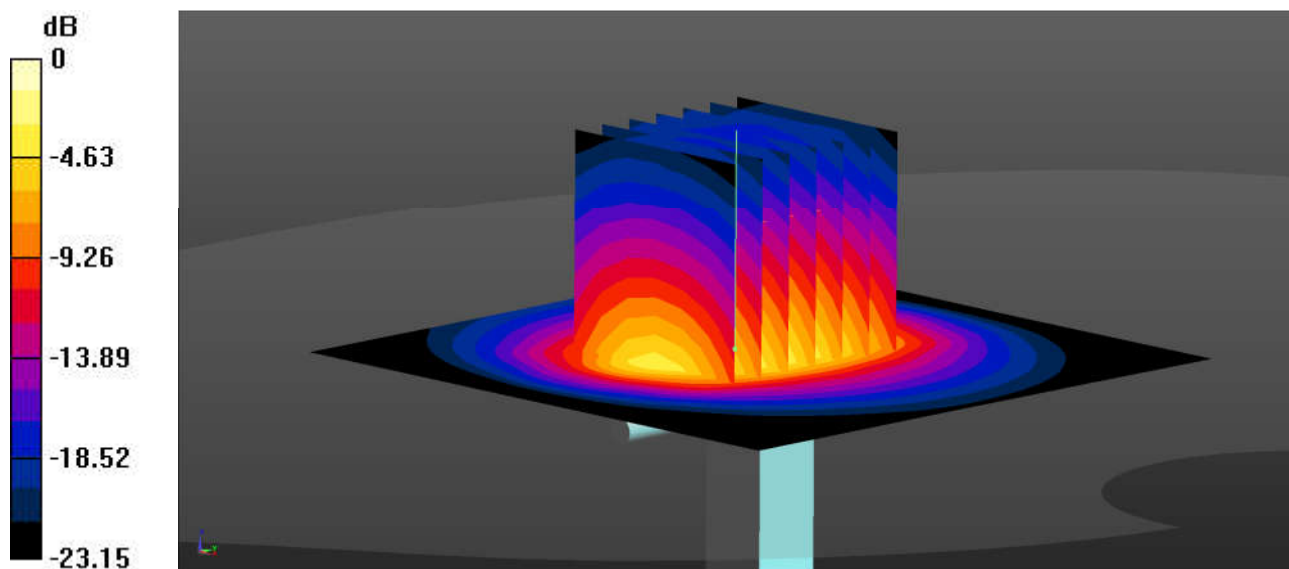
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(7.85, 7.85, 7.85) @ 2600 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 4.24 W/kg

**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 36.26 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 5.72 W/kg  
**SAR(1 g) = 2.61 W/kg; SAR(10 g) = 1.16 W/kg**  
Maximum value of SAR (measured) = 4.13 W/kg



0 dB = 4.13 W/kg = 6.16 dBW/kg

### System Check\_Head\_3500MHz

**DUT: D3500V2 - SN:1037**

Communication System: UID 0, CW (0); Frequency: 3500 MHz; Duty Cycle: 1:1

Medium: HSL\_3500 Medium parameters used:  $f = 3500$  MHz;  $\sigma = 2.85$  S/m;  $\epsilon_r = 38.606$ ;  $\rho = 1000$  kg/m<sup>3</sup>

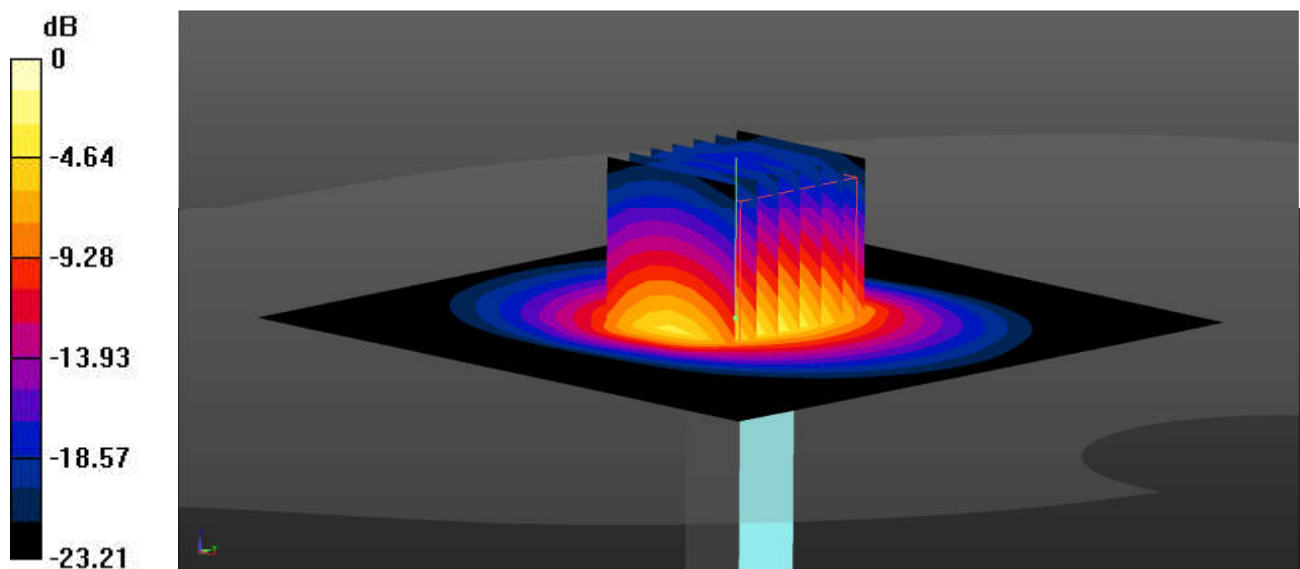
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(7.19, 7.19, 7.19) @ 3500 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 5.24 W/kg

**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 35.59 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 7.63 W/kg  
**SAR(1 g) = 3.15 W/kg; SAR(10 g) = 1.18 W/kg**  
Maximum value of SAR (measured) = 5.84 W/kg



0 dB = 5.84 W/kg = 7.66 dBW/kg

### System Check\_Head\_3700MHz

**DUT: D3700V2 - SN:1008**

Communication System: UID 0, CW (0); Frequency: 3700 MHz; Duty Cycle: 1:1  
Medium: HSL\_3700 Medium parameters used:  $f = 3700$  MHz;  $\sigma = 3.044$  S/m;  $\epsilon_r = 38.163$ ;  $\rho = 1000$  kg/m<sup>3</sup>

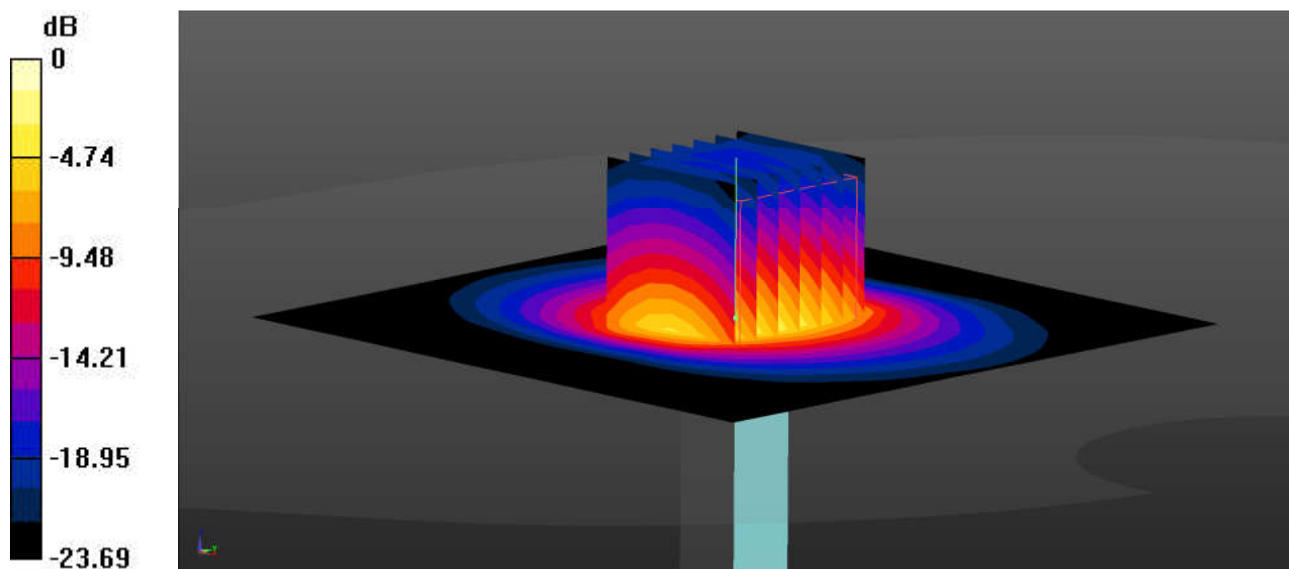
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(7.13, 7.13, 7.13) @ 3700 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 5.45 W/kg

**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 34.60 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 7.80 W/kg  
**SAR(1 g) = 3.12 W/kg; SAR(10 g) = 1.14 W/kg**  
Maximum value of SAR (measured) = 5.91 W/kg



0 dB = 5.91 W/kg = 7.72 dBW/kg

### System Check\_Head\_3900MHz

**DUT: D3900V2 - SN:1048**

Communication System: UID 0, CW (0); Frequency: 3900 MHz; Duty Cycle: 1:1

Medium: HSL\_3900 Medium parameters used:  $f = 3900$  MHz;  $\sigma = 3.247$  S/m;  $\epsilon_r = 37.755$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(6.58, 6.58, 6.58) @ 3900 MHz; Calibrated: 2020.9.25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 7.03 W/kg

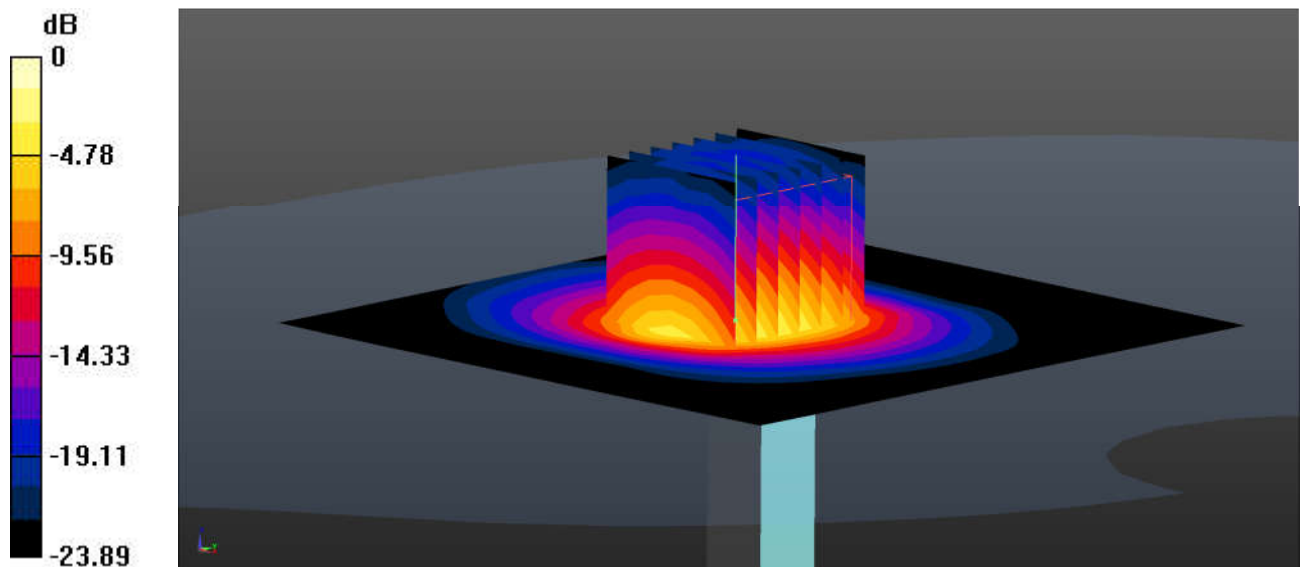
**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 46.47 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 9.00 W/kg

**SAR(1 g) = 3.6 W/kg; SAR(10 g) = 1.21 W/kg**

Maximum value of SAR (measured) = 7.03 W/kg



0 dB = 7.03 W/kg = 8.47 dBW/kg

### System Check\_Head\_5250MHz

#### DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz; Duty Cycle: 1:1  
Medium: HSL\_5000 Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.601$  S/m;  $\epsilon_r = 36.253$ ;  $\rho = 1000$  kg/m<sup>3</sup>

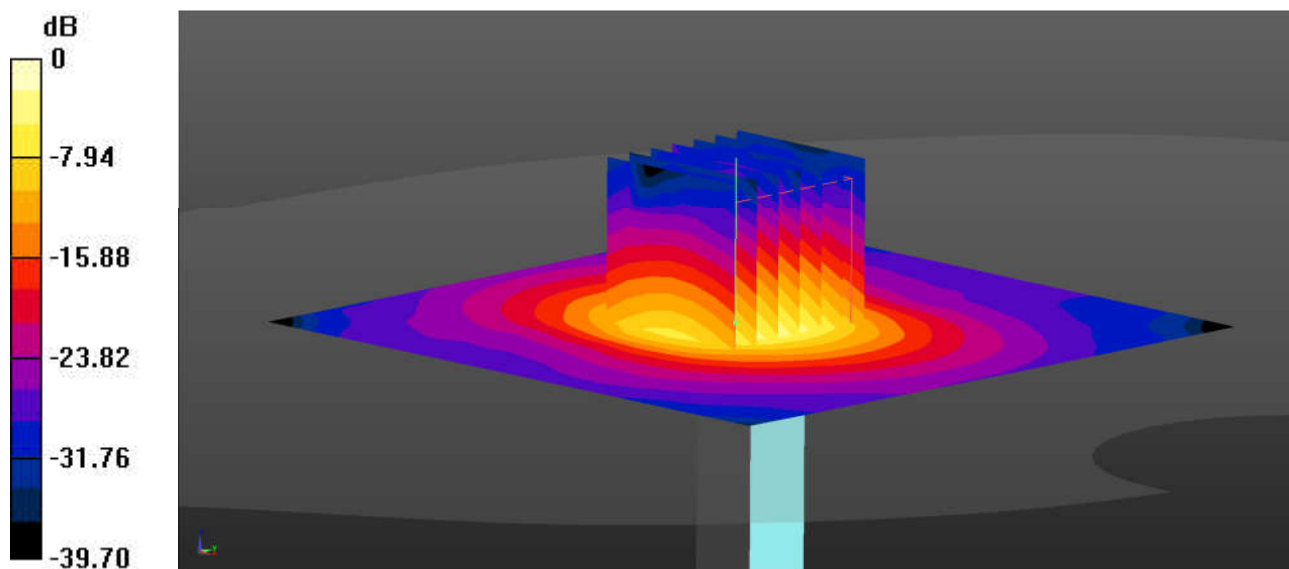
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(5.55, 5.55, 5.55) @ 5250 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 8.72 W/kg

**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 48.25 V/m; Power Drift = 0.12 dB  
Peak SAR (extrapolated) = 14.7 W/kg  
**SAR(1 g) = 3.79 W/kg; SAR(10 g) = 1.1 W/kg**  
Maximum value of SAR (measured) = 9.38 W/kg



0 dB = 9.38 W/kg = 9.72 dBW/kg

### System Check\_Head\_5600MHz

#### DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz; Duty Cycle: 1:1  
Medium: HSL\_5000 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 4.978$  S/m;  $\epsilon_r = 35.704$ ;  $\rho = 1000$  kg/m<sup>3</sup>

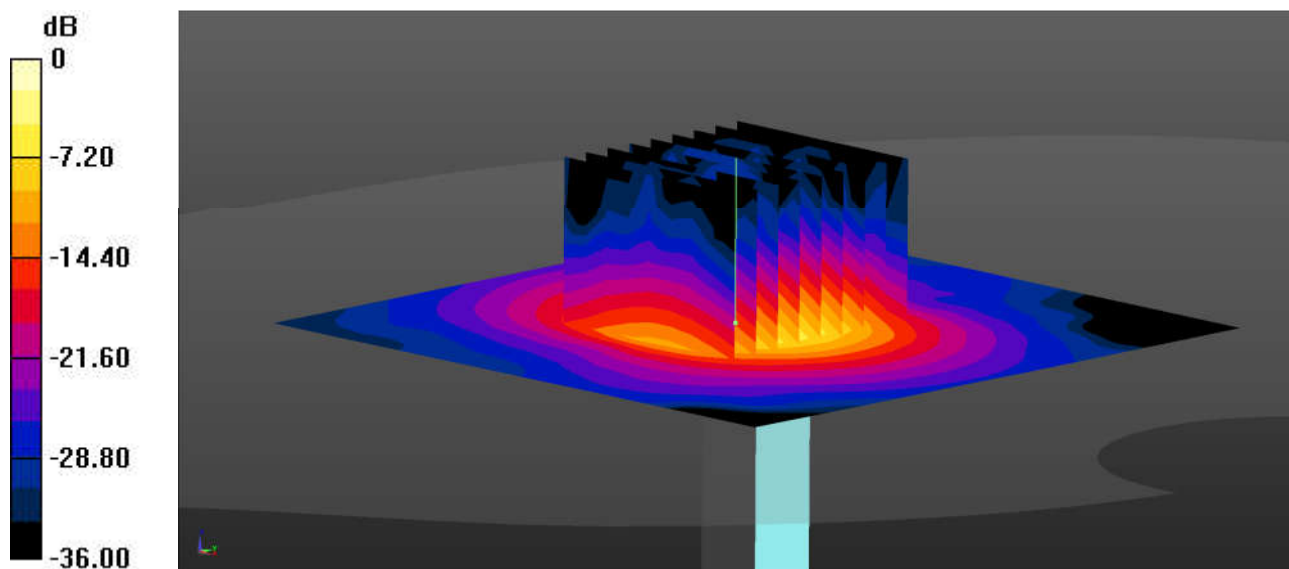
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(4.85, 4.85, 4.85) @ 5600 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 10.0 W/kg

**Pin=50mW/Zoom Scan (9x9x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 49.21 V/m; Power Drift = 0.14 dB  
Peak SAR (extrapolated) = 18.4 W/kg  
**SAR(1 g) = 4.23 W/kg; SAR(10 g) = 1.2 W/kg**  
Maximum value of SAR (measured) = 10.9 W/kg



0 dB = 10.9 W/kg = 10.37 dBW/kg

### System Check\_Head\_5750MHz

#### DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz; Duty Cycle: 1:1  
Medium: HSL\_5000 Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.146$  S/m;  $\epsilon_r = 35.523$ ;  $\rho = 1000$  kg/m<sup>3</sup>

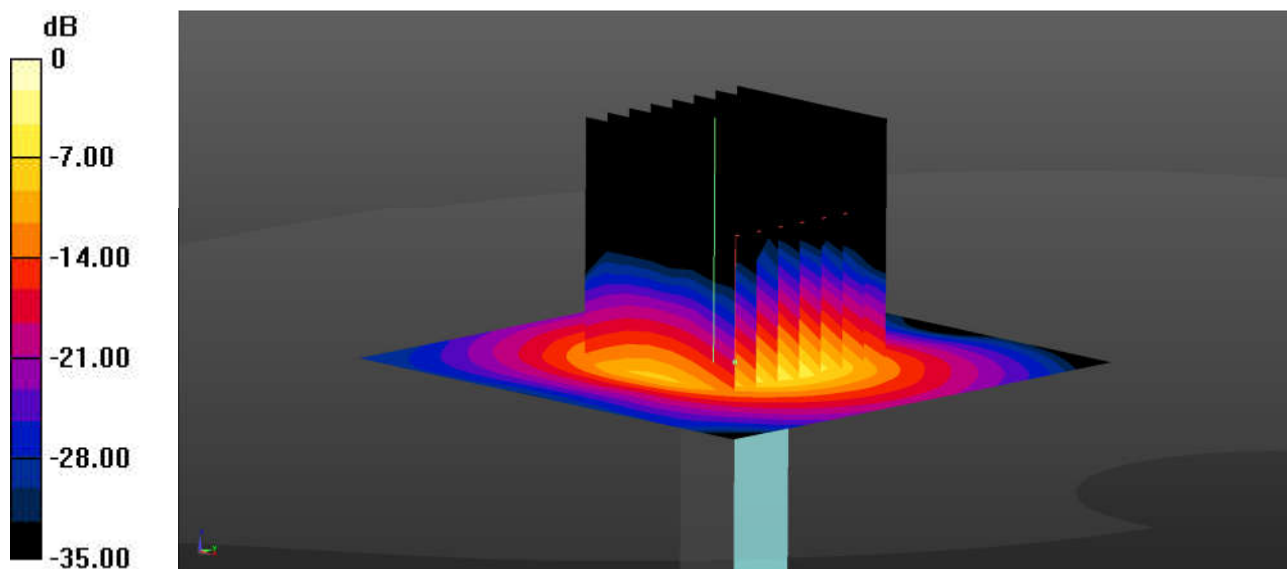
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(5.07, 5.07, 5.07) @ 5750 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (71x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 9.32 W/kg

**Pin=50mW/Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm  
Reference Value = 28.74 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 17.1 W/kg  
**SAR(1 g) = 3.82 W/kg; SAR(10 g) = 1.1 W/kg**  
Maximum value of SAR (measured) = 9.39 W/kg



0 dB = 9.39 W/kg = 9.73 dBW/kg



### System Check\_Head\_750MHz

**DUT: D750V3 - SN:1087**

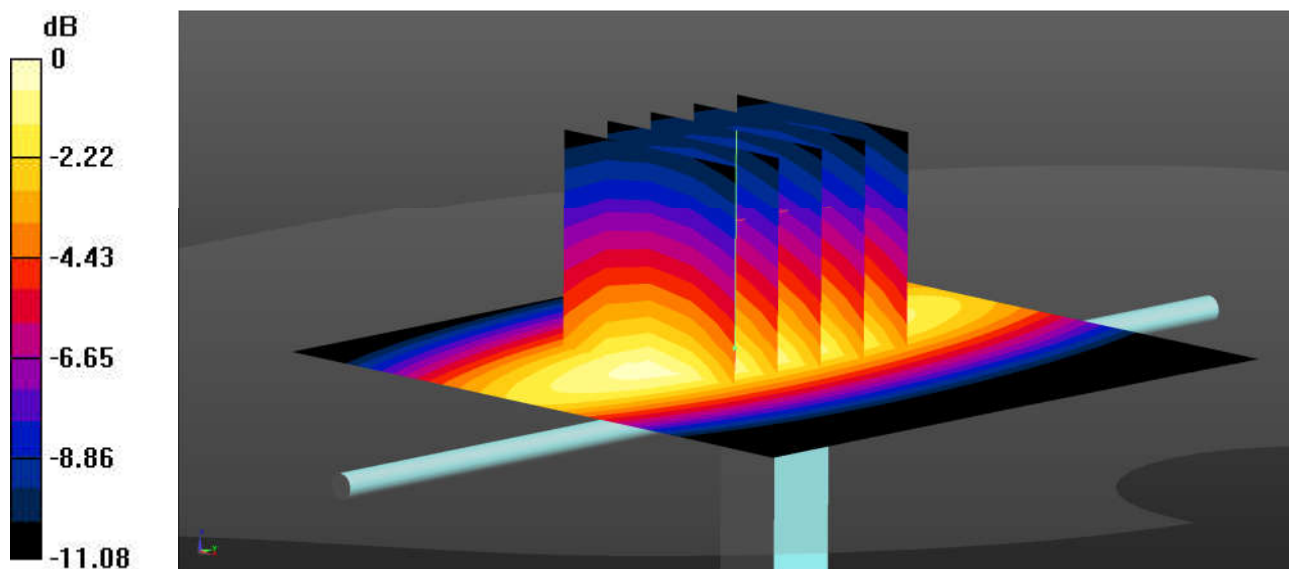
Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1  
Medium: HSL\_750 Medium parameters used:  $f = 750$  MHz;  $\sigma = 0.909$  S/m;  $\epsilon_r = 42.687$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(10.38, 10.38, 10.38) @ 750 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 0.549 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 24.13 V/m; Power Drift = 0.13 dB  
Peak SAR (extrapolated) = 0.657 W/kg  
**SAR(1 g) = 0.408 W/kg; SAR(10 g) = 0.264 W/kg**  
Maximum value of SAR (measured) = 0.567 W/kg



0 dB = 0.567 W/kg = -2.46 dBW/kg

### System Check\_Head\_835MHz

**DUT: D835V2 - SN:4d258**

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: HSL\_835 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.938 \text{ S/m}$ ;  $\epsilon_r = 42.446$ ;  $\rho = 1000 \text{ kg/m}^3$

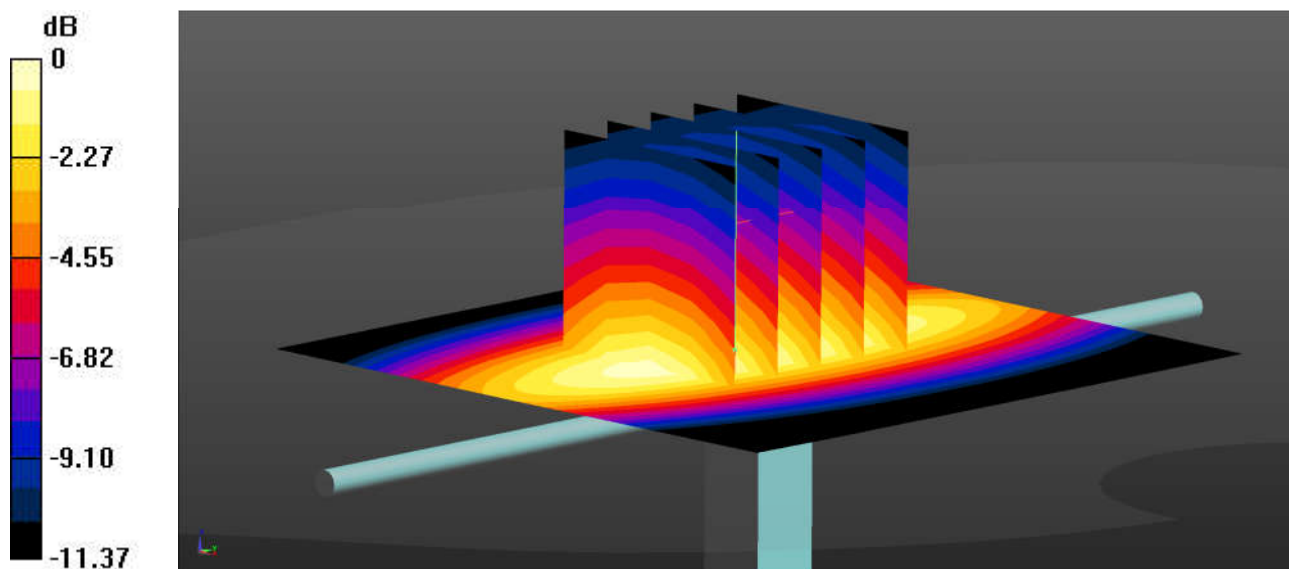
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.6 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7630; ConvF(10.24, 10.24, 10.24) @ 835 MHz; Calibrated: 2021.2.10
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2021.3.17
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2022
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

**Pin=50mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) = 0.674 W/kg

**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 27.66 V/m; Power Drift = 0.04 dB  
Peak SAR (extrapolated) = 0.777 W/kg  
**SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.318 W/kg**  
Maximum value of SAR (measured) = 0.674 W/kg



0 dB = 0.674 W/kg = -1.71 dBW/kg