

FCC SAR Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : Redmi
MODEL NAME : 2201116SR
FCC ID : 2AFZZ16SR
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.

Tony Zhang

Reviewed by: Tong Zhang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager



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People's Republic of China



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Report No. : FA1N1013-03

Revision History

[illegible]

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, 2201116SR**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 10mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.87	0.38	0.38	1.59
		GSM1900	1.02	0.43	0.43	
	WCDMA	Band II	1.09	0.87	0.69	
		Band IV	0.42	1.09	1.09	
		Band V	0.68	0.44	0.44	
	LTE	Band 2	0.59	0.75	0.54	
		Band 4	0.45	0.76	0.69	
		Band 7	0.52	0.41	0.33	
		Band 12/Band 17	0.50	0.24	0.23	
		Band 13	0.53	0.25	0.25	
		Band 26/Band 5	0.90	0.38	0.38	
		Band 41/Band 38	0.73	0.46	0.36	
		Band 42	1.06	0.77	0.77	
	5G NR	n77/ n78	0.68	0.63	0.63	
DTS	WLAN	2.4GHz WLAN	0.29	0.24	0.24	1.35
NII		5GHz WLAN	0.43	0.70	0.68	1.59
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	<0.10	<0.10	1.59

Highest 10g SAR Summary			
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)
NII	WLAN	5GHz WLAN	1.69
Date of Testing:			2021/12/4 ~ 2022/1/3

Remark:

- This device supports LTE B5 / B17 / B38 and B26 / B12 / B41. Since the supported frequency span for LTE B5 / B17 / B38 falls completely within the supports frequency span for LTE 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 B26 / B12 / B41.
- This device supports 5G NR n78 and 5G NR n77. Since the supported frequency span for 5G NR n78 falls completely within the supports frequency span for 5G NR n77, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for 5G NR n77.

Declaration of Conformity:

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

Comments and Explanations:

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

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



measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR03-KS	CN1257	314309

Applicant	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

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 Phone
Brand Name	Redmi
Model Name	2201116SR
FCC ID	2AFZZ16SR
IMEI Code	SIM1: 861288050013944 SIM2: 861288050013951
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: 2545 MHz ~ 2650 MHz LTE Band 42: 3450 MHz ~ 3550MHz 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 is not supported) LTE: QPSK, 16QAM, 64QAM LTE: 256QAM(Downlink Only) 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	P1.1
SW Version	MIUI 13
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark:	
1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.	
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.	
3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz	

- WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
 5. 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). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
 6. There are three types of EUT. The difference is that different memory capacity. According to the differences, we choose sample 1 to perform full test.
 7. 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. Full power table and reduced power table (DSI 1: receiver on reduced power for head; DSI 4: P-sensor on for hotspot/ handheld; DSI 2: P-sensor off).
 8. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
 9. 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.
 10. 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.
 11. For 5G NR 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.
 12. This device supports 5G NR FR1 bands as following table, only NSA mode.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n77	TDD	30	20, 30, 40, 50, 60, 80, 100
	n78	TDD	30	20, 30, 40, 50, 60, 80, 100

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																							
FCC ID	2AFZZ16SR																																																																						
Equipment Name	Mobile 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: 2545 MHz ~ 2650 MHz LTE Band 42: 3450 MHz ~ 3550MHz																																																																						
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																																																																						
uplink modulations used	QPSK / 16QAM / 64QAM																																																																						
LTE Voice / Data requirements	Voice and Data																																																																						
LTE Release Version	R15, Cat13																																																																						
CA Support	Supported, Uplink and Downlink																																																																						
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table>	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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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																																																																
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																																						
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																						
Power reduction applied to satisfy SAR compliance	Yes, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 13.																																																																						
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.																																																																						
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band and inter-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 4 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		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	21350	2560
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711
LTE Band 13												
	Bandwidth 5 MHz					Bandwidth 10 MHz						
	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		Bandwidth 20 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	26790	824
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26940	838



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	40165	2547.5	40190	2550	40215	2552.5	40240	2555
LM	40485	2579.5	40490	2580	40495	2580.5	40500	2581
HM	40805	2611.5	40790	2610	40785	2609.5	40770	2608
H	41165	2647.5	41140	2645	41115	2642.5	41090	2640
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

4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	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 n77: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 100MHz 5G NR n78: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 100MHz
SCS	TDD: 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 n77	LTE B41
LTE Anchor Bands for n78	LTE B2/5/7/38/41

<3700 MHz ~ 3980 MHz>

NR Band 77													
Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	650000	3750
M 656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H 664668	3970.02	664334	3965.01	664000	3960	663668	3955.02	663334	3950.01	662668	3940.02	662000	3930

NR Band 78													
Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01		
M 650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H 652668	3790.02	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	650668	3760.02		

<3450 MHz ~ 3550 MHz>

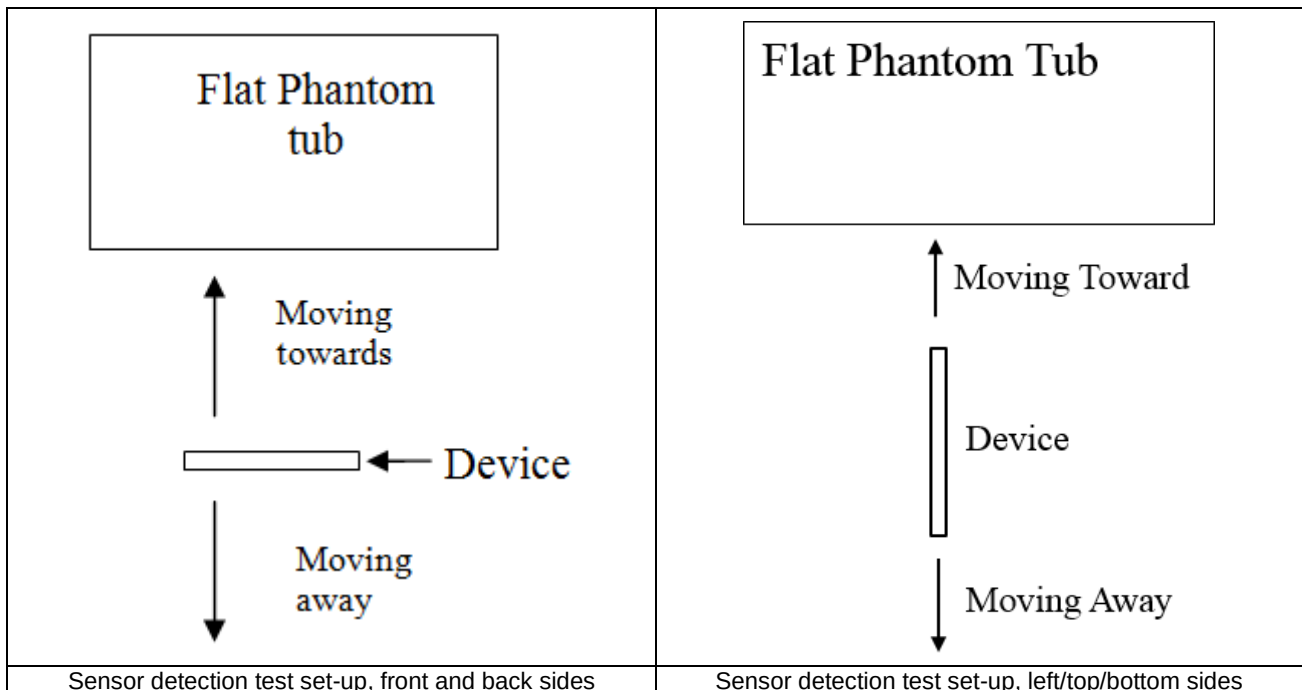
NR Band 77													
Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632668	3490.02		
M 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H 636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634000	3510		

NR Band 78													
Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632668	3490.02		
M 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H 636000	3540	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634000	3510		

5. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.
2. 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 (3980MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
3. Capacitive proximity sensor placed coincident with antenna elements at the top/bottom end of the phone are utilized to determine when the device comes in proximity of the user's body or finger or hand at the front or back or bottom or left or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
4. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or top or left side of the device use a detection threshold distance. When front/back/left/top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.



<P-Sensor>

<Sensor pad1 for Ant0 >

(Declared by manufacturer)

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Bottom Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	16	16	21	21	16	16	6	6

<Sensor pad2 for Ant3/Ant4/ant5>

(Declared by manufacturer)

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	16	16	21	21	16	16	6	6

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

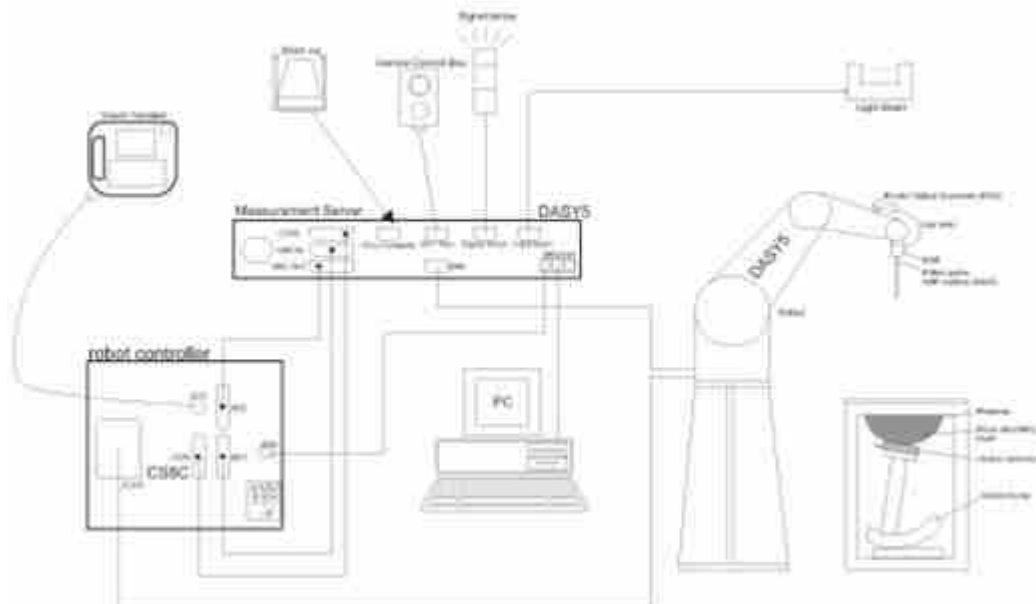
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



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

8.1 E-Field Probe

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

<EX3DV4 Probe>

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

8.2 Data Acquisition Electronics (DAE)

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

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



Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

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

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

9.1 Spatial Peak SAR Evaluation

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

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

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

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

9.2 Power Reference Measurement

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

9.3 Area Scan

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

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

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

9.4 Zoom Scan

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

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

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

9.5 Volume Scan Procedures

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

9.6 Power Drift Monitoring

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

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	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	2023/11/25
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2020/11/25	2023/11/24
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2023/11/24
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/13
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/22
SPEAG	Data Acquisition Electronics	DAE4	1303	2021/6/18	2022/6/17
SPEAG	Dosimetric E-Field Probe	EX3DV4	7684	2021/10/4	2022/10/3
SPEAG	SAM Twin Phantom	SAM Twin	TP-1697	NCR	NCR
Testo	Thermo-Hygrometer	608-H1	1241332102	2021/1/7	2022/1/6
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2021/4/13	2022/4/12
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2021/7/31	2022/7/30
SPEAG	Dielectric Probe Kit	DAK-3.5	1138	2021/6/9	2022/6/8
Anritsu	Vector Signal Generator	MG3710A	6201682672	2021/1/7	2022/1/6
Rohde & Schwarz	Power Meter	NRVD	102081	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2021/8/12	2022/8/11
R&S	CBT BLUETOOTH TESTER	CBT	101246	2021/4/12	2022/4/11
EXA	Spectrum Analyzer	FSV7	101632	2021/1/7	2022/1/6
FLUKE	DIGITAC THERMOMETER	51II	97240029	2021/8/13	2022/8/12
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	

Note:

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

11. System Verification

11.1 Tissue Simulating Liquids

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



Fig 11.1 Photo of Liquid Height for Head SAR

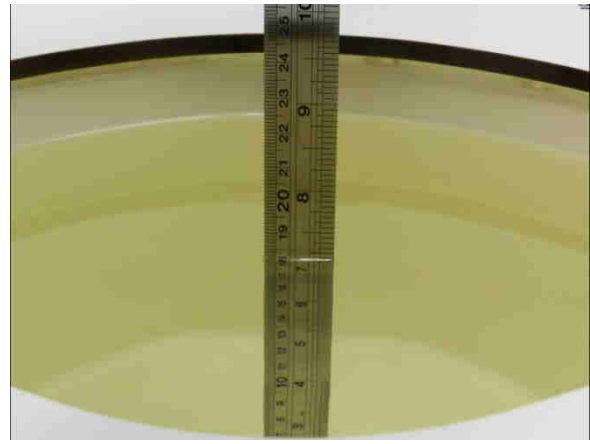


Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 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)	Head	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	Head	22.6	0.914	41.775	0.89	41.90	2.70	-0.30	±5	2021/12/4
835	Head	22.5	0.934	41.480	0.90	41.50	3.78	-0.05	±5	2021/12/6
1750	Head	22.6	1.409	40.664	1.37	40.10	2.85	1.41	±5	2021/12/8
1900	Head	22.5	1.431	39.772	1.40	40.00	2.21	-0.57	±5	2021/12/10
2450	Head	22.7	1.805	38.557	1.80	39.20	0.28	-1.64	±5	2021/12/12
2600	Head	22.7	1.924	38.250	1.96	39.00	-1.84	-1.92	±5	2021/12/15
3500	Head	22.8	2.807	38.998	2.91	37.90	-3.54	2.90	±5	2021/12/18
3700	Head	22.7	2.994	38.679	3.12	37.70	-4.04	2.60	±5	2021/12/21
3900	Head	22.5	3.194	38.393	3.32	37.50	-3.80	2.38	±5	2021/12/24
5250	Head	22.7	4.562	35.992	4.71	35.90	-3.14	0.26	±5	2021/12/26
5600	Head	22.6	4.960	35.440	5.07	35.50	-2.17	-0.17	±5	2021/12/29
5750	Head	22.9	5.131	35.243	5.22	35.40	-1.70	-0.44	±5	2022/1/3

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)	Head	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 (%)
2021/12/4	750	Head	50	1087	7684	1303	0.419	8.36	8.38	0.24
2021/12/6	835	Head	50	4d258	7684	1303	0.509	9.44	10.18	7.84
2021/12/8	1750	Head	50	1090	7684	1303	1.920	36.40	38.4	5.49
2021/12/10	1900	Head	50	5d170	7684	1303	1.990	39.00	39.8	2.05
2021/12/12	2450	Head	50	908	7684	1303	2.500	52.80	50	-5.30
2021/12/15	2600	Head	50	1061	7684	1303	2.720	56.60	54.4	-3.89
2021/12/18	3500	Head	50	1037	7684	1303	3.130	68.00	62.6	-7.94
2021/12/21	3700	Head	50	1008	7684	1303	3.140	67.60	62.8	-7.10
2021/12/24	3900	Head	50	1048	7684	1303	3.230	70.20	64.6	-7.98
2021/12/26	5250	Head	50	1113	7684	1303	3.720	80.50	74.4	-7.58
2021/12/29	5600	Head	50	1113	7684	1303	4.430	83.40	88.6	6.24
2022/1/3	5750	Head	50	1113	7684	1303	3.930	80.00	78.6	-1.75

<10g SAR>

Date	Frequency (MHz)	Head	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 (%)
2021/12/4	750	Head	50	1087	7684	1303	0.273	5.65	5.46	-3.36
2021/12/6	835	Head	50	4d258	7684	1303	0.327	6.13	6.54	6.69
2021/12/8	1750	Head	50	1090	7684	1303	1.010	19.20	20.2	5.21
2021/12/10	1900	Head	50	5d170	7684	1303	1.030	20.30	20.6	1.48
2021/12/12	2450	Head	50	908	7684	1303	1.160	24.20	23.2	-4.13
2021/12/15	2600	Head	50	1061	7684	1303	1.180	25.10	23.6	-5.98
2021/12/18	3500	Head	50	1037	7684	1303	1.180	25.40	23.6	-7.09
2021/12/21	3700	Head	50	1008	7684	1303	1.150	24.40	23	-5.74
2021/12/24	3900	Head	50	1048	7684	1303	1.130	24.40	22.6	-7.38
2021/12/26	5250	Head	50	1113	7684	1303	1.070	23.10	21.4	-7.36
2021/12/29	5600	Head	50	1113	7684	1303	1.270	23.80	25.4	6.72
2022/1/3	5750	Head	50	1113	7684	1303	1.110	22.80	22.2	-2.63

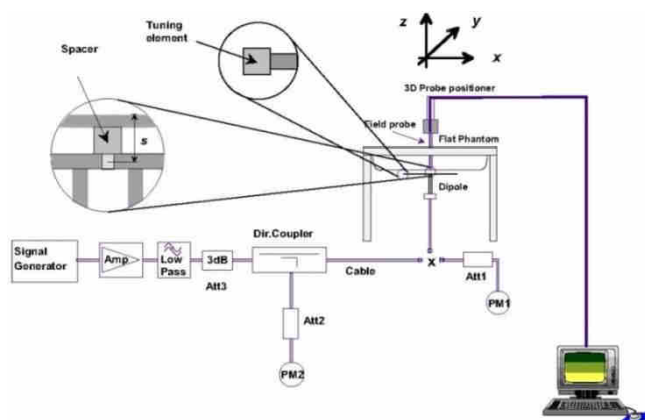


Fig 11.3.1 System Performance Check Setup



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.

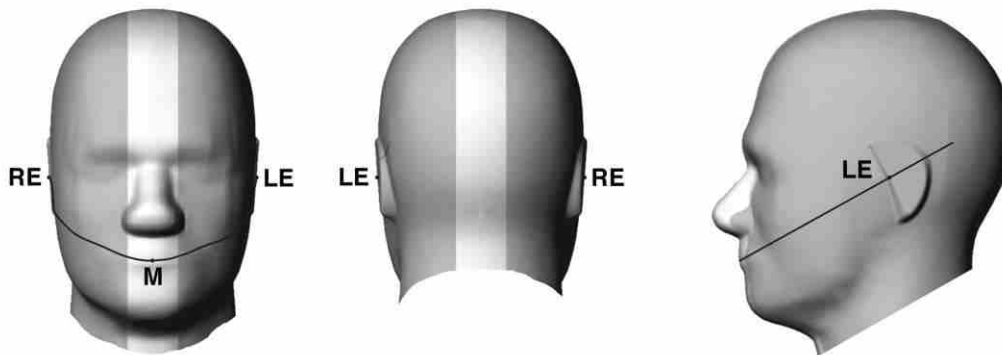


Fig 12.1.1 Front, back, and side views of SAM twin phantom

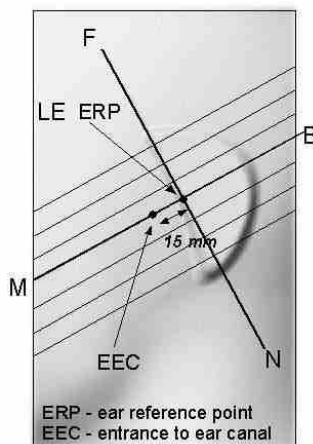


Fig 12.1.2 Close-up side view of phantom showing the ear region.

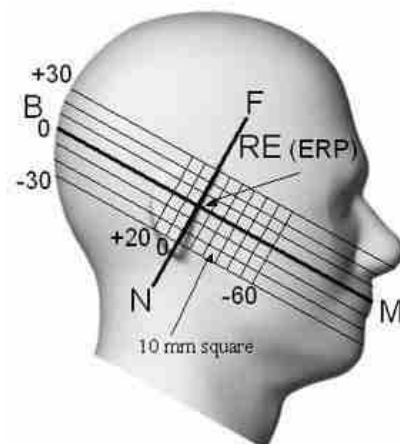


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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 handset. 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.

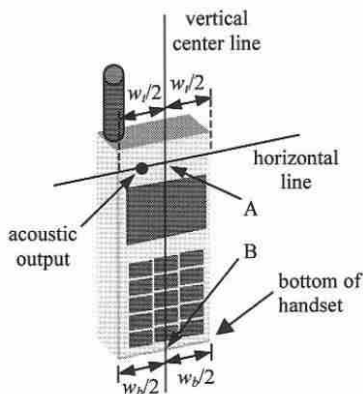


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case"

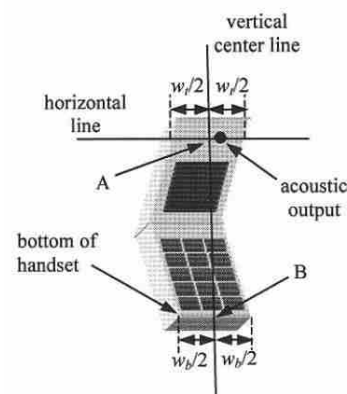


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

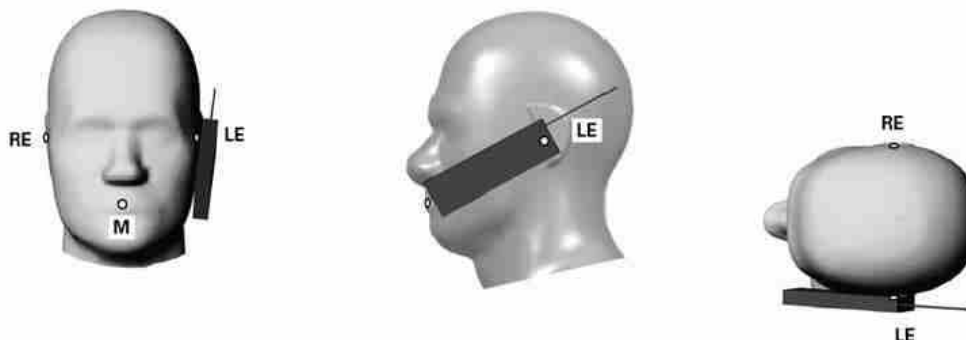


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

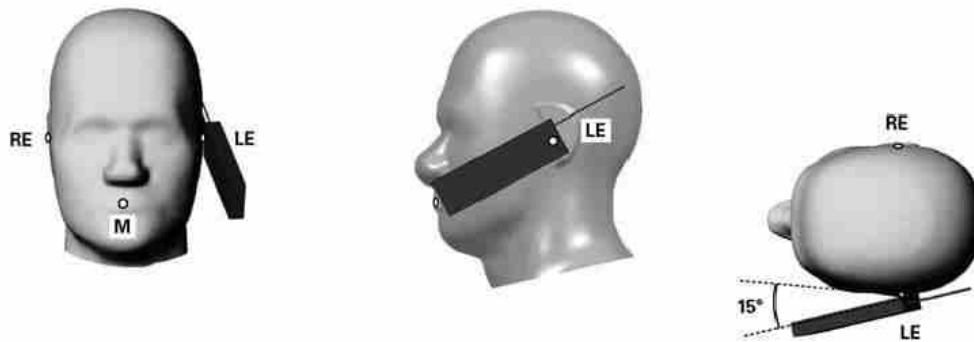


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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 test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

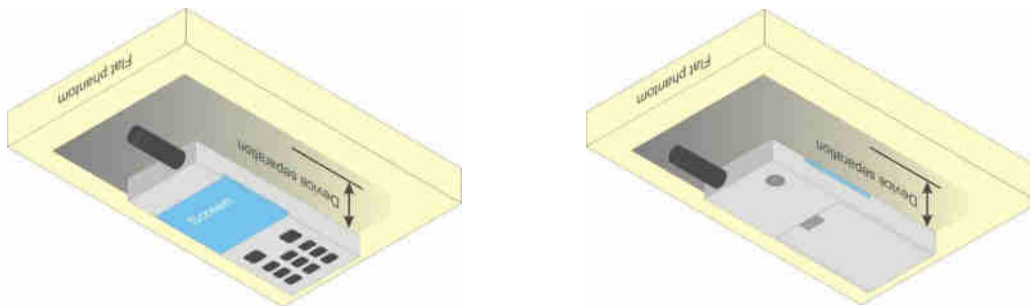


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

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

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

12.6 Wireless Router

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

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

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

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

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_o/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5
Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$. Note 3: CM = 1 for $\beta_o/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. 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 β_o/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.							

Setup Configuration

HSUPA Setup Configuration:

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

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

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

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CDI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CDI} = 5/15$ 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 β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, 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: β_{ed} can not be set directly; it is set by Absolute Grant Value.

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

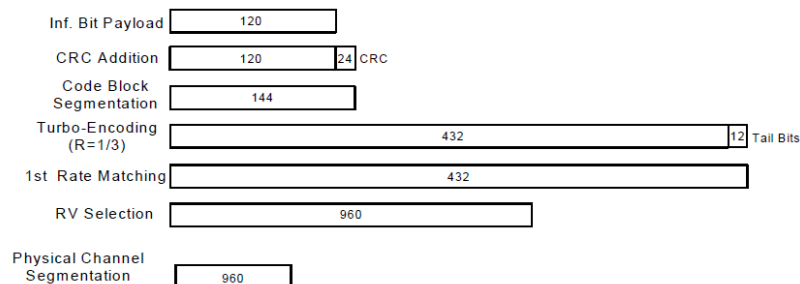


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

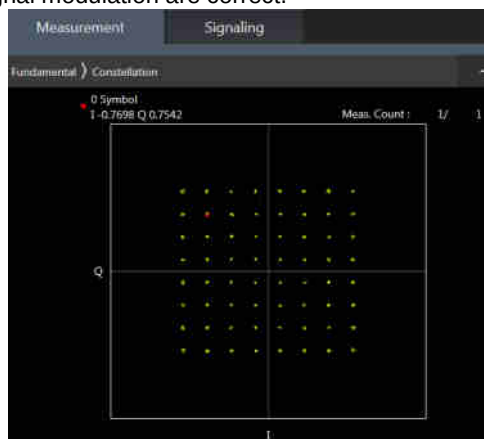
General Note:

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

<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 ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / 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 B5 / B17 / B38 SAR test was covered by 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.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “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
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

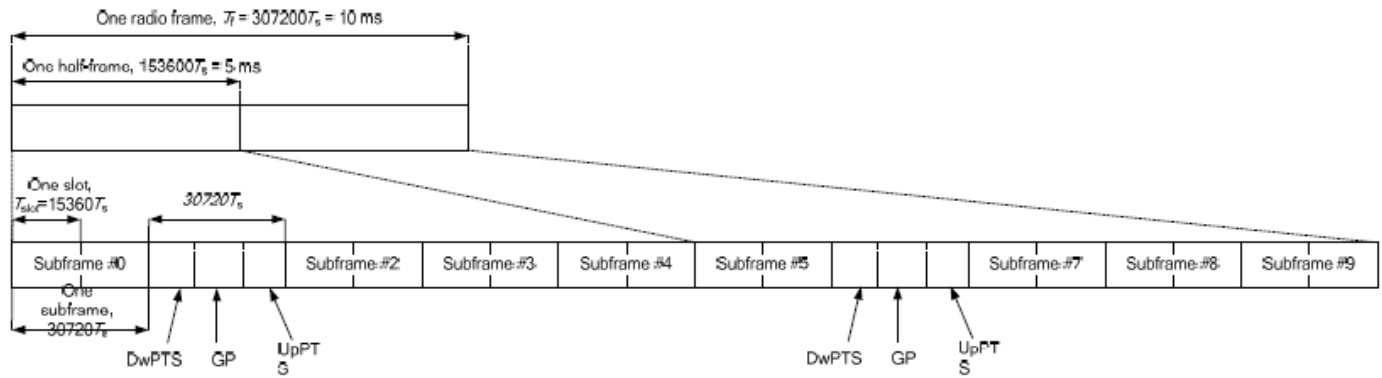


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- 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.
4. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation		3CC Downlink Carrier Aggregation		4CC Downlink Carrier Aggregation	
Number	Combination	Number	Combination	Number	Combination
1	CA_2A-12A	1	CA_2A-4A-12A	1	CA_41C-42C
2	CA_2A-4A	2	CA_2A-4A-5A		
3	CA_2A-5A	3	CA_2A-7A-7A		
4	CA_2A-7A	4	CA_2A-7C		
5	CA_2C	5	CA_41A-41A-41A		
6	CA_38C	6	CA_41A-42C		
7	CA_41A-41A	7	CA_41C-42A		
8	CA_41A-42A	8	CA_41D		
9	CA_41C	9	CA_4A-7C		
10	CA_42C	10	CA_5A-7A-7A		
11	CA_4A-12A	11	CA_5A-7C		
12	CA_4A-17A				
13	CA_4A-5A				
14	CA_4A-7A				
15	CA_5A-41A				
16	CA_5A-7A				
17	CA_7A-26A				
18	CA_7A-42A				
19	CA_7A-7A				
20	CA_7C				

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 four 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 41/42 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: B41/B42

LTE Carrier Aggregation Conducted Power (Uplink)
<Intra-band>

2CC Uplink Carrier Aggregation	
Number	Combination
1	7C
2	38C
3	41C
4	42C

General Note:

- The device supports intra-band uplink carrier aggregation for LTE B7/B38/B41/B42 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. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- The device supports uplink carrier aggregation 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. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- Additional SAR measurement for LTE UL CA with other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

<Inter-band uplink carrier aggregation consideration>

LTE Uplink CA	2CC Uplink Carrier Aggregation	
Combination	Band&Ant No.	Band&Ant No.
2A-4A	LTE B2: Ant0/Ant4	LTE B4: Ant0/Ant4
4A-7A	LTE B4: Ant0/Ant4	LTE B7: Ant0/Ant4

General Note:

The single carrier of inter band CA uplink power level is the same as Non-CA standalone LTE power level. For Inter-band CA co-located SAR analysis is performed using standalone SAR summed together and they are more conservatively for inter band CA.

5G NR Output Power (Unit: dBm)

General Note:

1. 5G NR n77, n78 supports NSA operation.
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 16QAM/64 QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/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 AM 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. 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.
5. 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.
6. For 5G NR 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.

<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 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 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	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

ENDC List	LTE Ant No.	NR Ant No.
DC_41A_n77A	Ant0&4	Ant3&5
DC_2A_n78A	Ant0&4	Ant3&5
DC_5A_n78A	Ant0&4	Ant3&5
DC_7A_n78A	Ant0&4	Ant3&5
DC_38A_n78A	Ant0&4	Ant3&5
DC_41A_n78A	Ant0&4	Ant3&5

<WLAN Conducted Power>

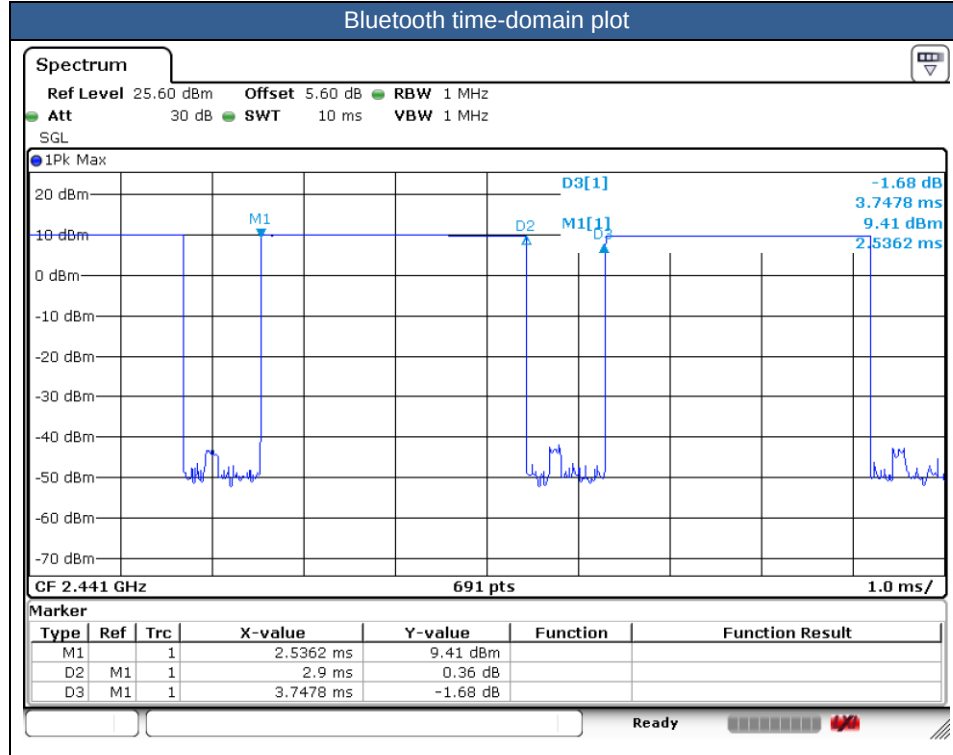
General Note:

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

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 77.38 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation





14. Antenna Location

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

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of 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:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. 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). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (DS1 1: receiver on reduced power for head; DS1 4: P-sensor on for hotspot/ handheld; DS2 2: P-sensor off).
6. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
7. For 5G NR 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.
8. 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.
9. 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.
10. 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. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - b. 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.
11. For different distance SAR always chose higher SAR at the same position to do co-located analysis.

GSM Note:

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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / 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 B5 / B17 / B38 SAR test was covered by 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 1RB 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 ≤ 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 ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device.
 - f. For 5G FR1 n77/n78 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 ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. Based on WLAN 2.4GHz and Bluetooth share the same, so Bluetooth RF exposure evaluation chose the worst position of WLAN 2.4GHz to perform Bluetooth SAR test, and used this Bluetooth SAR value conservatively represent other position do co-located analysis with WWAN.



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	0mm	Ant 0	DSI 1	23095	707.5	24.69	25.50	1.205	-0.06	0.100	0.121
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSI 1	23095	707.5	23.89	24.50	1.151	0.04	0.084	0.097
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	23095	707.5	24.69	25.50	1.205	-0.13	0.065	0.078
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSI 1	23095	707.5	23.89	24.50	1.151	0.01	0.051	0.059
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	23095	707.5	24.69	25.50	1.205	0.06	0.092	0.111
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSI 1	23095	707.5	23.89	24.50	1.151	-0.09	0.073	0.084
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	23095	707.5	24.69	25.50	1.205	-0.15	0.057	0.069
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSI 1	23095	707.5	23.89	24.50	1.151	0.06	0.048	0.055
01	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	23095	707.5	24.76	25.50	1.186	0.07	0.425	0.504
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 4	DSI 1	23095	707.5	23.78	24.50	1.180	-0.03	0.348	0.411
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	23095	707.5	24.76	25.50	1.186	0.05	0.365	0.433
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 4	DSI 1	23095	707.5	23.78	24.50	1.180	0.19	0.300	0.354
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	23095	707.5	24.76	25.50	1.186	0.03	0.377	0.447
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 4	DSI 1	23095	707.5	23.78	24.50	1.180	0.02	0.307	0.362
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	23095	707.5	24.76	25.50	1.186	0.07	0.353	0.419
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 4	DSI 1	23095	707.5	23.78	24.50	1.180	-0.06	0.292	0.345
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	23230	782	24.55	25.50	1.245	0.03	0.118	0.147
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSI 1	23230	782	23.65	24.50	1.216	-0.09	0.094	0.114
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	23230	782	24.55	25.50	1.245	0.11	0.072	0.090
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSI 1	23230	782	23.65	24.50	1.216	0.09	0.058	0.071
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	23230	782	24.55	25.50	1.245	0.07	0.096	0.119
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSI 1	23230	782	23.65	24.50	1.216	0.11	0.083	0.101
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	23230	782	24.55	25.50	1.245	0.06	0.060	0.075
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSI 1	23230	782	23.65	24.50	1.216	0.08	0.051	0.062
02	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	23230	782	24.68	25.50	1.208	0.05	0.436	0.527
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 4	DSI 1	23230	782	23.62	24.50	1.225	0.08	0.352	0.431
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	23230	782	24.68	25.50	1.208	0.07	0.324	0.391
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 4	DSI 1	23230	782	23.62	24.50	1.225	0.08	0.259	0.317
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	23230	782	24.68	25.50	1.208	0.08	0.387	0.467
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 4	DSI 1	23230	782	23.62	24.50	1.225	0.07	0.310	0.380
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	23230	782	24.68	25.50	1.208	-0.11	0.352	0.425
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 4	DSI 1	23230	782	23.62	24.50	1.225	-0.04	0.283	0.347
850MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 0	DSI 1	189	836.4	26.32	27.50	1.312	0.04	0.137	0.180
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 0	DSI 1	189	836.4	26.32	27.50	1.312	-0.08	0.065	0.085
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 0	DSI 1	189	836.4	26.32	27.50	1.312	0.12	0.123	0.161
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 0	DSI 1	189	836.4	26.32	27.50	1.312	0.11	0.073	0.096
03	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	189	836.4	26.54	27.50	1.247	-0.03	0.697	0.869
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	128	824.2	26.48	27.50	1.265	0.19	0.581	0.735
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	251	848.8	26.45	27.50	1.274	0.03	0.637	0.811
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 4	DSI 1	189	836.4	26.54	27.50	1.247	-0.12	0.508	0.634
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 4	DSI 1	189	836.4	26.54	27.50	1.247	-0.14	0.621	0.775
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 4	DSI 1	189	836.4	26.54	27.50	1.247	0.05	0.544	0.679
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 1	4182	836.4	24.78	25.50	1.180	-0.06	0.252	0.297
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 1	4182	836.4	24.78	25.50	1.180	0.04	0.141	0.166
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 1	4182	836.4	24.78	25.50	1.180	0.06	0.239	0.282
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 1	4182	836.4	24.78	25.50	1.180	0.07	0.118	0.139
04	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	4182	836.4	23.27	24.50	1.327	0.15	0.510	0.677
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	DSI 1	4182	836.4	23.27	24.50	1.327	-0.07	0.397	0.527
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	DSI 1	4182	836.4	23.27	24.50	1.327	-0.1	0.473	0.628



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	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	DSI 1	4182	836.4	23.27	24.50	1.327	0.08	0.430	0.571
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	26865	831.5	24.44	25.50	1.276	0.07	0.192	0.245
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 0	DSI 1	26865	831.5	23.50	24.50	1.259	0.06	0.158	0.199
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	26865	831.5	24.44	25.50	1.276	-0.03	0.106	0.135
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 0	DSI 1	26865	831.5	23.50	24.50	1.259	0.04	0.088	0.111
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	26865	831.5	24.44	25.50	1.276	0.05	0.181	0.231
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 0	DSI 1	26865	831.5	23.50	24.50	1.259	-0.09	0.144	0.181
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	26865	831.5	24.44	25.50	1.276	0.03	0.094	0.120
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 0	DSI 1	26865	831.5	23.50	24.50	1.259	0.18	0.077	0.097
05	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	26865	831.5	24.48	25.50	1.265	-0.06	0.713	0.902
	LTE Band 26-ENDC	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	26865	831.5	21.59	22.50	1.233	0.03	0.327	0.403
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 4	DSI 1	26865	831.5	23.54	24.50	1.247	0.07	0.584	0.728
	LTE Band 26	15M	QPSK	75	0	-	Right Cheek	0mm	Ant 4	DSI 1	26865	831.5	23.49	24.50	1.262	0.02	0.585	0.738
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	26865	831.5	24.48	25.50	1.265	0.05	0.543	0.687
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 4	DSI 1	26865	831.5	23.54	24.50	1.247	-0.17	0.448	0.559
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	26865	831.5	24.48	25.50	1.265	0.16	0.672	0.850
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 4	DSI 1	26865	831.5	23.54	24.50	1.247	-0.08	0.549	0.685
	LTE Band 26	15M	QPSK	75	0	-	Left Cheek	0mm	Ant 4	DSI 1	26865	831.5	23.49	24.50	1.262	-0.18	0.556	0.702
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	26865	831.5	24.48	25.50	1.265	0.05	0.633	0.801
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 4	DSI 1	26865	831.5	23.54	24.50	1.247	0.05	0.518	0.646
	LTE Band 26	15M	QPSK	75	0	-	Left Tilted	0mm	Ant 4	DSI 1	26865	831.5	23.49	24.50	1.262	0.08	0.518	0.654

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	Right Cheek	0mm	Ant 0	DSI 1	1413	1732.6	24.17	25.50	1.358	0.02	0.095	0.129
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 1	1413	1732.6	24.17	25.50	1.358	0.08	0.065	0.088
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 1	1413	1732.6	24.17	25.50	1.358	0.06	0.076	0.103
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 1	1413	1732.6	24.17	25.50	1.358	0.07	0.063	0.086
06	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	1413	1732.6	20.90	21.50	1.148	0.17	0.362	0.416
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	DSI 1	1413	1732.6	20.90	21.50	1.148	0.06	0.337	0.387
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	DSI 1	1413	1732.6	20.90	21.50	1.148	0.02	0.242	0.278
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	DSI 1	1413	1732.6	20.90	21.50	1.148	-0.14	0.340	0.390
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	20175	1732.5	23.67	25.00	1.358	0.05	0.075	0.102
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	20175	1732.5	22.62	24.00	1.374	0.07	0.060	0.082
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	20175	1732.5	23.67	25.00	1.358	-0.08	0.049	0.067
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	20175	1732.5	22.62	24.00	1.374	0.01	0.040	0.055
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	20175	1732.5	23.67	25.00	1.358	0.03	0.058	0.079
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	20175	1732.5	22.62	24.00	1.374	0.12	0.047	0.065
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	20175	1732.5	23.67	25.00	1.358	0.15	0.045	0.061
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	20175	1732.5	22.62	24.00	1.374	0.07	0.039	0.054
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	20175	1732.5	18.46	19.50	1.271	-0.17	0.341	0.433
07	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	20175	1732.5	18.39	19.50	1.291	0.11	0.350	0.452
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	20175	1732.5	18.46	19.50	1.271	-0.08	0.318	0.404
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	20175	1732.5	18.39	19.50	1.291	0.04	0.323	0.417
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	20175	1732.5	18.46	19.50	1.271	-0.1	0.240	0.305
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	20175	1732.5	18.39	19.50	1.291	0.03	0.238	0.307
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	20175	1732.5	18.46	19.50	1.271	-0.18	0.339	0.431
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI 1	20175	1732.5	18.39	19.50	1.291	0.05	0.337	0.435
1900MHz																		
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 0	DSI 1	661	1880	23.52	24.50	1.253	0.06	0.050	0.063
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 0	DSI 1	661	1880	23.52	24.50	1.253	0.05	0.043	0.054
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 0	DSI 1	661	1880	23.52	24.50	1.253	0.15	0.052	0.065
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 0	DSI 1	661	1880	23.52	24.50	1.253	-0.16	0.053	0.066
08	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	661	1880	23.10	24.50	1.380	-0.04	0.741	1.023
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	512	1850.2	22.87	24.50	1.455	0.03	0.701	1.020

Sporton International (Kunshan) Inc.

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	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 4	DSI 1	810	1909.8	22.81	24.50	1.476	0.12	0.692	1.021
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 4	DSI 1	661	1880	23.10	24.50	1.380	-0.07	0.550	0.759
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 4	DSI 1	661	1880	23.10	24.50	1.380	0.03	0.477	0.658
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 4	DSI 1	661	1880	23.10	24.50	1.380	0.03	0.651	0.899
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 4	DSI 1	512	1850.2	22.87	24.50	1.455	-0.12	0.605	0.881
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 4	DSI 1	810	1909.8	22.81	24.50	1.476	0.07	0.601	0.887
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 1	9400	1880	23.98	25.50	1.419	0.12	0.095	0.135
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSI 1	9400	1880	23.98	25.50	1.419	0.06	0.077	0.109
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 1	9400	1880	23.98	25.50	1.419	0.16	0.084	0.119
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSI 1	9400	1880	23.98	25.50	1.419	0.08	0.100	0.142
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	9400	1880	19.57	20.50	1.239	-0.12	0.801	0.992
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	9262	1852.4	19.51	20.50	1.256	0.05	0.705	0.886
09	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	9538	1907.6	19.42	20.50	1.282	-0.05	0.853	1.094
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	DSI 1	9400	1880	19.57	20.50	1.239	0.05	0.697	0.863
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	DSI 1	9262	1852.4	19.51	20.50	1.256	0.02	0.520	0.653
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 4	DSI 1	9538	1907.6	19.42	20.50	1.282	0.12	0.794	1.018
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 4	DSI 1	9400	1880	19.57	20.50	1.239	0.18	0.534	0.662
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	DSI 1	9400	1880	19.57	20.50	1.239	-0.14	0.691	0.856
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	DSI 1	9262	1852.4	19.51	20.50	1.256	0.03	0.540	0.678
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 4	DSI 1	9538	1907.6	19.42	20.50	1.282	0.12	0.837	1.073
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	18900	1880	23.31	24.50	1.315	0.08	0.079	0.104
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	18900	1880	22.29	23.50	1.321	0.06	0.063	0.083
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	18900	1880	23.31	24.50	1.315	0.06	0.060	0.079
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	18900	1880	22.29	23.50	1.321	0.05	0.049	0.065
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	18900	1880	23.31	24.50	1.315	0.02	0.077	0.101
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	18900	1880	22.29	23.50	1.321	-0.03	0.062	0.082
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	18900	1880	23.31	24.50	1.315	-0.05	0.082	0.108
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	18900	1880	22.29	23.50	1.321	0.08	0.065	0.086
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	18900	1880	18.68	19.50	1.208	-0.01	0.476	0.575
10	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	18900	1880	18.62	19.50	1.225	0.05	0.482	0.590
	LTE Band 2-ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	18900	1880	15.46	16.50	1.271	0.05	0.218	0.277
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	18900	1880	18.68	19.50	1.208	0.04	0.408	0.493
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	18900	1880	18.62	19.50	1.225	-0.03	0.415	0.508
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	18900	1880	18.68	19.50	1.208	0.14	0.324	0.391
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	18900	1880	18.62	19.50	1.225	-0.09	0.324	0.397
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	18900	1880	18.68	19.50	1.208	0.05	0.421	0.508
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI 1	18900	1880	18.62	19.50	1.225	0.15	0.431	0.528



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	0mm	Ant 0	DSI 1	21100	2535	24.39	25.50	1.291	-	-	0.05	0.063	0.081
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	21100	2535	23.56	24.50	1.242	-	-	0.07	0.051	0.063
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	21100	2535	24.39	25.50	1.291	-	-	-0.11	0.043	0.056
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	21100	2535	23.56	24.50	1.242	-	-	0.13	0.035	0.043
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	21100	2535	24.39	25.50	1.291	-	-	0.15	0.124	0.160
	LTE Band 7C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	21100+21298	2535+2554.8	24.27	25.50	1.327	-	-	0.02	0.113	0.150
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	21100	2535	23.56	24.50	1.242	-	-	0.06	0.099	0.123
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	21100	2535	24.39	25.50	1.291	-	-	-0.09	0.065	0.084
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	21100	2535	23.56	24.50	1.242	-	-	0.05	0.052	0.065
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	21100	2535	18.30	19.00	1.175	-	-	0.02	0.390	0.458
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	21100	2535	18.22	19.00	1.197	-	-	-0.02	0.397	0.475
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	21100	2535	18.30	19.00	1.175	-	-	0.08	0.423	0.497
11	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	21100	2535	18.22	19.00	1.197	-	-	-0.09	0.433	0.518
	LTE Band 7C	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	21100+21298	2535+2554.8	18.11	19.00	1.227	-	-	0.11	0.416	0.511
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	21100	2535	18.30	19.00	1.175	-	-	-0.05	0.284	0.334
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	21100	2535	18.22	19.00	1.197	-	-	0.06	0.292	0.349
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	21100	2535	18.30	19.00	1.175	-	-	0.03	0.353	0.415
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI 1	21100	2535	18.22	19.00	1.197	-	-	0.1	0.348	0.416
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 1	40770	2608	24.17	25.50	1.358	62.9	1.006	-0.17	0.049	0.067
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSI 1	40770	2608	23.30	24.50	1.318	62.9	1.006	0.11	0.040	0.053
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSI 1	40770	2608	24.17	25.50	1.358	62.9	1.006	0.08	0.042	0.057
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSI 1	40770	2608	23.30	24.50	1.318	62.9	1.006	-0.09	0.034	0.045
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	40770	2608	24.17	25.50	1.358	62.9	1.006	0.03	0.093	0.127
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 1	40770+40968	2608+2627.8	24.15	25.50	1.365	62.9	1.006	-0.05	0.088	0.121
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSI 1	40770	2608	23.30	24.50	1.318	62.9	1.006	-0.17	0.070	0.093
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSI 1	40770	2608	24.17	25.50	1.358	62.9	1.006	0.11	0.039	0.053
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSI 1	40770	2608	23.30	24.50	1.318	62.9	1.006	-0.05	0.031	0.041
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	40770	2608	20.92	21.50	1.143	62.9	1.006	0.04	0.551	0.634
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	40240	2555	20.58	21.50	1.236	62.9	1.006	0.12	0.502	0.624
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	40500	2581	20.61	21.50	1.227	62.9	1.006	0.09	0.493	0.609
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 1	41090	2640	20.73	21.50	1.194	62.9	1.006	0.06	0.511	0.614
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	40770	2608	20.90	21.50	1.148	62.9	1.006	0.05	0.566	0.654
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	40240	2555	20.72	21.50	1.197	62.9	1.006	0.02	0.513	0.618
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	40500	2581	20.77	21.50	1.183	62.9	1.006	0.07	0.507	0.603
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI 1	41090	2640	20.80	21.50	1.175	62.9	1.006	0.11	0.521	0.616
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 4	DSI 1	40770	2608	20.88	21.50	1.153	62.9	1.006	0.04	0.521	0.605
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	40770	2608	20.92	21.50	1.143	62.9	1.006	0.09	0.624	0.717
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	40240	2555	20.58	21.50	1.236	62.9	1.006	0.08	0.529	0.658
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	40500	2581	20.61	21.50	1.227	62.9	1.006	0.07	0.538	0.664
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI 1	41090	2640	20.73	21.50	1.194	62.9	1.006	-0.03	0.592	0.711
12	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	40770	2608	20.90	21.50	1.148	62.9	1.006	-0.03	0.634	0.732
	LTE Band 41C	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	40770+40968	2608+2627.8	20.89	21.50	1.151	62.9	1.006	0.11	0.613	0.710
	LTE Band 41-ENDC	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	40770	2608	17.93	18.50	1.140	62.9	1.006	0.01	0.311	0.357
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	40240	2555	20.72	21.50	1.197	62.9	1.006	0.01	0.601	0.724
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	40500	2581	20.77	21.50	1.183	62.9	1.006	0.08	0.587	0.699
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI 1	41090	2640	20.80	21.50	1.175	62.9	1.006	-0.15	0.561	0.663
	LTE Band 41	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 4	DSI 1	40770	2608	20.88	21.50	1.153	62.9	1.006	0.09	0.603	0.700
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI 1	40770	2608	20.92	21.50	1.143	62.9	1.006	-0.02	0.382	0.439
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI 1	40770	2608	20.90	21.50	1.148	62.9	1.006	0.04	0.388	0.448
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI 1	40770	2608	20.92	21.50	1.143	62.9	1.006	-0.16	0.504	0.579
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI 1	40770	2608	20.90	21.50	1.148	62.9	1.006	0.03	0.511	0.590



3500MHz																				
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSI 1	42590	3500	20.27	21.50	1.327	62.9	1.006	0.03	0.289	0.386
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSI 1	42590	3500	20.23	21.50	1.340	62.9	1.006	0.08	0.307	0.414
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSI 1	42590	3500	20.27	21.50	1.327	62.9	1.006	-0.14	0.334	0.446
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSI 1	42590	3500	20.23	21.50	1.340	62.9	1.006	-0.1	0.337	0.454
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	20.27	21.50	1.327	62.9	1.006	-0.14	0.638	0.852
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42190	3460	20.17	21.50	1.358	62.9	1.006	-0.17	0.603	0.824
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSI 1	42990	3540	20.18	21.50	1.355	62.9	1.006	0.02	0.729	0.994
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	20.23	21.50	1.340	62.9	1.006	0.02	0.670	0.903
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42190	3460	20.12	21.50	1.374	62.9	1.006	0.06	0.623	0.861
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSI 1	42990	3540	20.12	21.50	1.374	62.9	1.006	0.09	0.746	1.031
	LTE Band 42	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 5	DSI 1	42590	3500	20.19	21.50	1.352	62.9	1.006	0.07	0.665	0.905
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	20.27	21.50	1.327	62.9	1.006	-0.13	0.672	0.897
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42190	3460	20.17	21.50	1.358	62.9	1.006	-0.18	0.620	0.847
	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 1	42990	3540	20.18	21.50	1.355	62.9	1.006	0.02	0.716	0.976
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	20.23	21.50	1.340	62.9	1.006	0.06	0.691	0.931
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42190	3460	20.12	21.50	1.374	62.9	1.006	0.04	0.644	0.890
13	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42990	3540	20.12	21.50	1.374	62.9	1.006	0.02	0.768	1.062
	LTE Band 42C	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSI 1	42990+42792	3540+3520.2	20.08	21.50	1.387	62.9	1.006	-0.06	0.718	1.002
	LTE Band 42	20M	QPSK	100	0	-	Left Tilted	0mm	Ant 5	DSI 1	42590	3500	20.19	21.50	1.352	62.9	1.006	0.07	0.688	0.936
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 3	DSI 1	656000	3840	16.87	17.00	1.030	-	-	-0.09	0.645	0.665
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 3	DSI 1	656000	3840	16.75	17.00	1.059	-	-	0.13	0.619	0.656
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 3	DSI 1	656000	3840	16.87	17.00	1.030	-	-	0.06	0.375	0.386
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 3	DSI 1	656000	3840	16.75	17.00	1.059	-	-	-0.09	0.344	0.364
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 3	DSI 1	656000	3840	16.87	17.00	1.030	-	-	0.13	0.192	0.198
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 3	DSI 1	656000	3840	16.75	17.00	1.059	-	-	0.02	0.173	0.183
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 3	DSI 1	656000	3840	16.87	17.00	1.030	-	-	0.13	0.160	0.165
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 3	DSI 1	656000	3840	16.75	17.00	1.059	-	-	0.05	0.154	0.163
14	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 3	DSI 1	633334	3500.01	16.97	17.00	1.007	-	-	-0.19	0.677	0.682
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 3	DSI 1	633334	3500.01	16.88	17.00	1.028	-	-	-0.08	0.646	0.664
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 3	DSI 1	633334	3500.01	16.97	17.00	1.007	-	-	0.08	0.415	0.418
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 3	DSI 1	633334	3500.01	16.88	17.00	1.028	-	-	0.09	0.451	0.464
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 3	DSI 1	633334	3500.01	16.97	17.00	1.007	-	-	-0.14	0.216	0.217
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 3	DSI 1	633334	3500.01	16.88	17.00	1.028	-	-	-0.08	0.240	0.247
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 3	DSI 1	633334	3500.01	16.97	17.00	1.007	-	-	0.08	0.162	0.163
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 3	DSI 1	633334	3500.01	16.88	17.00	1.028	-	-	0.03	0.184	0.189
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	656000	3840	15.95	17.00	1.274	-	-	0.1	0.268	0.341
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	656000	3840	15.86	17.00	1.300	-	-	-0.06	0.274	0.356
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	656000	3840	15.95	17.00	1.274	-	-	-0.1	0.342	0.436
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	656000	3840	15.86	17.00	1.300	-	-	0.09	0.337	0.438
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	656000	3840	15.95	17.00	1.274	-	-	0.02	0.493	0.628
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	656000	3840	15.86	17.00	1.300	-	-	0.01	0.486	0.632
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	656000	3840	15.95	17.00	1.274	-	-	0.09	0.512	0.652
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	656000	3840	15.86	17.00	1.300	-	-	0.07	0.501	0.651
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	15.90	17.00	1.288	-	-	0.01	0.216	0.278
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI 1	633334	3500.01	15.87	17.00	1.297	-	-	0.03	0.218	0.283
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	15.90	17.00	1.288	-	-	-0.09	0.198	0.255
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI 1	633334	3500.01	15.87	17.00	1.297	-	-	0.17	0.210	0.272
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	15.90	17.00	1.288	-	-	0.06	0.419	0.540
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI 1	633334	3500.01	15.87	17.00	1.297	-	-	0.01	0.440	0.571
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	15.90	17.00	1.288	-	-	0.01	0.394	0.508
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI 1	633334	3500.01	15.87	17.00	1.297	-	-	-0.19	0.403	0.523



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 6	Reduced	6	2437	12.73	14.00	1.340	99.3	1.007	0.05	0.071	0.096
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 6	Reduced	6	2437	12.73	14.00	1.340	99.3	1.007	0.03	0.055	0.074
15	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Reduced	6	2437	12.73	14.00	1.340	99.3	1.007	-0.02	0.216	0.291
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 6	Reduced	6	2437	12.73	14.00	1.340	99.3	1.007	-0.02	0.153	0.206
16	Bluetooth	1Mbps	Left Cheek	0mm	Ant 6	Full power	39	2441	9.81	11.00	1.315	77.38	1.292	0.02	0.051	0.086
5000MHz																
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Reduced	58	5290	11.35	12.50	1.303	90.1	1.110	0.11	0.110	0.159
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Reduced	58	5290	11.35	12.50	1.303	90.1	1.110	0.01	0.142	0.205
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Reduced	58	5290	11.35	12.50	1.303	90.1	1.110	0.14	0.243	0.352
17	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Reduced	58	5290	11.35	12.50	1.303	90.1	1.110	0.07	0.295	0.427
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Reduced	122	5610	11.08	12.00	1.236	90.1	1.110	-0.09	0.152	0.209
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Reduced	122	5610	11.08	12.00	1.236	90.1	1.110	0.08	0.183	0.251
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Reduced	122	5610	11.08	12.00	1.236	90.1	1.110	0.15	0.265	0.364
18	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Reduced	122	5610	11.08	12.00	1.236	90.1	1.110	0.09	0.301	0.413
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	Reduced	155	5775	10.35	11.50	1.303	90.1	1.110	0.17	0.162	0.234
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	Reduced	155	5775	10.35	11.50	1.303	90.1	1.110	0.06	0.180	0.260
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Reduced	155	5775	10.35	11.50	1.303	90.1	1.110	-0.08	0.271	0.392
19	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Reduced	155	5775	10.35	11.50	1.303	90.1	1.110	0.07	0.283	0.409



15.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	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																		
20	LTE Band 12	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	23095	707.5	24.69	25.50	1.205	0.06	0.122	0.147
	LTE Band 12	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 4	23095	707.5	23.89	24.50	1.151	0.03	0.102	0.117
	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	23095	707.5	24.69	25.50	1.205	-0.18	0.193	0.233
	LTE Band 12	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 4	23095	707.5	23.89	24.50	1.151	0.05	0.160	0.184
	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 2	23095	707.5	24.69	25.50	1.205	0.05	0.110	0.133
	LTE Band 12	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI 2	23095	707.5	23.89	24.50	1.151	-0.09	0.092	0.106
	LTE Band 12	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 2	23095	707.5	24.69	25.50	1.205	-0.03	0.199	0.240
	LTE Band 12	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI 2	23095	707.5	23.89	24.50	1.151	0.09	0.165	0.190
	LTE Band 12	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 4	23095	707.5	24.69	25.50	1.205	0.05	0.132	0.159
	LTE Band 12	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI 4	23095	707.5	23.89	24.50	1.151	0.03	0.112	0.129
	LTE Band 12	10M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	23095	707.5	24.76	25.50	1.186	0.12	0.100	0.119
	LTE Band 12	10M	QPSK	25	0	-	Front	10mm	Ant 4	DSI 4	23095	707.5	23.78	24.50	1.180	0.09	0.088	0.104
	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	23095	707.5	24.76	25.50	1.186	0.01	0.183	0.217
	LTE Band 12	10M	QPSK	25	0	-	Back	10mm	Ant 4	DSI 4	23095	707.5	23.78	24.50	1.180	0.01	0.146	0.172
	LTE Band 12	10M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 2	23095	707.5	24.76	25.50	1.186	-0.11	0.139	0.165
	LTE Band 12	10M	QPSK	25	0	-	Left Side	10mm	Ant 4	DSI 2	23095	707.5	23.78	24.50	1.180	0.06	0.121	0.143
	LTE Band 12	10M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 2	23095	707.5	24.76	25.50	1.186	0.01	0.098	0.116
	LTE Band 12	10M	QPSK	25	0	-	Right Side	10mm	Ant 4	DSI 2	23095	707.5	23.78	24.50	1.180	0.09	0.085	0.100
	LTE Band 12	10M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 4	23095	707.5	24.76	25.50	1.186	-0.1	0.103	0.122
	LTE Band 12	10M	QPSK	25	0	-	Top Side	10mm	Ant 4	DSI 4	23095	707.5	23.78	24.50	1.180	0.02	0.091	0.107
21	LTE Band 13	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	23230	782	24.55	25.50	1.245	0.07	0.103	0.128
	LTE Band 13	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 4	23230	782	23.65	24.50	1.216	0.02	0.084	0.102
	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	23230	782	24.55	25.50	1.245	-0.04	0.200	0.249
	LTE Band 13	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 4	23230	782	23.65	24.50	1.216	0.05	0.156	0.190
	LTE Band 13	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 2	23230	782	24.55	25.50	1.245	0.07	0.078	0.097
	LTE Band 13	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI 2	23230	782	23.65	24.50	1.216	-0.1	0.062	0.075
	LTE Band 13	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 2	23230	782	24.55	25.50	1.245	0.02	0.152	0.189
	LTE Band 13	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI 2	23230	782	23.65	24.50	1.216	0.07	0.126	0.153
	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 4	23230	782	24.55	25.50	1.245	0.08	0.168	0.209
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI 4	23230	782	23.65	24.50	1.216	0.19	0.137	0.167
	LTE Band 13	10M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	23230	782	24.68	25.50	1.208	-0.17	0.134	0.162
	LTE Band 13	10M	QPSK	25	0	-	Front	10mm	Ant 4	DSI 4	23230	782	23.62	24.50	1.225	0.19	0.110	0.135
	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	23230	782	24.68	25.50	1.208	-0.1	0.210	0.254
	LTE Band 13	10M	QPSK	25	0	-	Back	10mm	Ant 4	DSI 4	23230	782	23.62	24.50	1.225	0.05	0.165	0.202
	LTE Band 13	10M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 2	23230	782	24.68	25.50	1.208	0.1	0.140	0.169
	LTE Band 13	10M	QPSK	25	0	-	Left Side	10mm	Ant 4	DSI 2	23230	782	23.62	24.50	1.225	-0.15	0.116	0.142
	LTE Band 13	10M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 2	23230	782	24.68	25.50	1.208	-0.14	0.128	0.155
	LTE Band 13	10M	QPSK	25	0	-	Right Side	10mm	Ant 4	DSI 2	23230	782	23.62	24.50	1.225	-0.13	0.103	0.126
	LTE Band 13	10M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 4	23230	782	24.68	25.50	1.208	-0.08	0.140	0.169
	LTE Band 13	10M	QPSK	25	0	-	Top Side	10mm	Ant 4	DSI 4	23230	782	23.62	24.50	1.225	0.08	0.117	0.143
850MHz																		
22	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	DSI 4	189	836.4	26.32	27.50	1.312	-0.13	0.126	0.165
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	DSI 4	189	836.4	26.32	27.50	1.312	-0.19	0.211	0.277
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 0	DSI 2	189	836.4	26.32	27.50	1.312	0.09	0.068	0.089
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	10mm	Ant 0	DSI 2	189	836.4	26.32	27.50	1.312	0.06	0.142	0.186
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	10mm	Ant 0	DSI 4	189	836.4	26.32	27.50	1.312	0.05	0.174	0.228
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 4	DSI 4	189	836.4	26.54	27.50	1.247	-0.05	0.168	0.210
22	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 4	DSI 4	189	836.4	26.54	27.50	1.247	0.15	0.304	0.379
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 4	DSI 2	189	836.4	26.54	27.50	1.247	-0.05	0.095	0.119



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	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	10mm	Ant 4	DSI 2	189	836.4	26.54	27.50	1.247	0.05	0.105	0.131
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Top Side	10mm	Ant 4	DSI 4	189	836.4	26.54	27.50	1.247	0.11	0.192	0.239
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 4	4182	836.4	24.78	25.50	1.180	0.17	0.209	0.247
23	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	4182	836.4	24.78	25.50	1.180	-0.18	0.373	0.440
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 2	4182	836.4	24.78	25.50	1.180	-0.17	0.096	0.113
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 2	4182	836.4	24.78	25.50	1.180	0.01	0.177	0.209
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	4182	836.4	24.78	25.50	1.180	0.13	0.325	0.384
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	4182	836.4	24.73	25.50	1.194	-0.13	0.225	0.269
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	4182	836.4	24.73	25.50	1.194	-0.08	0.365	0.436
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 4	DSI 2	4182	836.4	24.73	25.50	1.194	0.14	0.099	0.118
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 4	DSI 2	4182	836.4	24.73	25.50	1.194	-0.02	0.108	0.129
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	DSI 4	4182	836.4	24.73	25.50	1.194	-0.12	0.214	0.256
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	26865	831.5	24.44	25.50	1.276	0.15	0.166	0.212
	LTE Band 26	15M	QPSK	36	0	-	Front	10mm	Ant 0	DSI 4	26865	831.5	23.50	24.50	1.259	-0.03	0.138	0.174
24	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	26865	831.5	24.44	25.50	1.276	-0.09	0.300	0.383
	LTE Band 26	15M	QPSK	36	0	-	Back	10mm	Ant 0	DSI 4	26865	831.5	23.50	24.50	1.259	-0.15	0.242	0.305
	LTE Band 26	15M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 2	26865	831.5	24.44	25.50	1.276	0.05	0.082	0.105
	LTE Band 26	15M	QPSK	36	0	-	Left Side	10mm	Ant 0	DSI 2	26865	831.5	23.50	24.50	1.259	0.12	0.069	0.087
	LTE Band 26	15M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 2	26865	831.5	24.44	25.50	1.276	0.17	0.140	0.179
	LTE Band 26	15M	QPSK	36	0	-	Right Side	10mm	Ant 0	DSI 2	26865	831.5	23.50	24.50	1.259	0.05	0.116	0.146
	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 4	26865	831.5	24.44	25.50	1.276	0.06	0.244	0.311
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	10mm	Ant 0	DSI 4	26865	831.5	23.50	24.50	1.259	-0.17	0.197	0.248
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	26865	831.5	24.48	25.50	1.265	-0.06	0.146	0.185
	LTE Band 26	15M	QPSK	36	0	-	Front	10mm	Ant 4	DSI 4	26865	831.5	23.54	24.50	1.247	0.04	0.121	0.151
	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	26865	831.5	24.48	25.50	1.265	-0.19	0.265	0.335
	LTE Band 26	15M	QPSK	36	0	-	Back	10mm	Ant 4	DSI 4	26865	831.5	23.54	24.50	1.247	0.09	0.218	0.272
	LTE Band 26	15M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 2	26865	831.5	24.48	25.50	1.265	0.1	0.064	0.081
	LTE Band 26	15M	QPSK	36	0	-	Left Side	10mm	Ant 4	DSI 2	26865	831.5	23.54	24.50	1.247	-0.14	0.054	0.067
	LTE Band 26	15M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 2	26865	831.5	24.48	25.50	1.265	0.17	0.073	0.092
	LTE Band 26	15M	QPSK	36	0	-	Right Side	10mm	Ant 4	DSI 2	26865	831.5	23.54	24.50	1.247	-0.18	0.059	0.074
	LTE Band 26	15M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 4	26865	831.5	24.48	25.50	1.265	-0.16	0.178	0.225
	LTE Band 26	15M	QPSK	36	0	-	Top Side	10mm	Ant 4	DSI 4	26865	831.5	23.54	24.50	1.247	-0.07	0.150	0.187



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	10mm	Ant 0	DSI 4	1413	1732.6	21.94	23.50	1.432	-0.07	0.218	0.312
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1413	1732.6	21.94	23.50	1.432	-0.08	0.635	0.909
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1312	1712.4	21.78	23.50	1.486	-0.01	0.533	0.792
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1513	1752.6	21.92	23.50	1.439	-0.02	0.522	0.751
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	0.03	0.107	0.145
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	0.19	0.125	0.170
25	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	1413	1732.6	21.94	23.50	1.432	-0.07	0.762	1.091
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	1312	1712.4	21.78	23.50	1.486	-0.07	0.685	1.018
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	1513	1752.6	21.92	23.50	1.439	-0.07	0.674	0.970
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	-0.02	0.207	0.281
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	20mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	0.06	0.513	0.697
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	-0.17	0.782	1.062
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	1312	1712.4	24.14	25.50	1.368	0.11	0.633	0.866
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	1513	1752.6	24.09	25.50	1.384	0.02	0.619	0.856
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	1413	1732.6	22.51	23.50	1.256	0.03	0.147	0.185
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	1413	1732.6	22.51	23.50	1.256	-0.15	0.172	0.216
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	0.16	0.106	0.124
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	-0.03	0.041	0.048
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	DSI 4	1413	1732.6	22.51	23.50	1.256	-0.02	0.216	0.271
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	-0.12	0.113	0.132
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	20mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	-0.12	0.052	0.061
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	15mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	0.04	0.127	0.148
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	20175	1732.5	21.46	22.50	1.271	0.12	0.158	0.201
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	20175	1732.5	21.39	22.50	1.291	-0.09	0.158	0.204
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	20175	1732.5	21.46	22.50	1.271	0.11	0.423	0.537
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	20175	1732.5	21.39	22.50	1.291	-0.06	0.429	0.554
	LTE Band 4	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.05	0.096	0.130
	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 2	20175	1732.5	22.62	24.00	1.374	-0.18	0.079	0.109
	LTE Band 4	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	-0.16	0.104	0.141
	LTE Band 4	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 2	20175	1732.5	22.62	24.00	1.374	0.07	0.087	0.120
	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 4	20175	1732.5	21.46	22.50	1.271	0.07	0.570	0.724
26	LTE Band 4	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 4	20175	1732.5	21.39	22.50	1.291	-0.08	0.587	0.758
	LTE Band 4	20M	QPSK	100	0	-	Bottom Side	10mm	Ant 0	DSI 4	20175	1732.5	21.35	22.50	1.303	-0.08	0.508	0.662
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.08	0.172	0.234
	LTE Band 4	20M	QPSK	1	0	-	Back	20mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.09	0.389	0.528
	LTE Band 4	20M	QPSK	1	0	-	Bottom Side	15mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.18	0.553	0.751
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	20175	1732.5	22.32	23.50	1.312	0.01	0.090	0.118
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	20175	1732.5	22.27	23.50	1.327	-0.09	0.092	0.122
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	20175	1732.5	22.32	23.50	1.312	0.07	0.100	0.131
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	20175	1732.5	22.27	23.50	1.327	-0.01	0.102	0.135
	LTE Band 4	20M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	-0.06	0.069	0.088
	LTE Band 4	20M	QPSK	50	0	-	Left Side	10mm	Ant 4	DSI 2	20175	1732.5	22.39	23.50	1.291	0.09	0.055	0.071
	LTE Band 4	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	0.06	0.032	0.041
	LTE Band 4	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	DSI 2	20175	1732.5	22.39	23.50	1.291	0.04	0.026	0.034
	LTE Band 4	20M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 4	20175	1732.5	22.32	23.50	1.312	0.03	0.100	0.131
	LTE Band 4	20M	QPSK	50	0	-	Top Side	10mm	Ant 4	DSI 4	20175	1732.5	22.27	23.50	1.327	-0.09	0.096	0.127
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	-0.07	0.108	0.137
	LTE Band 4	20M	QPSK	1	0	-	Back	20mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	-0.18	0.069	0.088
	LTE Band 4	20M	QPSK	1	0	-	Top Side	15mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	0.03	0.085	0.108
1900MHz																		
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	DSI 4	661	1880	23.52	24.50	1.253	0.04	0.121	0.152
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	DSI 4	661	1880	23.52	24.50	1.253	-0.01	0.345	0.432



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	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 0	DSI 2	661	1880	23.52	24.50	1.253	-0.16	0.032	0.040
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Side	10mm	Ant 0	DSI 2	661	1880	23.52	24.50	1.253	-0.01	0.033	0.041
27	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	10mm	Ant 0	DSI 4	661	1880	23.52	24.50	1.253	-0.12	0.346	0.434
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 4	DSI 4	661	1880	23.17	24.50	1.358	0.18	0.106	0.144
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 4	DSI 4	661	1880	23.17	24.50	1.358	-0.03	0.183	0.249
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	10mm	Ant 4	DSI 2	661	1880	23.10	24.50	1.380	-0.17	0.000	0.000
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Side	10mm	Ant 4	DSI 2	661	1880	23.10	24.50	1.380	0.06	0.000	0.000
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Top Side	10mm	Ant 4	DSI 4	661	1880	23.17	24.50	1.358	0.03	0.244	0.331
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 4	9400	1880	21.33	22.50	1.309	-0.04	0.201	0.263
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	9400	1880	21.33	22.50	1.309	0.09	0.512	0.670
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	-0.19	0.143	0.183
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	-0.15	0.104	0.133
28	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	9400	1880	21.33	22.50	1.309	-0.13	0.663	0.868
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	9262	1852.4	21.30	22.50	1.318	-0.13	0.615	0.811
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI 4	9538	1907.6	21.14	22.50	1.368	-0.13	0.622	0.851
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	0.07	0.225	0.288
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	20mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	-0.01	0.385	0.493
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	0.04	0.655	0.838
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	9262	1852.4	24.40	25.50	1.288	0.04	0.630	0.812
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI 2	9538	1907.6	24.36	25.50	1.300	0.04	0.622	0.809
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	9400	1880	21.42	22.50	1.282	0.09	0.213	0.273
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	9400	1880	21.42	22.50	1.282	-0.03	0.265	0.340
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	0.03	0.277	0.360
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	0.12	0.115	0.150
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 4	DSI 4	9400	1880	21.42	22.50	1.282	-0.01	0.450	0.577
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	0.07	0.188	0.244
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	20mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	0.03	0.146	0.190
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	15mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	0.12	0.364	0.473
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	18900	1880	19.66	20.50	1.213	0.02	0.120	0.146
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	18900	1880	19.46	20.50	1.271	0.11	0.117	0.149
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	18900	1880	19.66	20.50	1.213	-0.01	0.306	0.371
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	18900	1880	19.46	20.50	1.271	0.18	0.292	0.370
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	0.08	0.115	0.151
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI 2	18900	1880	22.29	23.50	1.321	0.02	0.092	0.122
	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	-0.15	0.086	0.113
	LTE Band 2	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI 2	18900	1880	22.29	23.50	1.321	-0.1	0.065	0.086
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI 4	18900	1880	19.66	20.50	1.213	0.07	0.425	0.516
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI 4	18900	1880	19.46	20.50	1.271	-0.13	0.434	0.551
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	0.09	0.195	0.256
	LTE Band 2	20M	QPSK	1	0	-	Back	20mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	-0.02	0.225	0.296
29	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	15mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	-0.04	0.568	0.747
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	18900	1880	20.22	21.00	1.197	0.06	0.138	0.165
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	18900	1880	20.19	21.00	1.205	0.05	0.140	0.169
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	18900	1880	20.22	21.00	1.197	-0.02	0.164	0.196
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	18900	1880	20.19	21.00	1.205	0.04	0.167	0.201
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	0.02	0.206	0.258
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 4	DSI 2	18900	1880	21.38	22.50	1.294	0.05	0.162	0.210
	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	-0.1	0.092	0.115
	LTE Band 2	20M	QPSK	50	0	-	Right Side	10mm	Ant 4	DSI 2	18900	1880	21.38	22.50	1.294	-0.01	0.072	0.093
	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 4	DSI 4	18900	1880	20.22	21.00	1.197	0.18	0.258	0.309
	LTE Band 2	20M	QPSK	50	0	-	Top Side	10mm	Ant 4	DSI 4	18900	1880	20.19	21.00	1.205	0.11	0.263	0.317
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	-0.07	0.152	0.190
	LTE Band 2	20M	QPSK	1	0	-	Back	20mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	0.05	0.128	0.160
	LTE Band 2	20M	QPSK	1	0	-	Top Side	15mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	0.06	0.252	0.315



FCC SAR Test Report

Report No. : FA1N1013-03

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	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	10mm	Ant 0	DSI 4	21100	2535	20.19	21.00	1.205	-	-	-0.11	0.101	0.122
	LTE Band 7	20M	QPSK	50	0	Front	10mm	Ant 0	DSI 4	21100	2535	20.17	21.00	1.211	-	-	0.05	0.106	0.128
	LTE Band 7	20M	QPSK	1	0	Back	10mm	Ant 0	DSI 4	21100	2535	20.19	21.00	1.205	-	-	0.03	0.211	0.254
	LTE Band 7	20M	QPSK	50	0	Back	10mm	Ant 0	DSI 4	21100	2535	20.17	21.00	1.211	-	-	0.03	0.211	0.255
	LTE Band 7	20M	QPSK	1	0	Left Side	10mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	-0.12	0.121	0.156
	LTE Band 7	20M	QPSK	50	0	Left Side	10mm	Ant 0	DSI 2	21100	2535	23.56	24.50	1.242	-	-	0.09	0.099	0.123
	LTE Band 7	20M	QPSK	1	0	Right Side	10mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	0.02	0.095	0.123
	LTE Band 7	20M	QPSK	50	0	Right Side	10mm	Ant 0	DSI 2	21100	2535	23.56	24.50	1.242	-	-	0.09	0.076	0.094
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	Ant 0	DSI 4	21100	2535	20.19	21.00	1.205	-	-	0.03	0.199	0.240
	LTE Band 7	20M	QPSK	50	0	Bottom Side	10mm	Ant 0	DSI 4	21100	2535	20.17	21.00	1.211	-	-	-0.05	0.202	0.245
	LTE Band 7	20M	QPSK	1	0	Front	15mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	0.09	0.153	0.198
	LTE Band 7	20M	QPSK	1	0	Back	20mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	-0.02	0.176	0.227
	LTE Band 7	20M	QPSK	1	0	Bottom Side	15mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	-0.04	0.287	0.371
	LTE Band 7C	20M	QPSK	1	0	Bottom Side	15mm	Ant 0	DSI 2	21100+21298	2535+2554.8	24.27	25.50	1.327	-	-	0.01	0.267	0.354
	LTE Band 7	20M	QPSK	1	0	Front	10mm	Ant 4	DSI 4	21100	2535	19.77	20.50	1.183	-	-	0.11	0.130	0.154
	LTE Band 7	20M	QPSK	50	0	Front	10mm	Ant 4	DSI 4	21100	2535	19.74	20.50	1.191	-	-	-0.19	0.134	0.160
	LTE Band 7	20M	QPSK	1	0	Back	10mm	Ant 4	DSI 4	21100	2535	19.77	20.50	1.183	-	-	0.07	0.179	0.212
	LTE Band 7	20M	QPSK	50	0	Back	10mm	Ant 4	DSI 4	21100	2535	19.74	20.50	1.191	-	-	-0.08	0.182	0.217
	LTE Band 7	20M	QPSK	1	0	Left Side	10mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	0.15	0.258	0.312
	LTE Band 7	20M	QPSK	50	0	Left Side	10mm	Ant 4	DSI 2	21100	2535	21.65	22.50	1.216	-	-	-0.17	0.206	0.251
	LTE Band 7	20M	QPSK	1	0	Right Side	10mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	0.17	0.051	0.062
	LTE Band 7	20M	QPSK	50	0	Right Side	10mm	Ant 4	DSI 2	21100	2535	21.65	22.50	1.216	-	-	-0.12	0.041	0.050
	LTE Band 7	20M	QPSK	1	0	Top Side	10mm	Ant 4	DSI 4	21100	2535	19.77	20.50	1.183	-	-	-0.11	0.342	0.405
30	LTE Band 7	20M	QPSK	50	0	Top Side	10mm	Ant 4	DSI 4	21100	2535	19.74	20.50	1.191	-	-	-0.04	0.346	0.412
	LTE Band 7C	20M	QPSK	50	0	Top Side	10mm	Ant 4	DSI 4	21100+21298	2535+2554.8	19.67	20.50	1.211	-	-	-0.04	0.321	0.389
	LTE Band 7	20M	QPSK	1	0	Front	15mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	-0.12	0.122	0.148
	LTE Band 7	20M	QPSK	1	0	Back	20mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	-0.05	0.140	0.169
	LTE Band 7	20M	QPSK	1	0	Top Side	15mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	-0.13	0.254	0.307
	LTE Band 41	20M	QPSK	1	0	Front	10mm	Ant 0	DSI 4	40770	2608	21.86	23.00	1.300	62.9	1.006	-0.08	0.121	0.158
	LTE Band 41	20M	QPSK	50	0	Front	10mm	Ant 0	DSI 4	40770	2608	21.82	23.00	1.312	62.9	1.006	-0.06	0.137	0.181
	LTE Band 41	20M	QPSK	1	0	Back	10mm	Ant 0	DSI 4	40770	2608	21.86	23.00	1.300	62.9	1.006	0.08	0.261	0.341
	LTE Band 41	20M	QPSK	50	0	Back	10mm	Ant 0	DSI 4	40770	2608	21.82	23.00	1.312	62.9	1.006	-0.04	0.274	0.362
	LTE Band 41C	20M	QPSK	50	0	Back	10mm	Ant 0	DSI 4	40770+40968	2608+2627.8	21.39	23.00	1.449	62.9	1.006	0.09	0.245	0.357
	LTE Band 41	20M	QPSK	1	0	Left Side	10mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.04	0.097	0.133
	LTE Band 41	20M	QPSK	50	0	Left Side	10mm	Ant 0	DSI 2	40770	2608	23.30	24.50	1.318	62.9	1.006	-0.11	0.080	0.106
	LTE Band 41	20M	QPSK	1	0	Right Side	10mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.06	0.052	0.071
	LTE Band 41	20M	QPSK	50	0	Right Side	10mm	Ant 0	DSI 2	40770	2608	23.30	24.50	1.318	62.9	1.006	0.07	0.043	0.057
	LTE Band 41	20M	QPSK	1	0	Bottom Side	10mm	Ant 0	DSI 4	40770	2608	21.86	23.00	1.300	62.9	1.006	0.08	0.245	0.320
	LTE Band 41	20M	QPSK	50	0	Bottom Side	10mm	Ant 0	DSI 4	40770	2608	21.82	23.00	1.312	62.9	1.006	-0.05	0.253	0.334
	LTE Band 41	20M	QPSK	1	0	Front	15mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.18	0.117	0.160
	LTE Band 41	20M	QPSK	1	0	Back	20mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.04	0.132	0.180
	LTE Band 41	20M	QPSK	1	0	Bottom Side	15mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	-0.13	0.170	0.232
	LTE Band 41	20M	QPSK	1	0	Front	10mm	Ant 4	DSI 4	40770	2608	21.62	22.00	1.091	62.9	1.006	0.05	0.167	0.183
	LTE Band 41	20M	QPSK	50	0	Front	10mm	Ant 4	DSI 4	40770	2608	20.68	22.00	1.355	62.9	1.006	0.02	0.138	0.188
	LTE Band 41	20M	QPSK	1	0	Back	10mm	Ant 4	DSI 4	40770	2608	21.62	22.00	1.091	62.9	1.006	0.07	0.278	0.305
	LTE Band 41	20M	QPSK	50	0	Back	10mm	Ant 4	DSI 4	40770	2608	20.68	22.00	1.355	62.9	1.006	0.08	0.217	0.296
	LTE Band 41	20M	QPSK	1	0	Left Side	10mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	0.19	0.165	0.191
	LTE Band 41	20M	QPSK	50	0	Left Side	10mm	Ant 4	DSI 2	40770	2608	21.88	22.50	1.153	62.9	1.006	0.05	0.135	0.157
	LTE Band 41	20M	QPSK	1	0	Right Side	10mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	-0.11	0.032	0.037
	LTE Band 41	20M	QPSK	50	0	Right Side	10mm	Ant 4	DSI 2	40770	2608	21.88	22.50	1.153	62.9	1.006	-0.14	0.028	0.032
31	LTE Band 41	20M	QPSK	1	0	Top Side	10mm	Ant 4	DSI 4	40770	2608	21.62	22.00	1.091	62.9	1.006	-0.07	0.419	0.460
	LTE Band 41C	20M	QPSK	1	0	Top Side	10mm	Ant 4	DSI 4	40770+40968	2608+2627.8	21.44	22.00	1.138	62.9	1.006	0.08	0.388	0.444

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FCC SAR Test Report

Report No. : FA1N1013-03

LTE Band 41	20M	QPSK	50	0	Top Side	10mm	Ant 4	DSI 4	40770	2608	20.68	22.00	1.355	62.9	1.006	-0.12	0.335	0.457
LTE Band 41	20M	QPSK	1	0	Front	15mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	0.11	0.086	0.100
LTE Band 41	20M	QPSK	1	0	Back	20mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	0.08	0.094	0.109
LTE Band 41	20M	QPSK	1	0	Top Side	15mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	-0.12	0.208	0.241

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	10mm	Ant 5	DSI 4	42590	3500	21.76	22.50	1.186	62.9	1.006	0.07	0.115	0.137
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 5	DSI 4	42590	3500	21.70	22.50	1.202	62.9	1.006	0.13	0.117	0.142
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 5	DSI 4	42590	3500	21.76	22.50	1.186	62.9	1.006	0.14	0.601	0.717
32	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 5	DSI 4	42590	3500	21.70	22.50	1.202	62.9	1.006	-0.02	0.634	0.767
	LTE Band 42C	20M	QPSK	50	0	-	Back	10mm	Ant 5	DSI 4	42590+42788	3500+3519.8	21.25	22.50	1.334	62.9	1.006	0.13	0.568	0.762
	LTE Band 42	20M	QPSK	1	0	-	Left Side	10mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	0.04	0.032	0.041
	LTE Band 42	20M	QPSK	50	0	-	Left Side	10mm	Ant 5	DSI 2	42590	3500	23.54	24.50	1.247	62.9	1.006	-0.04	0.019	0.024
	LTE Band 42	20M	QPSK	1	0	-	Right Side	10mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	-0.15	0.124	0.159
	LTE Band 42	20M	QPSK	50	0	-	Right Side	10mm	Ant 5	DSI 2	42590	3500	23.54	24.50	1.247	62.9	1.006	0.13	0.107	0.134
	LTE Band 42	20M	QPSK	1	0	-	Top Side	10mm	Ant 5	DSI 4	42590	3500	21.76	22.50	1.186	62.9	1.006	0.07	0.227	0.271
	LTE Band 42	20M	QPSK	50	0	-	Top Side	10mm	Ant 5	DSI 4	42590	3500	21.70	22.50	1.202	62.9	1.006	-0.06	0.240	0.290
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	0.14	0.066	0.085
	LTE Band 42	20M	QPSK	1	0	-	Back	20mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	0.17	0.175	0.224
	LTE Band 42	20M	QPSK	1	0	-	Top Side	15mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	-0.07	0.124	0.159
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 3	DSI 4	656000	3840	16.87	17.00	1.030	-	-	0.06	0.171	0.176
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 3	DSI 4	656000	3840	16.75	17.00	1.059	-	-	0.02	0.156	0.165
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 3	DSI 4	656000	3840	16.87	17.00	1.030	-	-	-0.04	0.264	0.272
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 3	DSI 4	656000	3840	16.75	17.00	1.059	-	-	-0.04	0.253	0.268
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 3	DSI 2	656000	3840	16.87	17.00	1.030	-	-	0.1	0.241	0.248
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 3	DSI 2	656000	3840	16.75	17.00	1.059	-	-	0.01	0.278	0.294
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 3	DSI 2	656000	3840	16.87	17.00	1.030	-	-	-0.08	0.008	0.008
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 3	DSI 2	656000	3840	16.75	17.00	1.059	-	-	0.09	0.010	0.011
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 3	DSI 2	656000	3840	16.87	17.00	1.030	-	-	0.11	0.096	0.099
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 3	DSI 2	656000	3840	16.75	17.00	1.059	-	-	0.03	0.088	0.093
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 3	DSI 4	633334	3500.01	16.97	17.00	1.007	-	-	0.15	0.164	0.165
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 3	DSI 4	633334	3500.01	16.88	17.00	1.028	-	-	-0.02	0.184	0.189
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 3	DSI 4	633334	3500.01	16.97	17.00	1.007	-	-	0.03	0.224	0.226
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 3	DSI 4	633334	3500.01	16.88	17.00	1.028	-	-	-0.05	0.238	0.245
	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	10mm	Ant 3	DSI 2	633334	3500.01	16.97	17.00	1.007	-	-	-0.07	0.258	0.260
	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	10mm	Ant 3	DSI 2	633334	3500.01	16.88	17.00	1.028	-	-	-0.05	0.290	0.298
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 3	DSI 2	633334	3500.01	16.97	17.00	1.007	-	-	-0.11	0.011	0.011
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 3	DSI 2	633334	3500.01	16.88	17.00	1.028	-	-	0.08	0.012	0.012
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 3	DSI 2	633334	3500.01	16.97	17.00	1.007	-	-	-0.17	0.100	0.101
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 3	DSI 2	633334	3500.01	16.88	17.00	1.028	-	-	-0.04	0.119	0.122
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 4	656000	3840	15.95	17.00	1.274	-	-	0.04	0.096	0.122
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 4	656000	3840	15.86	16.00	1.033	-	-	-0.1	0.095	0.098
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 4	656000	3840	15.95	17.00	1.274	-	-	-0.19	0.152	0.194
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 4	656000	3840	15.86	16.00	1.033	-	-	-0.07	0.209	0.216
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	0.02	0.067	0.088
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 2	656000	3840	22.78	24.00	1.324	-	-	0.08	0.068	0.090
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 4	656000	3840	15.95	17.00	1.274	-	-	-0.19	0.166	0.211
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 4	656000	3840	15.86	16.00	1.033	-	-	0.01	0.186	0.192
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	-0.05	0.221	0.289
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	20mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	0.06	0.316	0.414
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	15mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	0.03	0.435	0.569
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.04	0.057	0.073
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.03	0.058	0.075

Sporton International (Kunshan) Inc.

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FCC SAR Test Report

Report No. : FA1N1013-03

	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	-0.09	0.317	0.408
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	-0.06	0.297	0.383
	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	10mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	0.18	0.043	0.059
	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	10mm	Ant 5	DSI 2	633334	3500.01	22.57	24.00	1.390	-	-	-0.11	0.043	0.060
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.07	0.103	0.133
	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.01	0.111	0.143
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	-0.02	0.186	0.256
33	FR1 n77	100M	QPSK	1	1	DFT-30	Back	20mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	-0.03	0.457	0.629
	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	15mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	0.08	0.394	0.543

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.05	0.135	0.188
34	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.01	0.172	0.240
	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	-0.02	0.165	0.230
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.06	0.115	0.160
35	Bluetooth	1Mbps	Back	10mm	Ant 6	Full power	39	2441	9.81	11.00	1.315	77.38	1.292	0.02	0.002	0.003
5000MHz																
	WLAN5.2GHz	802.11a 6Mbps	Front	10mm	Ant 6	Full power	48	5240	18.11	18.50	1.094	97.6	1.025	0.07	0.236	0.265
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 6	Full power	48	5240	18.11	18.50	1.094	97.6	1.025	0.03	0.498	0.558
	WLAN5.2GHz	802.11a 6Mbps	Right Side	10mm	Ant 6	Full power	48	5240	18.11	18.50	1.094	97.6	1.025	0.08	0.216	0.242
36	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 6	Full power	48	5240	18.11	18.50	1.094	97.6	1.025	-0.06	0.623	0.699
	WLAN5.8GHz	802.11a 6Mbps	Front	10mm	Ant 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	0.06	0.239	0.345
	WLAN5.8GHz	802.11a 6Mbps	Back	10mm	Ant 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	-0.13	0.348	0.503
	WLAN5.8GHz	802.11a 6Mbps	Right Side	10mm	Ant 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	0.05	0.168	0.243
37	WLAN5.8GHz	802.11a 6Mbps	Top Side	10mm	Ant 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	0.15	0.452	0.653



15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	10mm	Ant 0	DSI 4	23095	707.5	24.69	25.50	1.205	0.06	0.122	0.147
	LTE Band 12	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 4	23095	707.5	23.89	24.50	1.151	0.03	0.102	0.117
38	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	23095	707.5	24.69	25.50	1.205	-0.18	0.193	0.233
	LTE Band 12	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 4	23095	707.5	23.89	24.50	1.151	0.05	0.160	0.184
	LTE Band 12	10M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	23095	707.5	24.76	25.50	1.186	0.12	0.100	0.119
	LTE Band 12	10M	QPSK	25	0	-	Front	10mm	Ant 4	DSI 4	23095	707.5	23.78	24.50	1.180	0.09	0.088	0.104
	LTE Band 12	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	23095	707.5	24.76	25.50	1.186	0.01	0.183	0.217
	LTE Band 12	10M	QPSK	25	0	-	Back	10mm	Ant 4	DSI 4	23095	707.5	23.78	24.50	1.180	0.01	0.146	0.172
	LTE Band 13	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	23230	782	24.55	25.50	1.245	0.07	0.103	0.128
	LTE Band 13	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI 4	23230	782	23.65	24.50	1.216	0.02	0.084	0.102
	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	23230	782	24.55	25.50	1.245	-0.04	0.200	0.249
	LTE Band 13	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI 4	23230	782	23.65	24.50	1.216	0.05	0.156	0.190
	LTE Band 13	10M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	23230	782	24.68	25.50	1.208	-0.17	0.134	0.162
	LTE Band 13	10M	QPSK	25	0	-	Front	10mm	Ant 4	DSI 4	23230	782	23.62	24.50	1.225	0.19	0.110	0.135
39	LTE Band 13	10M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	23230	782	24.68	25.50	1.208	-0.1	0.210	0.254
	LTE Band 13	10M	QPSK	25	0	-	Back	10mm	Ant 4	DSI 4	23230	782	23.62	24.50	1.225	0.05	0.165	0.202
850MHz																		
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	DSI 4	189	836.4	26.32	27.50	1.312	-0.13	0.126	0.165
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	DSI 4	189	836.4	26.32	27.50	1.312	-0.19	0.211	0.277
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 4	DSI 4	189	836.4	26.54	27.50	1.247	-0.05	0.168	0.210
40	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 4	DSI 4	189	836.4	26.54	27.50	1.247	0.15	0.304	0.379
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 4	4182	836.4	24.78	25.50	1.180	0.17	0.209	0.247
41	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	4182	836.4	24.78	25.50	1.180	-0.18	0.373	0.440
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	4182	836.4	24.73	25.50	1.194	-0.13	0.225	0.269
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	4182	836.4	24.73	25.50	1.194	-0.08	0.365	0.436
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	26865	831.5	24.44	25.50	1.276	0.15	0.166	0.212
	LTE Band 26	15M	QPSK	36	0	-	Front	10mm	Ant 0	DSI 4	26865	831.5	23.50	24.50	1.259	-0.03	0.138	0.174
42	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	26865	831.5	24.44	25.50	1.276	-0.09	0.300	0.383
	LTE Band 26	15M	QPSK	36	0	-	Back	10mm	Ant 0	DSI 4	26865	831.5	23.50	24.50	1.259	-0.15	0.242	0.305
	LTE Band 26	15M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	26865	831.5	24.48	25.50	1.265	-0.06	0.146	0.185
	LTE Band 26	15M	QPSK	36	0	-	Front	10mm	Ant 4	DSI 4	26865	831.5	23.54	24.50	1.247	0.04	0.121	0.151
	LTE Band 26	15M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	26865	831.5	24.48	25.50	1.265	-0.19	0.265	0.335
	LTE Band 26	15M	QPSK	36	0	-	Back	10mm	Ant 4	DSI 4	26865	831.5	23.54	24.50	1.247	0.09	0.218	0.272
1750MHz																		
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 4	1413	1732.6	21.94	23.50	1.432	-0.07	0.218	0.312
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1413	1732.6	21.94	23.50	1.432	-0.08	0.635	0.909
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1312	1712.4	21.78	23.50	1.486	-0.01	0.533	0.792
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	1513	1752.6	21.92	23.50	1.439	-0.02	0.522	0.751
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	-0.02	0.207	0.281
43	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI 2	1413	1732.6	24.17	25.50	1.358	0.06	0.799	1.085
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI 2	1312	1712.4	24.14	25.50	1.368	0.11	0.653	0.893
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI 2	1513	1752.6	24.09	25.50	1.384	0.13	0.628	0.869
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	1413	1732.6	22.51	23.50	1.256	0.03	0.147	0.185
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	1413	1732.6	22.51	23.50	1.256	-0.15	0.172	0.216
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	-0.12	0.113	0.132
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	DSI 2	1413	1732.6	23.83	24.50	1.167	-0.12	0.097	0.113
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	20175	1732.5	21.46	22.50	1.271	0.12	0.158	0.201
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	20175	1732.5	21.39	22.50	1.291	-0.09	0.158	0.204
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	20175	1732.5	21.46	22.50	1.271	0.11	0.423	0.537
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	20175	1732.5	21.39	22.50	1.291	-0.06	0.429	0.554



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	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.08	0.172	0.234
44	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 2	20175	1732.5	23.67	25.00	1.358	0.09	0.505	0.686
	LTE Band 4	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	20175	1732.5	22.32	23.50	1.312	0.01	0.090	0.118
	LTE Band 4	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	20175	1732.5	22.27	23.50	1.327	-0.09	0.092	0.122
	LTE Band 4	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	20175	1732.5	22.32	23.50	1.312	0.07	0.100	0.131
	LTE Band 4	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	20175	1732.5	22.27	23.50	1.327	-0.01	0.102	0.135
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	-0.07	0.108	0.137
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 4	DSI 2	20175	1732.5	23.46	24.50	1.271	-0.18	0.091	0.116

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
1900MHz																				
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 0	DSI 4	661	1880	23.52	24.50	1.253	-	-	0.04	0.121	0.152
45	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 0	DSI 4	661	1880	23.52	24.50	1.253	-	-	-0.01	0.345	0.432
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	10mm	Ant 4	DSI 4	661	1880	23.17	24.50	1.358	-	-	0.18	0.106	0.144
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	10mm	Ant 4	DSI 4	661	1880	23.17	24.50	1.358	-	-	-0.03	0.183	0.249
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI 4	9400	1880	21.33	22.50	1.309	-	-	-0.04	0.201	0.263
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI 4	9400	1880	21.33	22.50	1.309	-	-	0.09	0.512	0.670
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	-	-	0.07	0.225	0.288
46	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI 2	9400	1880	24.43	25.50	1.279	-	-	-0.01	0.537	0.687
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 4	DSI 4	9400	1880	21.42	22.50	1.282	-	-	0.09	0.213	0.273
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 4	DSI 4	9400	1880	21.42	22.50	1.282	-	-	-0.03	0.265	0.340
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	-	-	0.07	0.188	0.244
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 4	DSI 2	9400	1880	23.36	24.50	1.300	-	-	0.03	0.209	0.272
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	18900	1880	19.66	20.50	1.213	-	-	0.02	0.120	0.146
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	18900	1880	19.46	20.50	1.271	-	-	0.11	0.117	0.149
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	18900	1880	19.66	20.50	1.213	-	-	-0.01	0.306	0.371
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	18900	1880	19.46	20.50	1.271	-	-	0.18	0.292	0.370
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	-	-	0.09	0.195	0.256
47	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 2	18900	1880	23.31	24.50	1.315	-	-	-0.02	0.413	0.543
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	18900	1880	20.22	21.00	1.197	-	-	0.06	0.138	0.165
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	18900	1880	20.19	21.00	1.205	-	-	0.05	0.140	0.169
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	18900	1880	20.22	21.00	1.197	-	-	-0.02	0.164	0.196
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	18900	1880	20.19	21.00	1.205	-	-	0.04	0.167	0.201
	LTE Band 2	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	-	-	-0.07	0.152	0.190
	LTE Band 2	20M	QPSK	1	0	-	Back	15mm	Ant 4	DSI 2	18900	1880	22.53	23.50	1.250	-	-	0.05	0.160	0.200
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	21100	2535	20.19	21.00	1.205	-	-	-0.11	0.101	0.122
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	21100	2535	20.17	21.00	1.211	-	-	0.05	0.106	0.128
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	21100	2535	20.19	21.00	1.205	-	-	0.03	0.211	0.254
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	21100	2535	20.17	21.00	1.211	-	-	0.03	0.211	0.255
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	0.09	0.153	0.198
48	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 2	21100	2535	24.39	25.50	1.291	-	-	-0.02	0.259	0.334
	LTE Band 7C	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI 2	21100+21298	2535+2554.8	24.27	25.50	1.327	-	-	-0.01	0.239	0.317
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	21100	2535	19.77	20.50	1.183	-	-	0.11	0.130	0.154
	LTE Band 7	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	21100	2535	19.74	20.50	1.191	-	-	-0.19	0.134	0.160
	LTE Band 7	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	21100	2535	19.77	20.50	1.183	-	-	0.07	0.179	0.212
	LTE Band 7	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	21100	2535	19.74	20.50	1.191	-	-	-0.08	0.182	0.217
	LTE Band 7C	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	21100+21298	2535+2554.8	19.67	20.50	1.211	-	-	0.02	0.174	0.211
	LTE Band 7	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	-0.12	0.122	0.148
	LTE Band 7	20M	QPSK	1	0	-	Back	15mm	Ant 4	DSI 2	21100	2535	22.67	23.50	1.211	-	-	-0.05	0.172	0.208
	LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI 4	40770	2608	21.86	23.00	1.300	62.9	1.006	-0.08	0.121	0.158
	LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI 4	40770	2608	21.82	23.00	1.312	62.9	1.006	-0.06	0.137	0.181
	LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI 4	40770	2608	21.86	23.00	1.300	62.9	1.006	0.08	0.261	0.341
49	LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	40770	2608	21.82	23.00	1.312	62.9	1.006	-0.04	0.274	0.362

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LTE Band 41C	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI 4	40770+40968	2608+2627.8	21.39	23.00	1.449	62.9	1.006	0.09	0.245	0.357
LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.18	0.117	0.160
LTE Band 41	20M	QPSK	1	0	-	Back	20mm	Ant 0	DSI 2	40770	2608	24.17	25.50	1.358	62.9	1.006	0.04	0.132	0.180
LTE Band 41	20M	QPSK	1	0	-	Front	10mm	Ant 4	DSI 4	40770	2608	21.62	22.00	1.091	62.9	1.006	0.05	0.167	0.183
LTE Band 41	20M	QPSK	50	0	-	Front	10mm	Ant 4	DSI 4	40770	2608	20.68	22.00	1.355	62.9	1.006	0.02	0.138	0.188
LTE Band 41	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	40770	2608	21.62	22.00	1.091	62.9	1.006	0.07	0.278	0.305
LTE Band 41C	20M	QPSK	1	0	-	Back	10mm	Ant 4	DSI 4	40770+40968	2608+2627.8	21.44	22.00	1.138	62.9	1.006	0.02	0.263	0.301
LTE Band 41	20M	QPSK	50	0	-	Back	10mm	Ant 4	DSI 4	40770	2608	20.68	22.00	1.355	62.9	1.006	0.08	0.217	0.296
LTE Band 41	20M	QPSK	1	0	-	Front	15mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	0.11	0.086	0.100
LTE Band 41	20M	QPSK	1	0	-	Back	20mm	Ant 4	DSI 2	40770	2608	22.89	23.50	1.151	62.9	1.006	0.08	0.094	0.109

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	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	10mm	Ant 5	DSI 4	42590	3500	21.76	22.50	1.186	62.9	1.006	0.07	0.115	0.137
	LTE Band 42	20M	QPSK	50	0	-	Front	10mm	Ant 5	DSI 4	42590	3500	21.70	22.50	1.202	62.9	1.006	0.13	0.117	0.142
	LTE Band 42	20M	QPSK	1	0	-	Back	10mm	Ant 5	DSI 4	42590	3500	21.76	22.50	1.186	62.9	1.006	0.14	0.601	0.717
50	LTE Band 42	20M	QPSK	50	0	-	Back	10mm	Ant 5	DSI 4	42590	3500	21.70	22.50	1.202	62.9	1.006	-0.02	0.634	0.767
	LTE Band 42C	20M	QPSK	50	0	-	Back	10mm	Ant 5	DSI 4	42590+42788	3500+3519.8	21.25	22.50	1.334	62.9	1.006	0.13	0.568	0.762
	LTE Band 42	20M	QPSK	1	0	-	Front	15mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	0.14	0.066	0.085
	LTE Band 42	20M	QPSK	1	0	-	Back	15mm	Ant 5	DSI 2	42590	3500	24.45	25.50	1.274	62.9	1.006	0.17	0.298	0.382
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 3	DSI 4	656000	3840	16.87	17.00	1.030	-	-	0.06	0.171	0.176
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 3	DSI 4	656000	3840	16.75	17.00	1.059	-	-	0.02	0.156	0.165
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 3	DSI 4	656000	3840	16.87	17.00	1.030	-	-	-0.04	0.264	0.272
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 3	DSI 4	656000	3840	16.75	17.00	1.059	-	-	-0.04	0.253	0.268
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 3	DSI 4	633334	3500.01	16.97	17.00	1.007	-	-	0.15	0.164	0.165
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 3	DSI 4	633334	3500.01	16.88	17.00	1.028	-	-	-0.02	0.184	0.189
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 3	DSI 4	633334	3500.01	16.97	17.00	1.007	-	-	0.03	0.224	0.226
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 3	DSI 4	633334	3500.01	16.88	17.00	1.028	-	-	-0.05	0.238	0.245
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 4	656000	3840	15.95	17.00	1.274	-	-	0.04	0.096	0.122
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 4	656000	3840	15.86	16.00	1.033	-	-	-0.1	0.095	0.098
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 4	656000	3840	15.95	17.00	1.274	-	-	-0.19	0.152	0.194
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 4	656000	3840	15.86	16.00	1.033	-	-	-0.07	0.209	0.216
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	-0.05	0.221	0.289
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	20mm	Ant 5	DSI 2	656000	3840	22.83	24.00	1.309	-	-	0.06	0.316	0.414
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.04	0.057	0.073
	FR1 n77	100M	QPSK	135	69	DFT-30	Front	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	0.03	0.058	0.075
	FR1 n77	100M	QPSK	1	1	DFT-30	Back	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	-0.09	0.317	0.408
	FR1 n77	100M	QPSK	135	69	DFT-30	Back	10mm	Ant 5	DSI 4	633334	3500.01	15.90	17.00	1.288	-	-	-0.06	0.297	0.383
	FR1 n77	100M	QPSK	1	1	DFT-30	Front	15mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	-0.02	0.186	0.256
51	FR1 n77	100M	QPSK	1	1	DFT-30	Back	20mm	Ant 5	DSI 2	633334	3500.01	22.61	24.00	1.377	-	-	-0.03	0.457	0.629



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	ANT 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.05	0.135	0.188
52	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	ANT 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.01	0.172	0.240
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	ANT 6	Full power	6	2437	19.09	20.50	1.384	99.3	1.007	0.05	0.124	0.173
53	Bluetooth	1Mbps	Back	10mm	ANT 6	Full power	39	2441	9.81	11.00	1.315	77.38	1.292	0.02	0.002	0.003
5000MHz																
	WLAN5.3GHz	802.11a 6Mbps	Front	10mm	ANT 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	0.07	0.265	0.290
54	WLAN5.3GHz	802.11a 6Mbps	Back	10mm	ANT 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	-0.04	0.592	0.649
	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	ANT 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	0.11	0.253	0.277
	WLAN5.5GHz	802.11a 6Mbps	Front	10mm	ANT 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.02	0.272	0.302
55	WLAN5.5GHz	802.11a 6Mbps	Back	10mm	ANT 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.09	0.612	0.680
	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	ANT 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.11	0.273	0.303
	WLAN5.8GHz	802.11a 6Mbps	Front	10mm	ANT 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	0.06	0.239	0.345
56	WLAN5.8GHz	802.11a 6Mbps	Back	10mm	ANT 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	-0.13	0.348	0.503
	WLAN5.8GHz	802.11a 6Mbps	Back	15mm	ANT 6	Full power	149	5745	16.51	18.00	1.409	97.6	1.025	0.16	0.201	0.290



15.4 Product Specific SAR

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	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)
5000MHz																
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	0.06	0.683	0.748
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	0.03	0.638	0.699
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	-0.01	0.576	0.631
57	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Full power	64	5320	18.21	18.50	1.069	97.6	1.025	-0.04	1.240	1.359
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	-0.08	0.683	0.759
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.07	0.643	0.714
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.05	0.571	0.634
58	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Full power	124	5620	18.15	18.50	1.084	97.6	1.025	0.19	1.520	1.689

15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	9538	1907.6	19.42	20.50	1.282	-0.05	0.853	1	1.094
2nd	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 4	DSI 1	9538	1907.6	19.42	20.50	1.282	0.03	0.817	1.044	1.048

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. 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
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	Bluetooth + WLAN5GHz	Yes	Yes	Yes	Yes
5.	WWAN + Bluetooth + WLAN5GHz	Yes	Yes	Yes	Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP) and LTE supports VoLTE operation.
- WWAN above includes 5G NR bands.
- EN-DC SAR summed the standalone 5G NR SAR and LTE standalone SAR more conservatively.
- EUT will choose each GSM, WCDMA, LTE and 5G NR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- WLAN2.4GHz and Bluetooth share the same antenna, so can't transmit simultaneously.
- According to the characteristic of EUT, WLAN5GHz and Bluetooth can transmit simultaneously.
- According to the EUT character, WLAN 2.4GHz and WLAN 5GHz cannot transmit simultaneously.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.



16.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3+4
		WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands	Right Cheek	1.094	0.096	0.234	0.086	1.19	1.41
	Right Tilted	1.018	0.074	0.260	0.086	1.09	1.36
	Left Cheek	1.031	0.291	0.392	0.086	1.32	1.51
	Left Tilted	1.073	0.206	0.427	0.086	1.28	1.59

<5G NR ENDC>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n78(77) Ant 3	Right Cheek	0.104	0.682	0.096	0.234	0.086	0.88	1.11
		Right Tilted	0.079	0.464	0.074	0.260	0.086	0.62	0.89
		Left Cheek	0.101	0.247	0.291	0.392	0.086	0.64	0.83
		Left Tilted	0.108	0.189	0.206	0.427	0.086	0.50	0.81
LTE Band 2 Ant 4	FR1 n78(77) Ant 3	Right Cheek	0.277	0.682	0.096	0.234	0.086	1.06	1.28
		Right Tilted	0.277	0.464	0.074	0.260	0.086	0.82	1.09
		Left Cheek	0.277	0.247	0.291	0.392	0.086	0.82	1.00
		Left Tilted	0.277	0.189	0.206	0.427	0.086	0.67	0.98
LTE Band 2 Ant 0	FR1 n78(77) Ant 5	Right Cheek	0.104	0.356	0.096	0.234	0.086	0.56	0.78
		Right Tilted	0.079	0.438	0.074	0.260	0.086	0.59	0.86
		Left Cheek	0.101	0.632	0.291	0.392	0.086	1.02	1.21
		Left Tilted	0.108	0.652	0.206	0.427	0.086	0.97	1.27
LTE Band 2 Ant 4	FR1 n78(77) Ant 5	Right Cheek	0.277	0.356	0.096	0.234	0.086	0.73	0.95
		Right Tilted	0.277	0.438	0.074	0.260	0.086	0.79	1.06
		Left Cheek	0.277	0.632	0.291	0.392	0.086	1.20	1.39
		Left Tilted	0.277	0.652	0.206	0.427	0.086	1.14	1.44
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 3	Right Cheek	0.245	0.682	0.096	0.234	0.086	1.02	1.25
		Right Tilted	0.135	0.464	0.074	0.260	0.086	0.67	0.95
		Left Cheek	0.231	0.247	0.291	0.392	0.086	0.77	0.96
		Left Tilted	0.120	0.189	0.206	0.427	0.086	0.52	0.82
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 3	Right Cheek	0.403	0.682	0.096	0.234	0.086	1.18	1.41
		Right Tilted	0.403	0.464	0.074	0.260	0.086	0.94	1.21
		Left Cheek	0.403	0.247	0.291	0.392	0.086	0.94	1.13
		Left Tilted	0.403	0.189	0.206	0.427	0.086	0.80	1.11
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 5	Right Cheek	0.245	0.356	0.096	0.234	0.086	0.70	0.92
		Right Tilted	0.135	0.438	0.074	0.260	0.086	0.65	0.92
		Left Cheek	0.231	0.632	0.291	0.392	0.086	1.15	1.34
		Left Tilted	0.120	0.652	0.206	0.427	0.086	0.98	1.29
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 5	Right Cheek	0.403	0.356	0.096	0.234	0.086	0.86	1.08
		Right Tilted	0.403	0.438	0.074	0.260	0.086	0.92	1.19
		Left Cheek	0.403	0.632	0.291	0.392	0.086	1.33	1.51
		Left Tilted	0.403	0.652	0.206	0.427	0.086	1.26	1.57
LTE Band 7 Ant 0	FR1 n78(77) Ant 3	Right Cheek	0.081	0.682	0.096	0.234	0.086	0.86	1.08
		Right Tilted	0.056	0.464	0.074	0.260	0.086	0.59	0.87
		Left Cheek	0.160	0.247	0.291	0.392	0.086	0.70	0.89
		Left Tilted	0.084	0.189	0.206	0.427	0.086	0.48	0.79
LTE Band 7 Ant 4	FR1 n78(77) Ant 3	Right Cheek	0.475	0.682	0.096	0.234	0.086	1.25	1.48
		Right Tilted	0.518	0.464	0.074	0.260	0.086	1.06	1.33
		Left Cheek	0.349	0.247	0.291	0.392	0.086	0.89	1.07
		Left Tilted	0.416	0.189	0.206	0.427	0.086	0.81	1.12



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LTE Band 7 Ant 0	FR1 n78(77) Ant 5	Right Cheek	0.081	0.356	0.096	0.234	0.086	0.53	0.76
		Right Tilted	0.056	0.438	0.074	0.260	0.086	0.57	0.84
		Left Cheek	0.160	0.632	0.291	0.392	0.086	1.08	1.27
		Left Tilted	0.084	0.652	0.206	0.427	0.086	0.94	1.25
LTE Band 7 Ant 4	FR1 n78(77) Ant 5	Right Cheek	0.475	0.356	0.096	0.234	0.086	0.93	1.15
		Right Tilted	0.518	0.438	0.074	0.260	0.086	1.03	1.30
		Left Cheek	0.349	0.632	0.291	0.392	0.086	1.27	1.46
		Left Tilted	0.416	0.652	0.206	0.427	0.086	1.27	1.58
LTE Band 41(38) Ant 0	FR1 n77(78) Ant 3	Right Cheek	0.067	0.682	0.096	0.234	0.086	0.85	1.07
		Right Tilted	0.057	0.464	0.074	0.260	0.086	0.60	0.87
		Left Cheek	0.127	0.247	0.291	0.392	0.086	0.67	0.85
		Left Tilted	0.053	0.189	0.206	0.427	0.086	0.45	0.76
LTE Band 41(38) Ant 4	FR1 n77(78) Ant 3	Right Cheek	0.357	0.682	0.096	0.234	0.086	1.14	1.36
		Right Tilted	0.357	0.464	0.074	0.260	0.086	0.90	1.17
		Left Cheek	0.357	0.247	0.291	0.392	0.086	0.90	1.08
		Left Tilted	0.357	0.189	0.206	0.427	0.086	0.75	1.06
LTE Band 41(38) Ant 0	FR1 n77(78) Ant 5	Right Cheek	0.067	0.356	0.096	0.234	0.086	0.52	0.74
		Right Tilted	0.057	0.438	0.074	0.260	0.086	0.57	0.84
		Left Cheek	0.127	0.632	0.291	0.392	0.086	1.05	1.24
		Left Tilted	0.053	0.652	0.206	0.427	0.086	0.91	1.22
LTE Band 41(38) Ant 4	FR1 n77(78) Ant 5	Right Cheek	0.357	0.356	0.096	0.234	0.086	0.81	1.03
		Right Tilted	0.357	0.438	0.074	0.260	0.086	0.87	1.14
		Left Cheek	0.357	0.632	0.291	0.392	0.086	1.28	1.47
		Left Tilted	0.357	0.652	0.206	0.427	0.086	1.22	1.52

<Inter-Band UL CA>

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	LTE Band 4 Ant 4	Right Cheek	0.104	0.452	0.096	0.234	0.086	0.65	0.88
		Right Tilted	0.079	0.417	0.074	0.260	0.086	0.57	0.84
		Left Cheek	0.101	0.307	0.291	0.392	0.086	0.70	0.89
		Left Tilted	0.108	0.435	0.206	0.427	0.086	0.75	1.06
LTE Band 2 Ant 4	LTE Band 4 Ant 0	Right Cheek	0.590	0.102	0.096	0.234	0.086	0.79	1.01
		Right Tilted	0.508	0.067	0.074	0.260	0.086	0.65	0.92
		Left Cheek	0.397	0.079	0.291	0.392	0.086	0.77	0.95
		Left Tilted	0.528	0.061	0.206	0.427	0.086	0.80	1.10
LTE Band 4 Ant 4	LTE Band 7 Ant 0	Right Cheek	0.452	0.081	0.096	0.234	0.086	0.63	0.85
		Right Tilted	0.417	0.056	0.074	0.260	0.086	0.55	0.82
		Left Cheek	0.307	0.160	0.291	0.392	0.086	0.76	0.95
		Left Tilted	0.435	0.084	0.206	0.427	0.086	0.73	1.03
LTE Band 4 Ant 0	LTE Band 7 Ant 4	Right Cheek	0.102	0.475	0.096	0.234	0.086	0.67	0.90
		Right Tilted	0.067	0.518	0.074	0.260	0.086	0.66	0.93
		Left Cheek	0.079	0.349	0.291	0.392	0.086	0.72	0.91
		Left Tilted	0.061	0.416	0.206	0.427	0.086	0.68	0.99



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3+4
		WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands	Front	0.312	0.188	0.345	0.003	0.50	0.66
	Back	0.909	0.240	0.558	0.003	1.15	1.47
	Left side	0.360			0.003	0.36	0.36
	Right side	0.240	0.230	0.243	0.003	0.47	0.49
	Top side	0.577	0.160	0.699	0.003	0.74	1.28
	Bottom side	1.091			0.003	1.09	1.09

<5G NR ENDC>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n78(77) Ant 3	Front	0.149	0.189	0.188	0.345	0.003	0.53	0.69
		Back	0.371	0.272	0.240	0.558	0.003	0.88	1.20
		Left side	0.151	0.298			0.003	0.45	0.45
		Right side	0.113	0.012	0.230	0.243	0.003	0.36	0.37
		Top side		0.122	0.160	0.699	0.003	0.28	0.82
		Bottom side	0.551				0.003	0.55	0.55
LTE Band 2 Ant 4	FR1 n78(77) Ant 3	Front	0.169	0.189	0.188	0.345	0.003	0.55	0.71
		Back	0.201	0.272	0.240	0.558	0.003	0.71	1.03
		Left side	0.258	0.298			0.003	0.56	0.56
		Right side	0.115	0.012	0.230	0.243	0.003	0.36	0.37
		Top side	0.317	0.122	0.160	0.699	0.003	0.60	1.14
		Bottom side					0.003	0.00	0.00
LTE Band 2 Ant 0	FR1 n78(77) Ant 5	Front	0.149	0.122	0.188	0.345	0.003	0.46	0.62
		Back	0.371	0.408	0.240	0.558	0.003	1.02	1.34
		Left side	0.151				0.003	0.15	0.15
		Right side	0.113	0.090	0.230	0.243	0.003	0.43	0.45
		Top side		0.211	0.160	0.699	0.003	0.37	0.91
		Bottom side	0.551				0.003	0.55	0.55
LTE Band 2 Ant 4	FR1 n78(77) Ant 5	Front	0.169	0.122	0.188	0.345	0.003	0.48	0.64
		Back	0.201	0.408	0.240	0.558	0.003	0.85	1.17
		Left side	0.258				0.003	0.26	0.26
		Right side	0.115	0.090	0.230	0.243	0.003	0.44	0.45
		Top side	0.317	0.211	0.160	0.699	0.003	0.69	1.23
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 3	Front	0.212	0.189	0.188	0.345	0.003	0.59	0.75
		Back	0.383	0.272	0.240	0.558	0.003	0.90	1.22
		Left side	0.105	0.298			0.003	0.40	0.41
		Right side	0.179	0.012	0.230	0.243	0.003	0.42	0.44
		Top side		0.122	0.160	0.699	0.003	0.28	0.82
		Bottom side	0.311				0.003	0.31	0.31
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 3	Front	0.185	0.189	0.188	0.345	0.003	0.56	0.72
		Back	0.335	0.272	0.240	0.558	0.003	0.85	1.17
		Left side	0.081	0.298			0.003	0.38	0.38
		Right side	0.092	0.012	0.230	0.243	0.003	0.33	0.35
		Top side	0.225	0.122	0.160	0.699	0.003	0.51	1.05
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 5	Front	0.212	0.122	0.188	0.345	0.003	0.52	0.68
		Back	0.383	0.408	0.240	0.558	0.003	1.03	1.35



		Left side	0.105				0.003	0.11	0.11
		Right side	0.179	0.090	0.230	0.243	0.003	0.50	0.52
		Top side		0.211	0.160	0.699	0.003	0.37	0.91
		Bottom side	0.311				0.003	0.31	0.31
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 5	Front	0.185	0.122	0.188	0.345	0.003	0.50	0.66
		Back	0.335	0.408	0.240	0.558	0.003	0.98	1.30
		Left side	0.081				0.003	0.08	0.08
		Right side	0.092	0.090	0.230	0.243	0.003	0.41	0.43
		Top side	0.225	0.211	0.160	0.699	0.003	0.60	1.14
		Bottom side					0.003	0.00	0.00
LTE Band 7 Ant 0	FR1 n78(77) Ant 3	Front	0.128	0.189	0.188	0.345	0.003	0.51	0.67
		Back	0.255	0.272	0.240	0.558	0.003	0.77	1.09
		Left side	0.156	0.298			0.003	0.45	0.46
		Right side	0.123	0.012	0.230	0.243	0.003	0.37	0.38
		Top side		0.122	0.160	0.699	0.003	0.28	0.82
		Bottom side	0.245				0.003	0.25	0.25
LTE Band 7 Ant 4	FR1 n78(77) Ant 3	Front	0.160	0.189	0.188	0.345	0.003	0.54	0.70
		Back	0.217	0.272	0.240	0.558	0.003	0.73	1.05
		Left side	0.312	0.298			0.003	0.61	0.61
		Right side	0.062	0.012	0.230	0.243	0.003	0.30	0.32
		Top side	0.412	0.122	0.160	0.699	0.003	0.69	1.24
		Bottom side					0.003	0.00	0.00
LTE Band 7 Ant 0	FR1 n78(77) Ant 5	Front	0.128	0.122	0.188	0.345	0.003	0.44	0.60
		Back	0.255	0.408	0.240	0.558	0.003	0.90	1.22
		Left side	0.156				0.003	0.16	0.16
		Right side	0.123	0.090	0.230	0.243	0.003	0.44	0.46
		Top side		0.211	0.160	0.699	0.003	0.37	0.91
		Bottom side	0.245				0.003	0.25	0.25
LTE Band 7 Ant 4	FR1 n78(77) Ant 5	Front	0.160	0.122	0.188	0.345	0.003	0.47	0.63
		Back	0.217	0.408	0.240	0.558	0.003	0.87	1.19
		Left side	0.312				0.003	0.31	0.32
		Right side	0.062	0.090	0.230	0.243	0.003	0.38	0.40
		Top side	0.412	0.211	0.160	0.699	0.003	0.78	1.33
		Bottom side					0.003	0.00	0.00
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 3	Front	0.181	0.189	0.188	0.345	0.003	0.56	0.72
		Back	0.362	0.272	0.240	0.558	0.003	0.87	1.20
		Left side	0.133	0.298			0.003	0.43	0.43
		Right side	0.071	0.012	0.230	0.243	0.003	0.31	0.33
		Top side		0.122	0.160	0.699	0.003	0.28	0.82
		Bottom side	0.334				0.003	0.33	0.34
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 3	Front	0.188	0.189	0.188	0.345	0.003	0.57	0.73
		Back	0.305	0.272	0.240	0.558	0.003	0.82	1.14
		Left side	0.191	0.298			0.003	0.49	0.49
		Right side	0.037	0.012	0.230	0.243	0.003	0.28	0.30
		Top side	0.460	0.122	0.160	0.699	0.003	0.74	1.28
		Bottom side					0.003	0.00	0.00
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 5	Front	0.181	0.122	0.188	0.345	0.003	0.49	0.65
		Back	0.362	0.408	0.240	0.558	0.003	1.01	1.33
		Left side	0.133				0.003	0.13	0.14
		Right side	0.071	0.090	0.230	0.243	0.003	0.39	0.41
		Top side		0.211	0.160	0.699	0.003	0.37	0.91
		Bottom side	0.334				0.003	0.33	0.34
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 5	Front	0.188	0.122	0.188	0.345	0.003	0.50	0.66
		Back	0.305	0.408	0.240	0.558	0.003	0.95	1.27
		Left side	0.191				0.003	0.19	0.19
		Right side	0.037	0.090	0.230	0.243	0.003	0.36	0.37



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		Top side	0.460	0.211	0.160	0.699	0.003	0.83	1.37
		Bottom side					0.003	0.00	0.00

<Inter-Band UL CA>

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	LTE Band 4 Ant 4	Front	0.256	0.137	0.188	0.345	0.003	0.58	0.74
		Back	0.371	0.135	0.240	0.558	0.003	0.75	1.07
		Left side	0.151	0.088			0.003	0.24	0.24
		Right side	0.113	0.041	0.230	0.243	0.003	0.38	0.40
		Top side		0.131	0.160	0.699	0.003	0.29	0.83
		Bottom side	0.747				0.003	0.75	0.75
LTE Band 2 Ant 4	LTE Band 4 Ant 0	Front	0.190	0.234	0.188	0.345	0.003	0.61	0.77
		Back	0.201	0.554	0.240	0.558	0.003	1.00	1.32
		Left side	0.258	0.130			0.003	0.39	0.39
		Right side	0.115	0.141	0.230	0.243	0.003	0.49	0.50
		Top side	0.317		0.160	0.699	0.003	0.48	1.02
		Bottom side		0.758			0.003	0.76	0.76
LTE Band 4 Ant 0	LTE Band 7 Ant 4	Front	0.234	0.160	0.188	0.345	0.003	0.58	0.74
		Back	0.554	0.217	0.240	0.558	0.003	1.01	1.33
		Left side	0.130	0.312			0.003	0.44	0.45
		Right side	0.141	0.062	0.230	0.243	0.003	0.43	0.45
		Top side		0.412	0.160	0.699	0.003	0.57	1.11
		Bottom side	0.758				0.003	0.76	0.76
LTE Band 4 Ant 4	LTE Band 7 Ant 0	Front	0.137	0.198	0.188	0.345	0.003	0.52	0.68
		Back	0.135	0.255	0.240	0.558	0.003	0.63	0.95
		Left side	0.088	0.156			0.003	0.24	0.25
		Right side	0.041	0.123	0.230	0.243	0.003	0.39	0.41
		Top side	0.131		0.160	0.699	0.003	0.29	0.83
		Bottom side		0.371			0.003	0.37	0.37



**Sensor off:
<5G NR ENDC>**

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3 Summed 1g SAR (W/kg)	1+2+4+5 Summed 1g SAR (W/kg)
			WWAN	FR1	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
LTE Band 2 Ant 0	FR1 n78(77) Ant 3	Front	0.256		0.188	0.345	0.003	0.44	0.60
		Back	0.296		0.240	0.558	0.003	0.54	0.86
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side	0.747				0.003	0.75	0.75
LTE Band 2 Ant 4	FR1 n78(77) Ant 3	Front	0.190		0.188	0.345	0.003	0.38	0.54
		Back	0.160		0.240	0.558	0.003	0.40	0.72
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side	0.315		0.160	0.699	0.003	0.48	1.02
		Bottom side					0.003	0.00	0.00
LTE Band 2 Ant 0	FR1 n78(77) Ant 5	Front	0.256	0.289	0.188	0.345	0.003	0.73	0.89
		Back	0.296	0.629	0.240	0.558	0.003	1.17	1.49
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side	0.747				0.003	0.75	0.75
LTE Band 2 Ant 4	FR1 n78(77) Ant 5	Front	0.190	0.289	0.188	0.345	0.003	0.67	0.83
		Back	0.160	0.629	0.240	0.558	0.003	1.03	1.35
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side	0.315	0.569	0.160	0.699	0.003	1.04	1.59
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 3	Front			0.188	0.345	0.003	0.19	0.35
		Back			0.240	0.558	0.003	0.24	0.56
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 3	Front			0.188	0.345	0.003	0.19	0.35
		Back			0.240	0.558	0.003	0.24	0.56
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 5	Front		0.289	0.188	0.345	0.003	0.48	0.64
		Back		0.629	0.240	0.558	0.003	0.87	1.19
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side					0.003	0.00	0.00
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 5	Front		0.289	0.188	0.345	0.003	0.48	0.64
		Back		0.629	0.240	0.558	0.003	0.87	1.19
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side					0.003	0.00	0.00
LTE Band 7 Ant 0	FR1 n78(77) Ant 3	Front	0.198		0.188	0.345	0.003	0.39	0.55
		Back	0.227		0.240	0.558	0.003	0.47	0.79



		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side	0.371				0.003	0.37	0.37
LTE Band 7 Ant 4	FR1 n78(77) Ant 3	Front	0.148		0.188	0.345	0.003	0.34	0.50
		Back	0.169		0.240	0.558	0.003	0.41	0.73
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side	0.307		0.160	0.699	0.003	0.47	1.01
		Bottom side					0.003	0.00	0.00
LTE Band 7 Ant 0	FR1 n78(77) Ant 5	Front	0.198	0.289	0.188	0.345	0.003	0.68	0.84
		Back	0.227	0.629	0.240	0.558	0.003	1.10	1.42
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side	0.371				0.003	0.37	0.37
LTE Band 7 Ant 4	FR1 n78(77) Ant 5	Front	0.148	0.289	0.188	0.345	0.003	0.63	0.79
		Back	0.169	0.629	0.240	0.558	0.003	1.04	1.36
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side	0.307	0.569	0.160	0.699	0.003	1.04	1.58
		Bottom side					0.003	0.00	0.00
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 3	Front	0.160		0.188	0.345	0.003	0.35	0.51
		Back	0.180		0.240	0.558	0.003	0.42	0.74
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side	0.232				0.003	0.23	0.24
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 3	Front	0.100		0.188	0.345	0.003	0.29	0.45
		Back	0.109		0.240	0.558	0.003	0.35	0.67
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side			0.160	0.699	0.003	0.16	0.70
		Bottom side	0.241				0.003	0.24	0.24
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 5	Front	0.160	0.289	0.188	0.345	0.003	0.64	0.80
		Back	0.180	0.629	0.240	0.558	0.003	1.05	1.37
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side	0.232				0.003	0.23	0.24
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 5	Front	0.100	0.289	0.188	0.345	0.003	0.58	0.74
		Back	0.109	0.629	0.240	0.558	0.003	0.98	1.30
		Left side					0.003	0.00	0.00
		Right side			0.230	0.243	0.003	0.23	0.25
		Top side		0.569	0.160	0.699	0.003	0.73	1.27
		Bottom side	0.241				0.003	0.24	0.24



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3+4
		WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands	Front	0.312	0.188	0.345	0.003	0.50	0.66
	Back	0.909	0.240	0.680	0.003	1.15	1.59

<5G NR ENDC>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n78(77) Ant 3	Front	0.149	0.189	0.188	0.345	0.003	0.53	0.69
		Back	0.371	0.272	0.240	0.680	0.003	0.88	1.33
LTE Band 2 Ant 4	FR1 n78(77) Ant 3	Front	0.169	0.189	0.188	0.345	0.003	0.55	0.71
		Back	0.201	0.272	0.240	0.680	0.003	0.71	1.16
LTE Band 2 Ant 0	FR1 n78(77) Ant 5	Front	0.149	0.122	0.188	0.345	0.003	0.46	0.62
		Back	0.371	0.408	0.240	0.680	0.003	1.02	1.46
LTE Band 2 Ant 4	FR1 n78(77) Ant 5	Front	0.169	0.122	0.188	0.345	0.003	0.48	0.64
		Back	0.201	0.408	0.240	0.680	0.003	0.85	1.29
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 3	Front	0.212	0.189	0.188	0.345	0.003	0.59	0.75
		Back	0.383	0.272	0.240	0.680	0.003	0.90	1.34
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 3	Front	0.185	0.189	0.188	0.345	0.003	0.56	0.72
		Back	0.335	0.272	0.240	0.680	0.003	0.85	1.29
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 5	Front	0.212	0.122	0.188	0.345	0.003	0.52	0.68
		Back	0.383	0.408	0.240	0.680	0.003	1.03	1.47
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 5	Front	0.185	0.122	0.188	0.345	0.003	0.50	0.66
		Back	0.335	0.408	0.240	0.680	0.003	0.98	1.43
LTE Band 7 Ant 0	FR1 n78(77) Ant 3	Front	0.128	0.189	0.188	0.345	0.003	0.51	0.67
		Back	0.255	0.272	0.240	0.680	0.003	0.77	1.21
LTE Band 7 Ant 4	FR1 n78(77) Ant 3	Front	0.160	0.189	0.188	0.345	0.003	0.54	0.70
		Back	0.217	0.272	0.240	0.680	0.003	0.73	1.17
LTE Band 7 Ant 0	FR1 n78(77) Ant 5	Front	0.128	0.122	0.188	0.345	0.003	0.44	0.60
		Back	0.255	0.408	0.240	0.680	0.003	0.90	1.35
LTE Band 7 Ant 4	FR1 n78(77) Ant 5	Front	0.160	0.122	0.188	0.345	0.003	0.47	0.63
		Back	0.217	0.408	0.240	0.680	0.003	0.87	1.31
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 3	Front	0.181	0.189	0.188	0.345	0.003	0.56	0.72
		Back	0.362	0.272	0.240	0.680	0.003	0.87	1.32
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 3	Front	0.188	0.189	0.188	0.345	0.003	0.57	0.73
		Back	0.305	0.272	0.240	0.680	0.003	0.82	1.26
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 5	Front	0.181	0.122	0.188	0.345	0.003	0.49	0.65
		Back	0.362	0.408	0.240	0.680	0.003	1.01	1.45
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 5	Front	0.188	0.122	0.188	0.345	0.003	0.50	0.66
		Back	0.305	0.408	0.240	0.680	0.003	0.95	1.40



<Inter-Band UL CA>:

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	LTE Band 4 Ant 4	Front	0.256	0.137	0.188	0.345	0.003	0.58	0.74
		Back	0.543	0.135	0.240	0.680	0.003	0.92	1.36
LTE Band 2 Ant 4	LTE Band 4 Ant 0	Front	0.190	0.234	0.188	0.345	0.003	0.61	0.77
		Back	0.201	0.686	0.240	0.680	0.003	1.13	1.57
LTE Band 4 Ant 0	LTE Band 7 Ant 4	Front	0.234	0.160	0.188	0.345	0.003	0.58	0.74
		Back	0.686	0.217	0.240	0.680	0.003	1.14	1.59
LTE Band 4 Ant 4	LTE Band 7 Ant 0	Front	0.137	0.198	0.188	0.345	0.003	0.52	0.68
		Back	0.135	0.334	0.240	0.680	0.003	0.71	1.15

Sensor off:

<5G NR ENDC>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 6	WLAN5GHz Ant 6	Bluetooth Ant 6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n78(77) Ant 3	Front	0.256		0.188	0.345	0.003	0.44	0.60
		Back	0.543		0.173	0.303	0.003	0.72	0.85
LTE Band 2 Ant 4	FR1 n78(77) Ant 3	Front	0.190		0.188	0.345	0.003	0.38	0.54
		Back	0.200		0.173	0.303	0.003	0.37	0.51
LTE Band 2 Ant 0	FR1 n78(77) Ant 5	Front	0.256	0.289	0.188	0.345	0.003	0.73	0.89
		Back	0.543	0.629	0.173	0.303	0.003	1.35	1.48
LTE Band 2 Ant 4	FR1 n78(77) Ant 5	Front	0.190	0.289	0.188	0.345	0.003	0.67	0.83
		Back	0.200	0.629	0.173	0.303	0.003	1.00	1.14
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 3	Front			0.188	0.345	0.003	0.19	0.35
		Back			0.173	0.303	0.003	0.17	0.31
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 3	Front			0.188	0.345	0.003	0.19	0.35
		Back			0.173	0.303	0.003	0.17	0.31
LTE Band 5(26) Ant 0	FR1 n78(77) Ant 5	Front		0.289	0.188	0.345	0.003	0.48	0.64
		Back		0.629	0.173	0.303	0.003	0.80	0.94
LTE Band 5(26) Ant 4	FR1 n78(77) Ant 5	Front		0.289	0.188	0.345	0.003	0.48	0.64
		Back		0.629	0.173	0.303	0.003	0.80	0.94
LTE Band 7 Ant 0	FR1 n78(77) Ant 3	Front	0.198		0.188	0.345	0.003	0.39	0.55
		Back	0.334		0.173	0.303	0.003	0.51	0.64
LTE Band 7 Ant 4	FR1 n78(77) Ant 3	Front	0.148		0.188	0.345	0.003	0.34	0.50
		Back	0.208		0.173	0.303	0.003	0.38	0.51
LTE Band 7 Ant 0	FR1 n78(77) Ant 5	Front	0.198	0.289	0.188	0.345	0.003	0.68	0.84
		Back	0.334	0.629	0.173	0.303	0.003	1.14	1.27
LTE Band 7 Ant 4	FR1 n78(77) Ant 5	Front	0.148	0.289	0.188	0.345	0.003	0.63	0.79
		Back	0.208	0.629	0.173	0.303	0.003	1.01	1.14
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 3	Front	0.160		0.188	0.345	0.003	0.35	0.51
		Back	0.180		0.173	0.303	0.003	0.35	0.49
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 3	Front	0.100		0.188	0.345	0.003	0.29	0.45
		Back	0.109		0.173	0.303	0.003	0.28	0.42
LTE Band 41(38) Ant 0	FR1 n78(77) Ant 5	Front	0.160	0.289	0.188	0.345	0.003	0.64	0.80
		Back	0.180	0.629	0.173	0.303	0.003	0.98	1.12
LTE Band 41(38) Ant 4	FR1 n78(77) Ant 5	Front	0.100	0.289	0.188	0.345	0.003	0.58	0.74
		Back	0.109	0.629	0.173	0.303	0.003	0.91	1.04

Test Engineer : Bruce Li, Martin Li, Ricky Gu

17. Uncertainty Assessment

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

18. References

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

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



Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_750MHz**DUT: D750V3 - SN:1087**

Communication System: UID 0, CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium: HSL_750 Medium parameters used: $f = 750$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 41.775$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.74, 10.74, 10.74); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

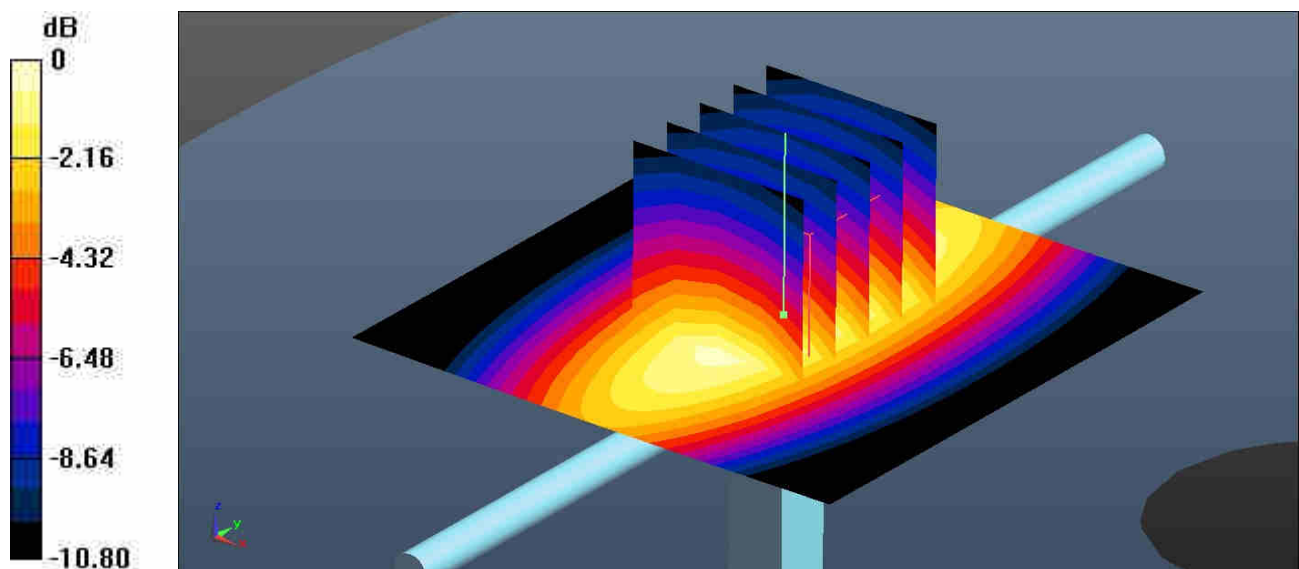
Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.565 W/kg**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.70 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.650 W/kg

SAR(1 g) = 0.419 W/kg; SAR(10 g) = 0.273 W/kg

Maximum value of SAR (measured) = 0.569 W/kg



0 dB = 0.569 W/kg = -2.45 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: $f = 835$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 41.48$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.5, 10.5, 10.5); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 0.697 W/kg

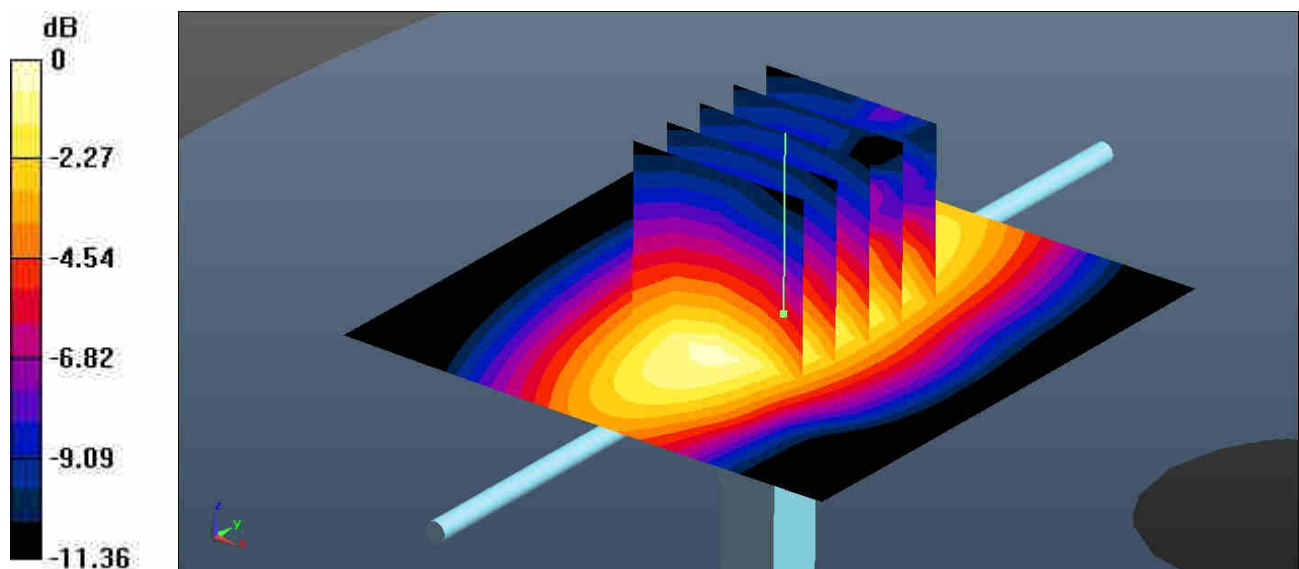
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.48 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.795 W/kg

SAR(1 g) = 0.509 W/kg; SAR(10 g) = 0.327 W/kg

Maximum value of SAR (measured) = 0.693 W/kg



0 dB = 0.693 W/kg = -1.59 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; $\sigma = 1.409$ S/m; $\epsilon_r = 40.664$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(9.15, 9.15, 9.15); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

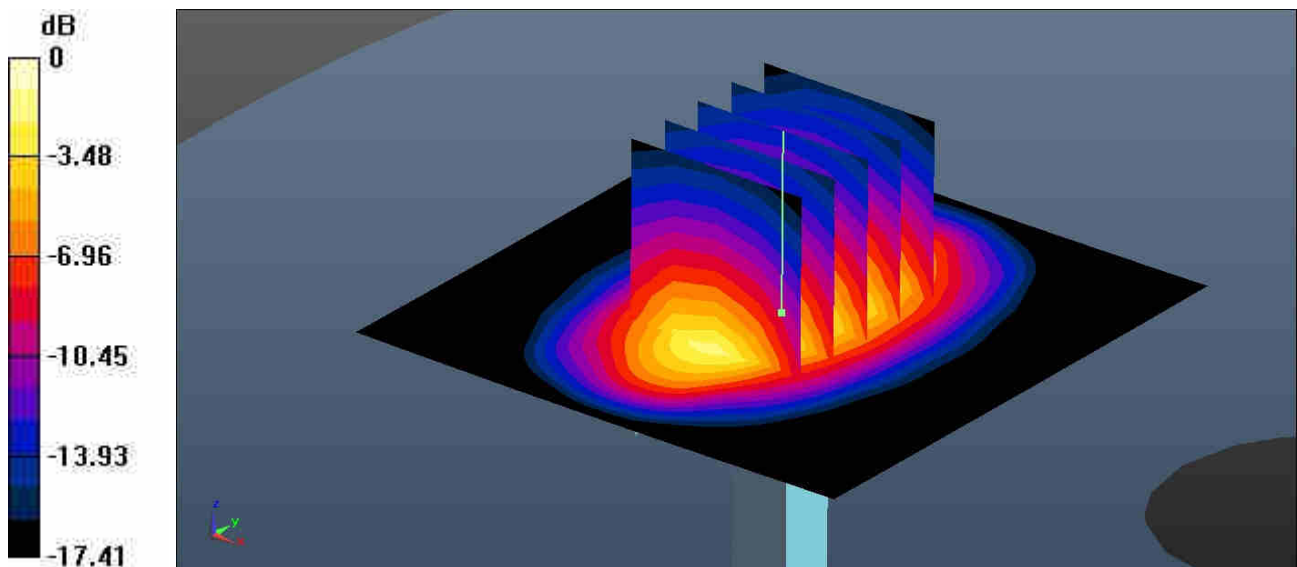
Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.01 W/kg**Pin=50mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.37 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.62 W/kg

SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1.01 W/kg

Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.01 W/kg = 4.79 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; $\sigma = 1.431$ S/m; $\epsilon_r = 39.772$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.73, 8.73, 8.73); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 3.17 W/kg

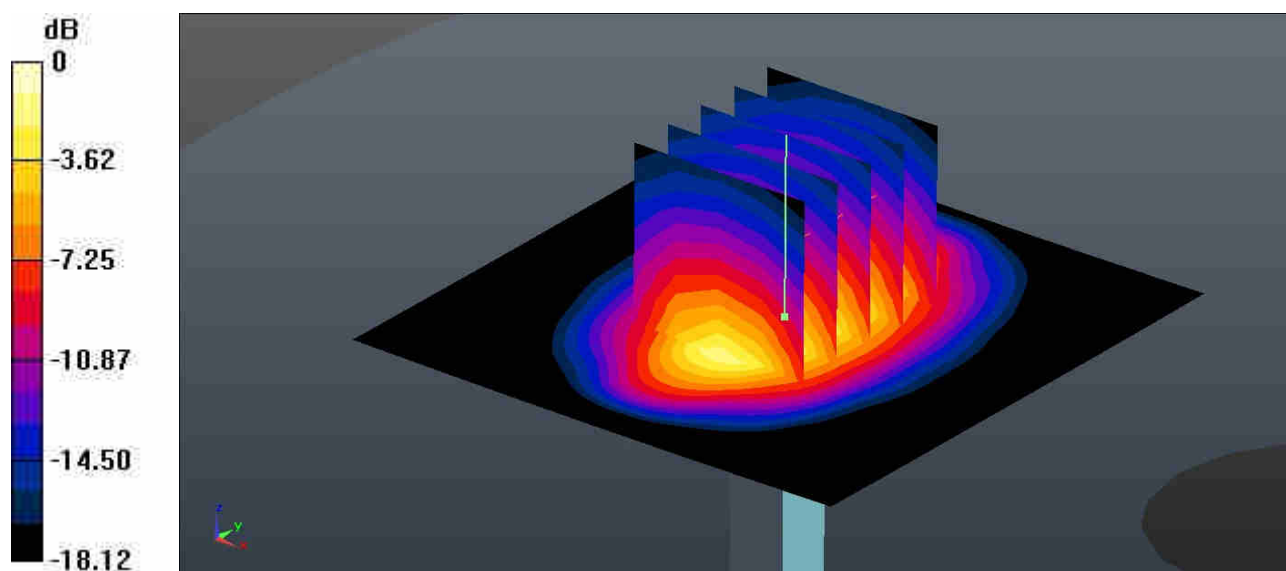
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 48.54 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 3.77 W/kg

SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1.03 W/kg

Maximum value of SAR (measured) = 3.15 W/kg



0 dB = 3.15 W/kg = 4.98 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; $\sigma = 1.805$ S/m; $\epsilon_r = 38.557$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.28, 8.28, 8.28); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 4.10 W/kg

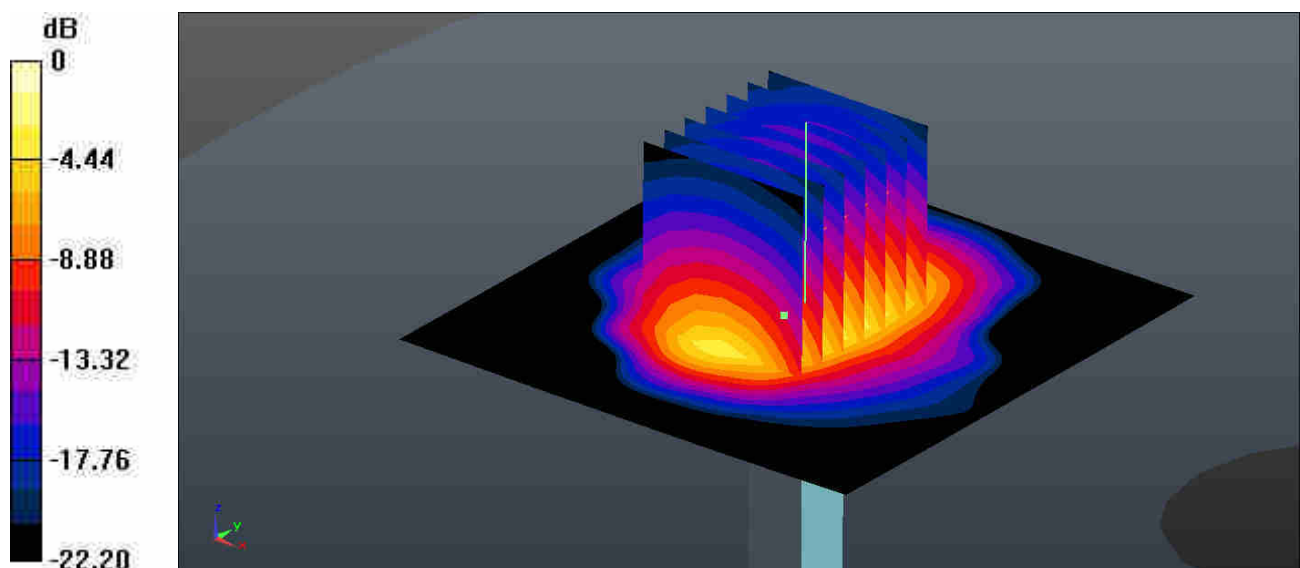
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 49.23 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 5.25 W/kg

SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.16 W/kg

Maximum value of SAR (measured) = 4.12 W/kg



0 dB = 4.12 W/kg = 6.15 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; $\sigma = 1.924$ S/m; $\epsilon_r = 38.25$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.14, 8.14, 8.14); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

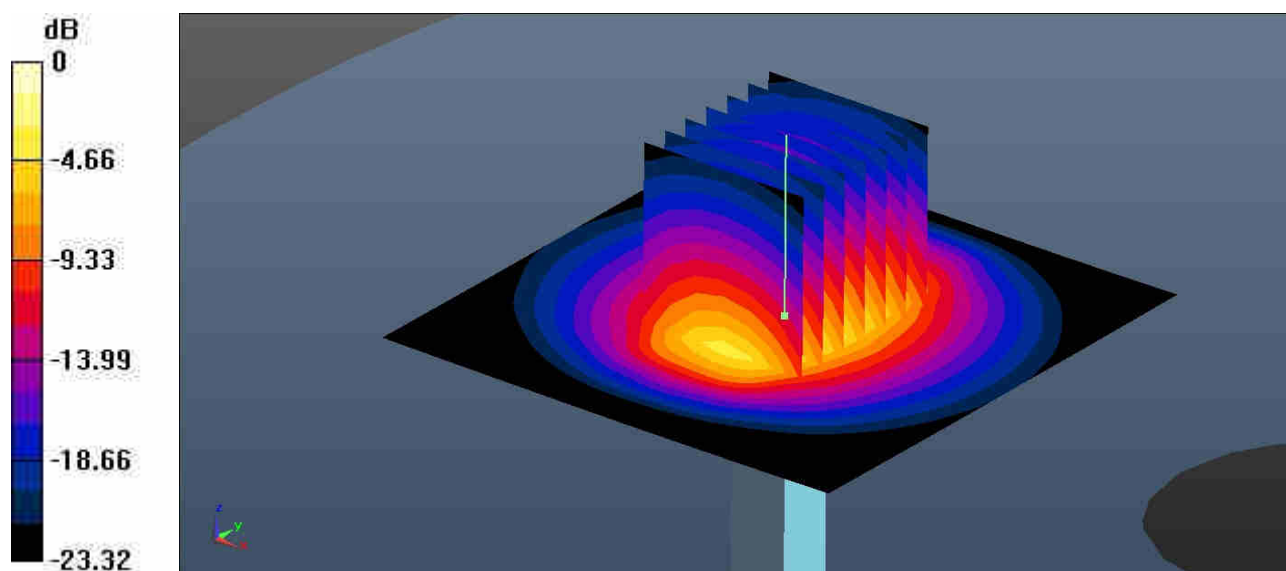
Pin=50mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.35 W/kg**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 49.01 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 5.68 W/kg

SAR(1 g) = 2.72 W/kg; SAR(10 g) = 1.18 W/kg

Maximum value of SAR (measured) = 4.44 W/kg



0 dB = 4.44 W/kg = 6.47 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; $\sigma = 2.807$ S/m; $\epsilon_r = 38.998$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(7.37, 7.37, 7.37); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

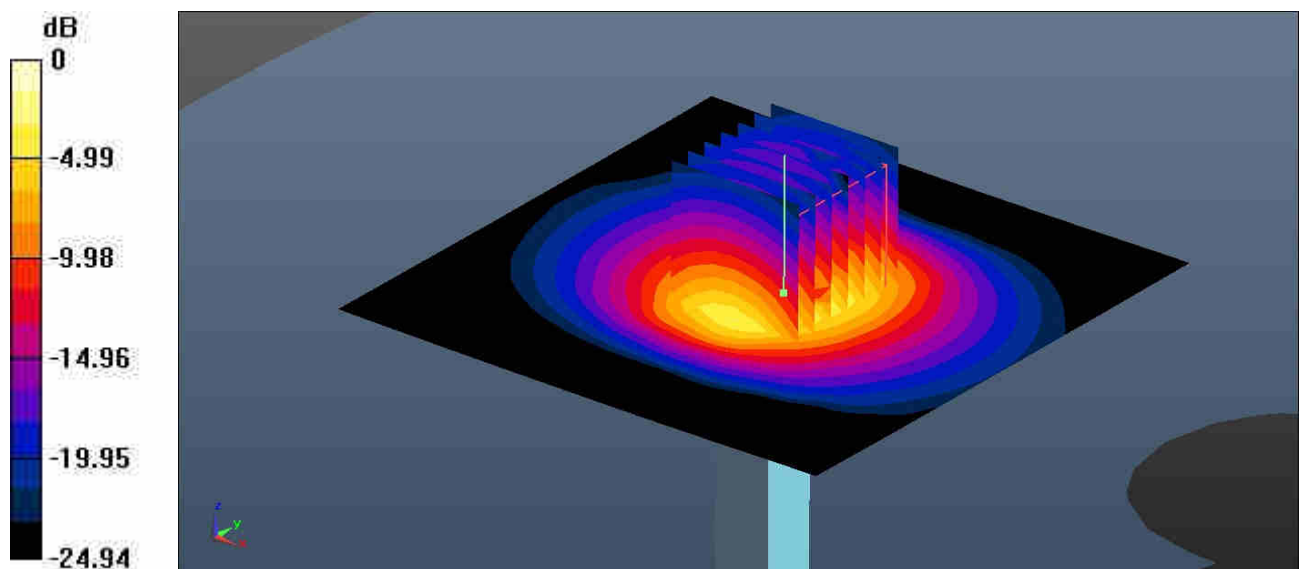
Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.11 W/kg**Pin=50mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 47.07 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 8.11 W/kg

SAR(1 g) = 3.13 W/kg; SAR(10 g) = 1.18 W/kg

Maximum value of SAR (measured) = 6.02 W/kg



0 dB = 6.02 W/kg = 7.80 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; $\sigma = 2.994$ S/m; $\epsilon_r = 38.679$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(7.27, 7.27, 7.27); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 5.88 W/kg

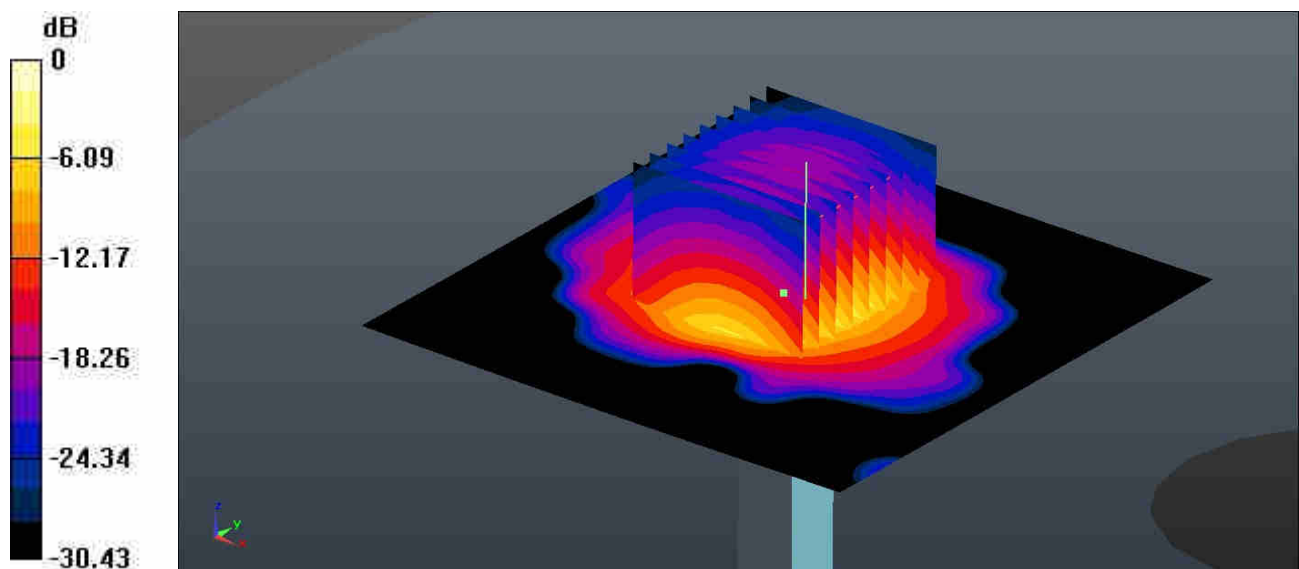
Pin=50mW/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 43.44 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 9.08 W/kg

SAR(1 g) = 3.14 W/kg; SAR(10 g) = 1.15 W/kg

Maximum value of SAR (measured) = 6.18 W/kg



0 dB = 6.18 W/kg = 7.91 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; $\sigma = 3.194$ S/m; $\epsilon_r = 38.393$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(6.83, 6.83, 6.83); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 6.30 W/kg

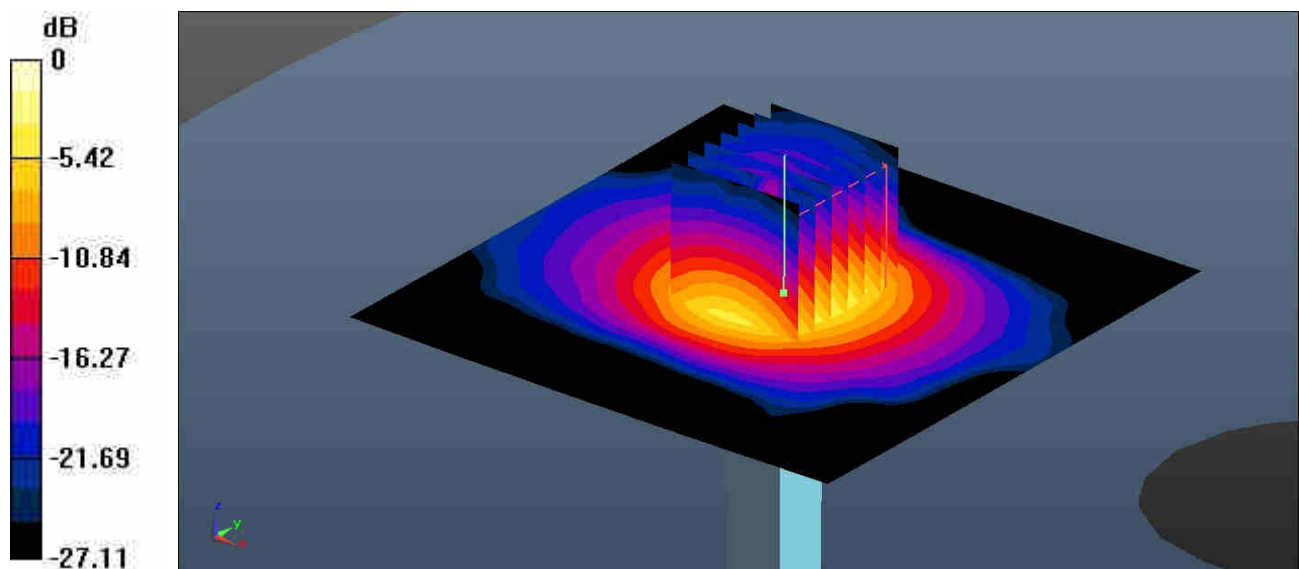
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 49.41 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 8.86 W/kg

SAR(1 g) = 3.23 W/kg; SAR(10 g) = 1.13 W/kg

Maximum value of SAR (measured) = 6.46 W/kg



0 dB = 6.46 W/kg = 8.10 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; $\sigma = 4.562$ S/m; $\epsilon_r = 35.992$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(5.85, 5.85, 5.85); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 9.39 W/kg

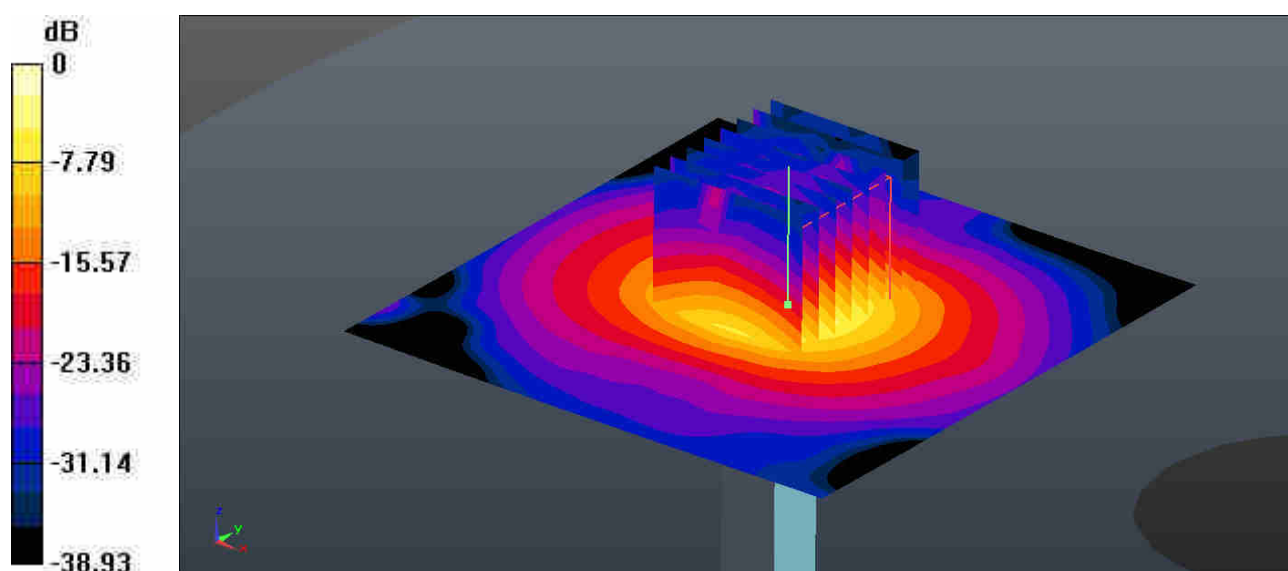
Pin=50mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 46.21 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 13.8 W/kg

SAR(1 g) = 3.72 W/kg; SAR(10 g) = 1.07 W/kg

Maximum value of SAR (measured) = 10.4 W/kg



0 dB = 10.4 W/kg = 10.17 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; $\sigma = 4.96$ S/m; $\epsilon_r = 35.44$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(5.05, 5.05, 5.05); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 9.76 W/kg

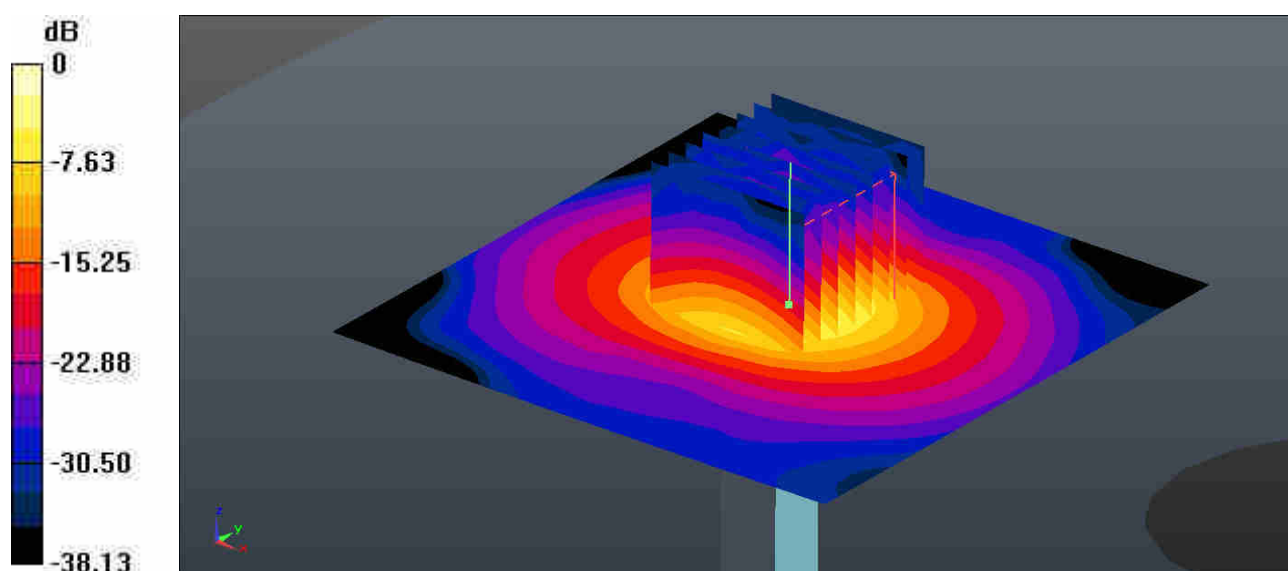
Pin=50mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 49.71 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 4.43 W/kg; SAR(10 g) = 1.27 W/kg

Maximum value of SAR (measured) = 11.0 W/kg



0 dB = 11.0 W/kg = 10.41 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; $\sigma = 5.131$ S/m; $\epsilon_r = 35.243$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(5.25, 5.25, 5.25); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- 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) = 8.62 W/kg

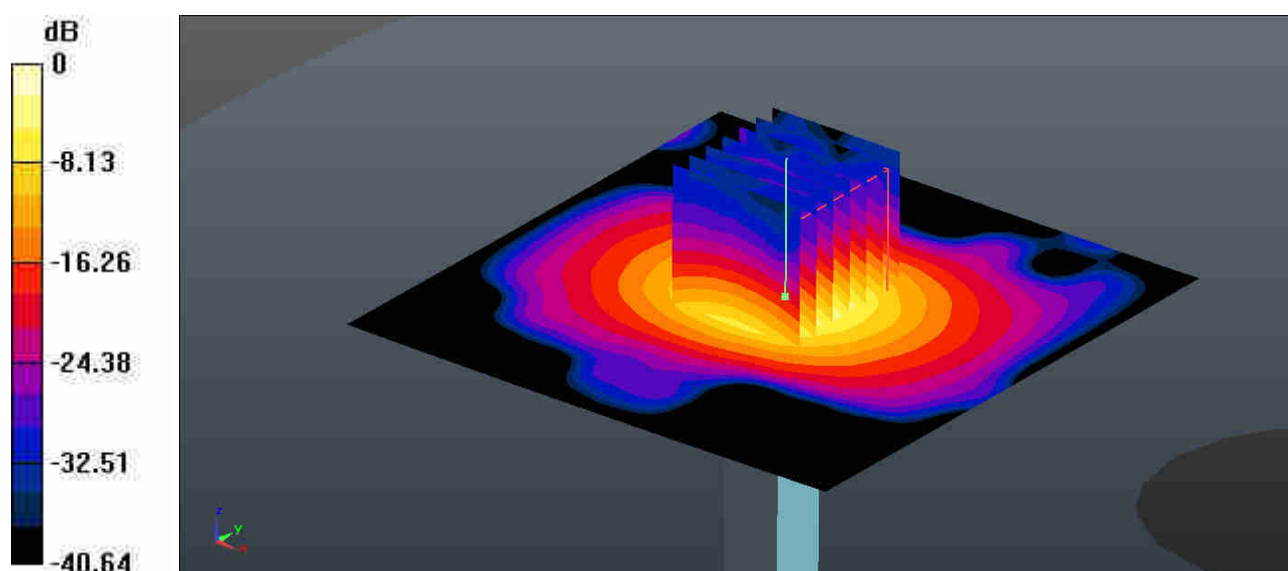
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 45.78 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 3.93 W/kg; SAR(10 g) = 1.11 W/kg

Maximum value of SAR (measured) = 9.68 W/kg



0 dB = 9.68 W/kg = 9.86 dBW/kg



Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

01_LTE Band 12_10M_QPSK_1RB_0Offset_Right Cheek_0mm_Ch23095

Communication System: UID 0, LTE-FDD (0); Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: $f = 707.5$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 41.895$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.74, 10.74, 10.74); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.701 W/kg

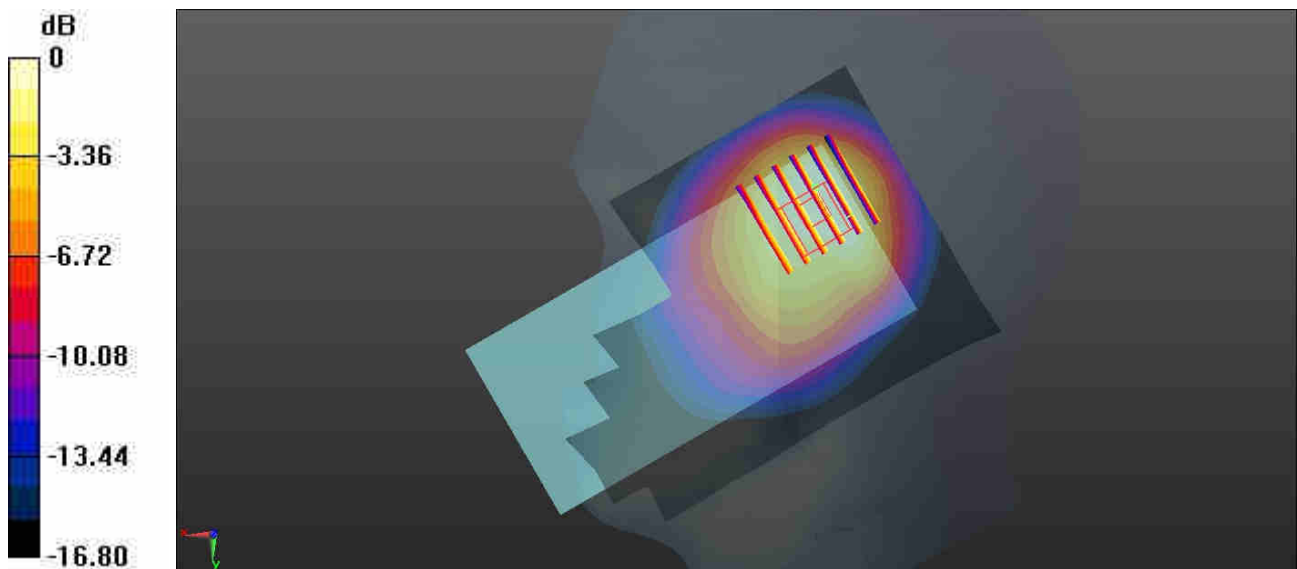
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.92 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.772 W/kg

SAR(1 g) = 0.425 W/kg; SAR(10 g) = 0.294 W/kg

Maximum value of SAR (measured) = 0.624 W/kg



0 dB = 0.624 W/kg = -2.05 dBW/kg

02_LTE Band 13_10M_QPSK_1RB_0Offset_Right Cheek_0mm_Ch23230

Communication System: UID 0, LTE-FDD (0); Frequency: 782 MHz; Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: $f = 782$ MHz; $\sigma = 0.925$ S/m; $\epsilon_r = 41.665$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.74, 10.74, 10.74); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.723 W/kg

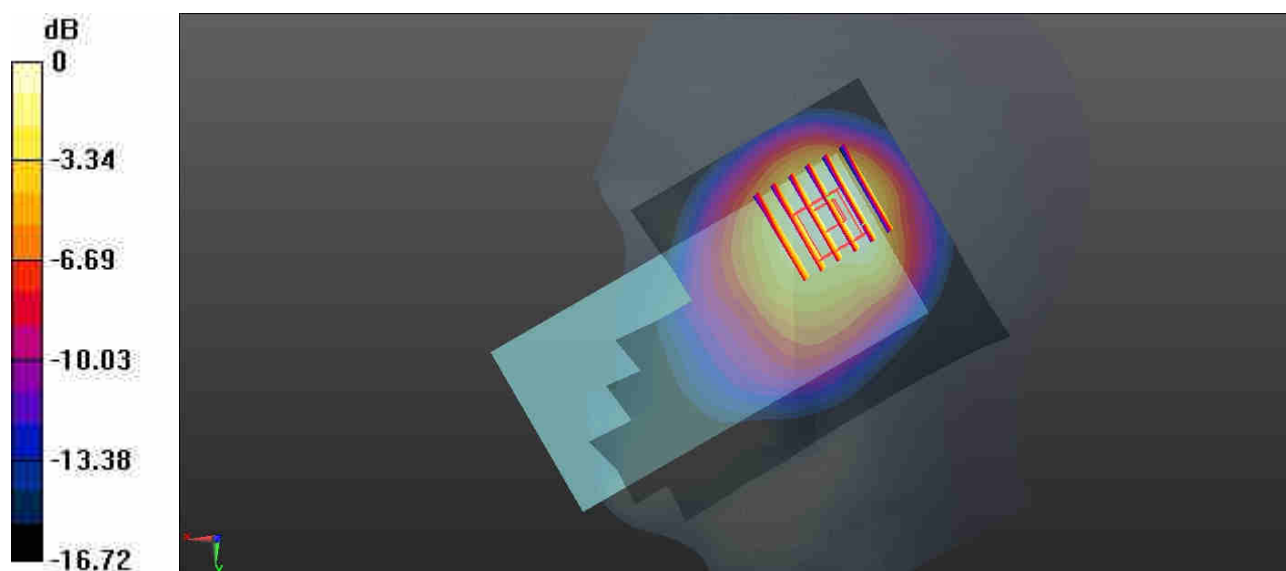
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.08 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.735 W/kg

SAR(1 g) = 0.436 W/kg; SAR(10 g) = 0.297 W/kg

Maximum value of SAR (measured) = 0.591 W/kg



0 dB = 0.591 W/kg = -2.28 dBW/kg

03_GSM850_GPRS (4 Tx slots)_Right Cheek_0mm_Ch189

Communication System: UID 0, GSM850 (0); Frequency: 836.4 MHz; Duty Cycle: 1:2.08

Medium: HSL_835 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 41.47$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.5, 10.5, 10.5); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

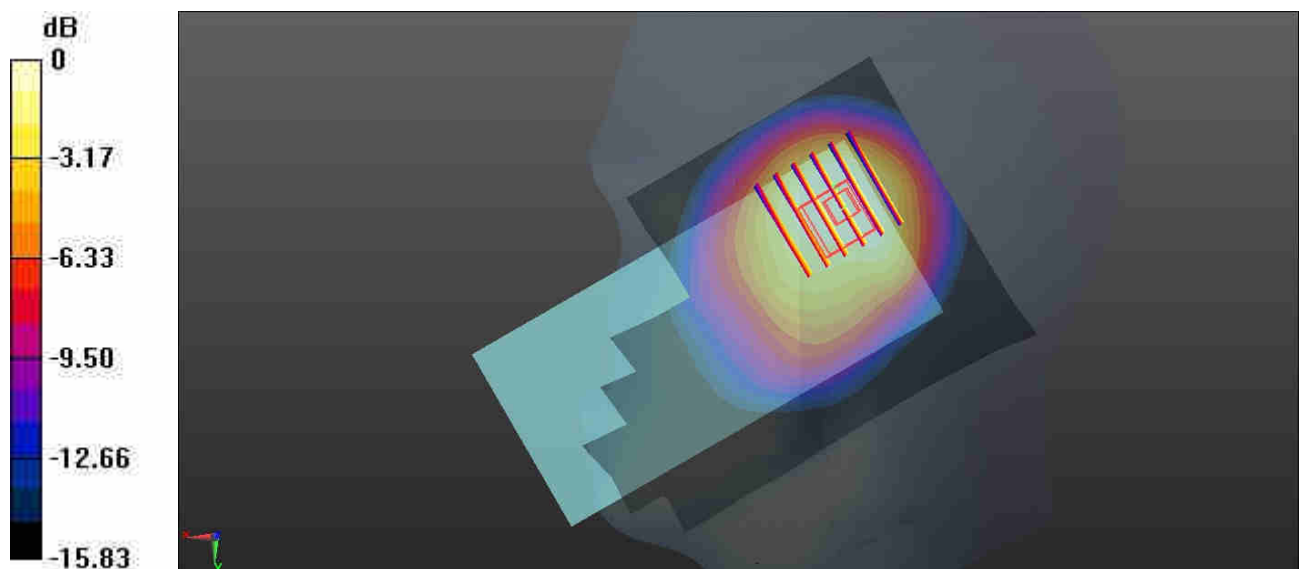
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.50 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.697 W/kg; SAR(10 g) = 0.456 W/kg

Maximum value of SAR (measured) = 0.904 W/kg



0 dB = 0.904 W/kg = -0.44 dBW/kg

04_WCDMA V_RMC 12.2Kbps_Right Cheek_0mm_Ch4182

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: HSL_835 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 41.47$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.5, 10.5, 10.5); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.818 W/kg

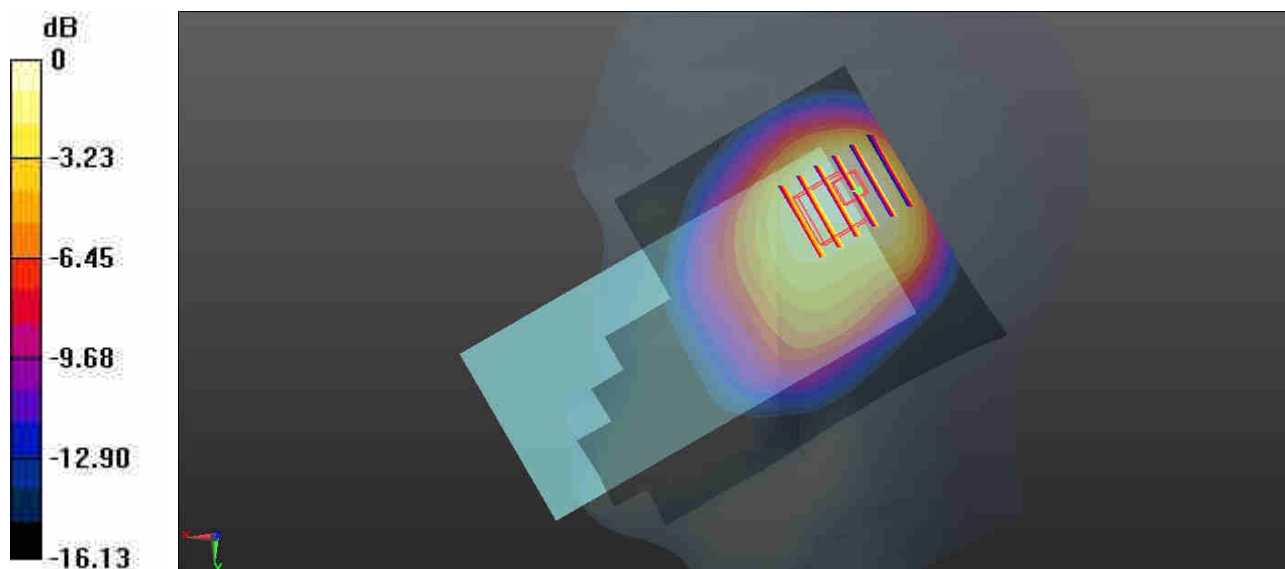
Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 27.84 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.909 W/kg

SAR(1 g) = 0.510 W/kg; SAR(10 g) = 0.335 W/kg

Maximum value of SAR (measured) = 0.705 W/kg



0 dB = 0.705 W/kg = -1.52 dBW/kg

05_LTE Band 26_15M_QPSK_1RB_0Offset_Right Cheek_0mm_Ch26865

Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: HSL_835 Medium parameters used: $f = 831.5$ MHz; $\sigma = 0.933$ S/m; $\epsilon_r = 41.486$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(10.5, 10.5, 10.5); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

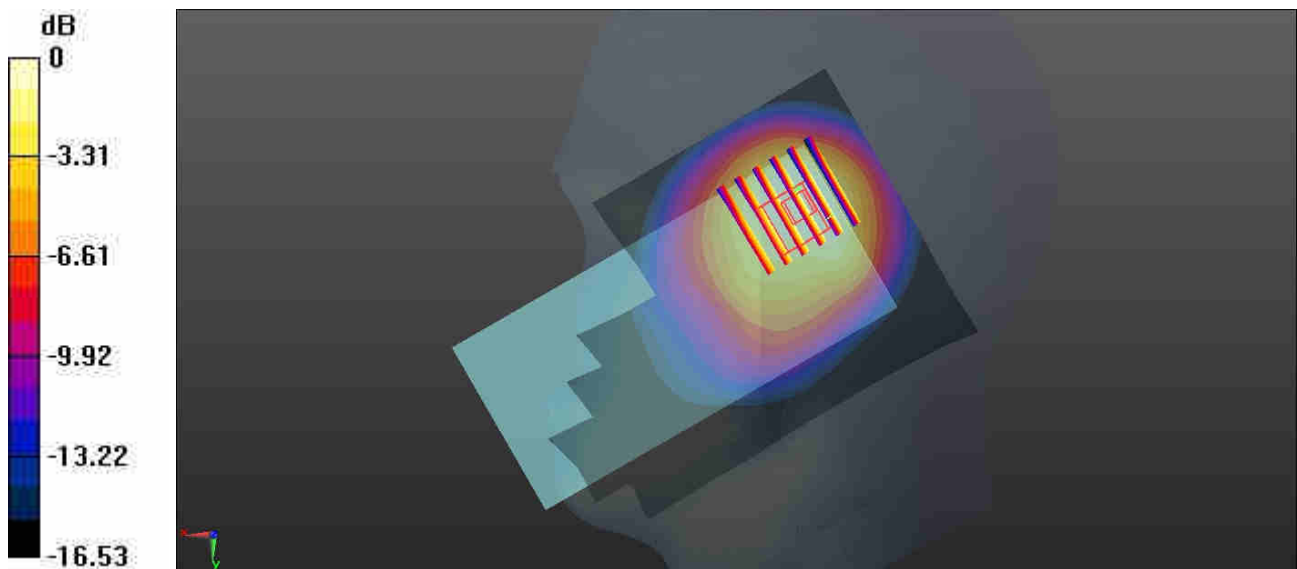
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.437 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.713 W/kg; SAR(10 g) = 0.472 W/kg

Maximum value of SAR (measured) = 0.966 W/kg



0 dB = 0.966 W/kg = -0.15 dBW/kg

06_WCDMA IV_RMC 12.2Kbps_Right Cheek_0mm_Ch1413

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: $f = 1732.6$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 40.747$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(9.15, 9.15, 9.15); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.557 W/kg

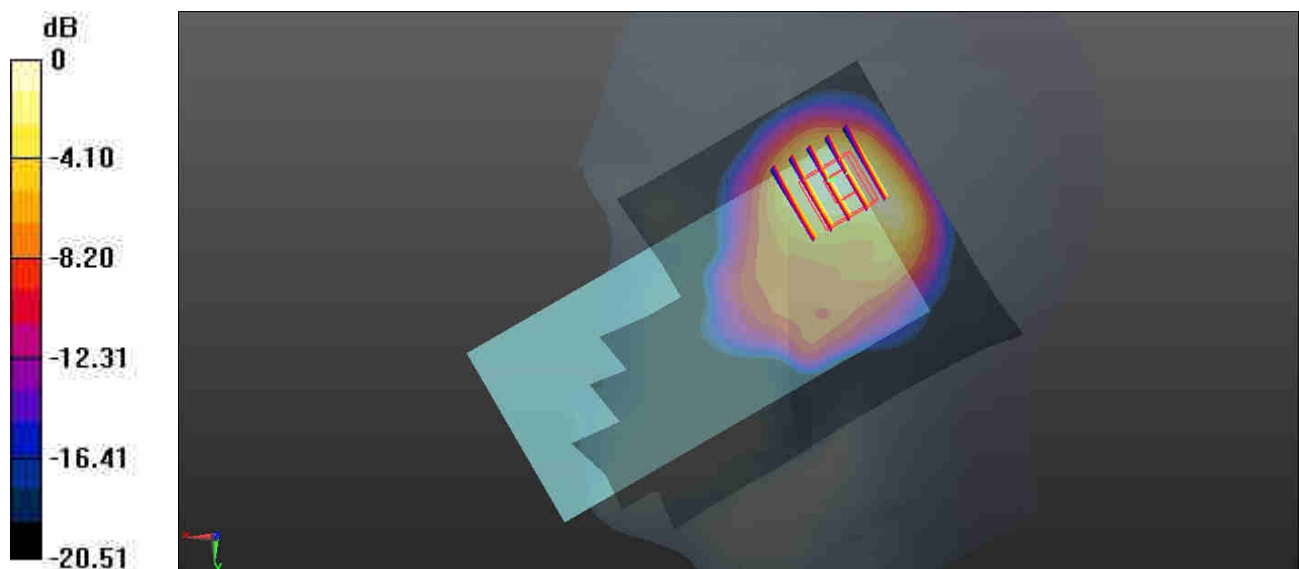
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 19.96 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.657 W/kg

SAR(1 g) = 0.362 W/kg; SAR(10 g) = 0.193 W/kg

Maximum value of SAR (measured) = 0.496 W/kg



0 dB = 0.496 W/kg = -3.05 dBW/kg

07_LTE Band 4_20M_QPSK_50RB_0Offset_Right Cheek_0mm_Ch20175

Communication System: UID 0, LTE-FDD (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: HSL_1750 Medium parameters used: $f = 1732.5$ MHz; $\sigma = 1.399$ S/m; $\epsilon_r = 40.747$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(9.15, 9.15, 9.15); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.558 W/kg

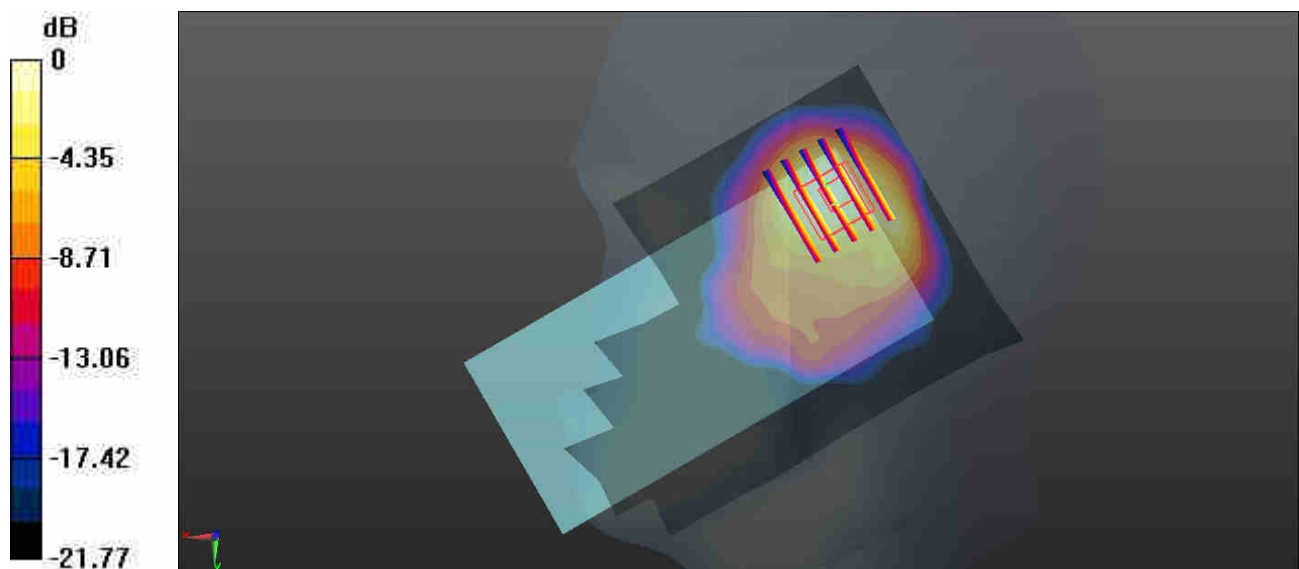
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.68 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.652 W/kg

SAR(1 g) = 0.350 W/kg; SAR(10 g) = 0.183 W/kg

Maximum value of SAR (measured) = 0.484 W/kg



0 dB = 0.484 W/kg = -3.15 dBW/kg

08_GSM1900_GPRS (4 Tx slots)_Right Cheek_0mm_Ch661

Communication System: UID 0, PCS (0); Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: HSL_1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 39.808$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.73, 8.73, 8.73); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.20 W/kg

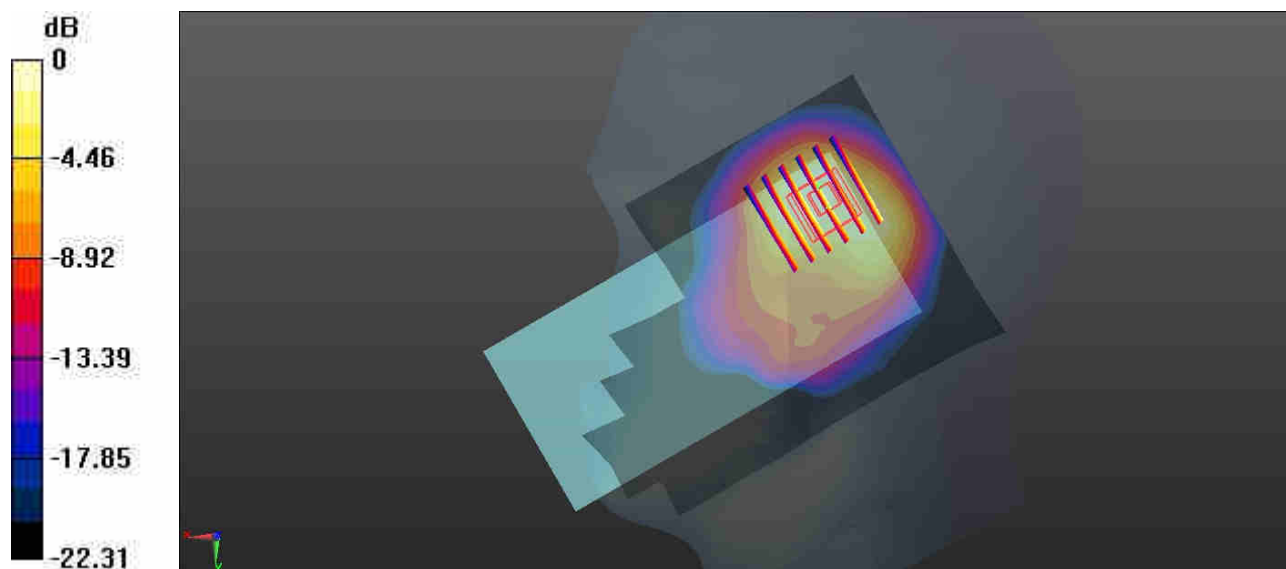
Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 27.79 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.741 W/kg; SAR(10 g) = 0.390 W/kg

Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg

09_WCDMA II_RMC 12.2Kbps_Right Cheek_0mm_Ch9538

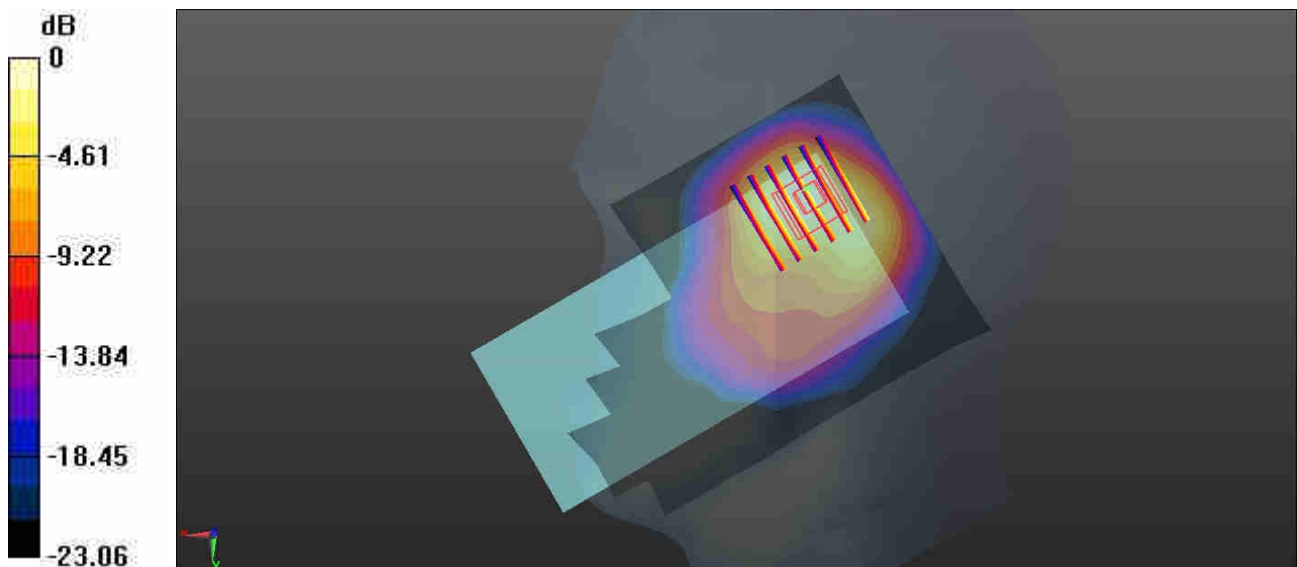
Communication System: UID 0, WCDMA (0); Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1907.6$ MHz; $\sigma = 1.493$ S/m; $\epsilon_r = 40.488$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.73, 8.73, 8.73); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 1.46 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 30.46 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 0.853 W/kg; SAR(10 g) = 0.451 W/kg
Maximum value of SAR (measured) = 1.20 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg

10_LTE Band 2_20M_QPSK_50RB_0Offset_Right Cheek_0mm_Ch18900

Communication System: UID 0, LTE-FDD (0); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 39.808$; $\rho =$
 kg/m^3

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.73, 8.73, 8.73); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.823 W/kg

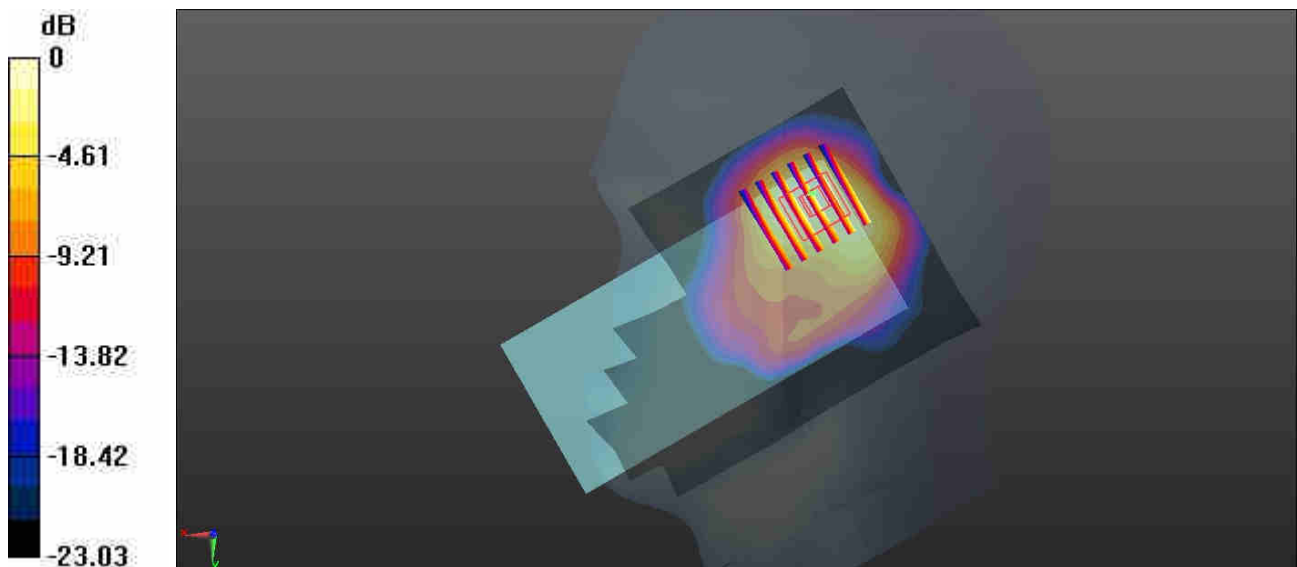
Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 22.85 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.900 W/kg

SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.252 W/kg

Maximum value of SAR (measured) = 0.677 W/kg



0 dB = 0.677 W/kg = -1.69 dBW/kg

11_LTE Band 7_20M_QPSK_50RB_0Offset_Right Tilted_0mm_Ch21100

Communication System: UID 0, LTE-FDD (0); Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: HSL_2600 Medium parameters used: $f = 2535$ MHz; $\sigma = 1.866$ S/m; $\epsilon_r = 38.484$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.14, 8.14, 8.14); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.730 W/kg

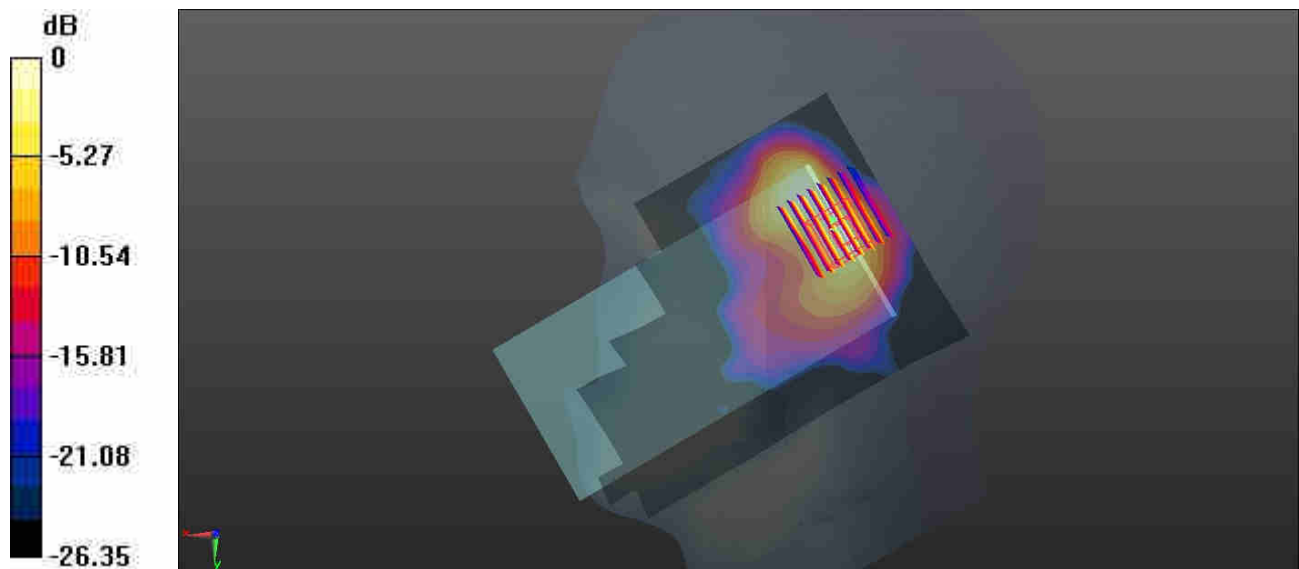
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.01 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.433 W/kg; SAR(10 g) = 0.185 W/kg

Maximum value of SAR (measured) = 0.762 W/kg



0 dB = 0.762 W/kg = -1.18 dBW/kg

12_LTE Band 41_20M_QPSK_50RB_0Offset_Right Tilted_0mm_Ch40770

Communication System: UID 0, LTE-TDD (0); Frequency: 2608 MHz; Duty Cycle: 1:1.59

Medium: HSL_2600 Medium parameters used: $f = 2608$ MHz; $\sigma = 1.931$ S/m; $\epsilon_r = 38.269$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(8.14, 8.14, 8.14); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

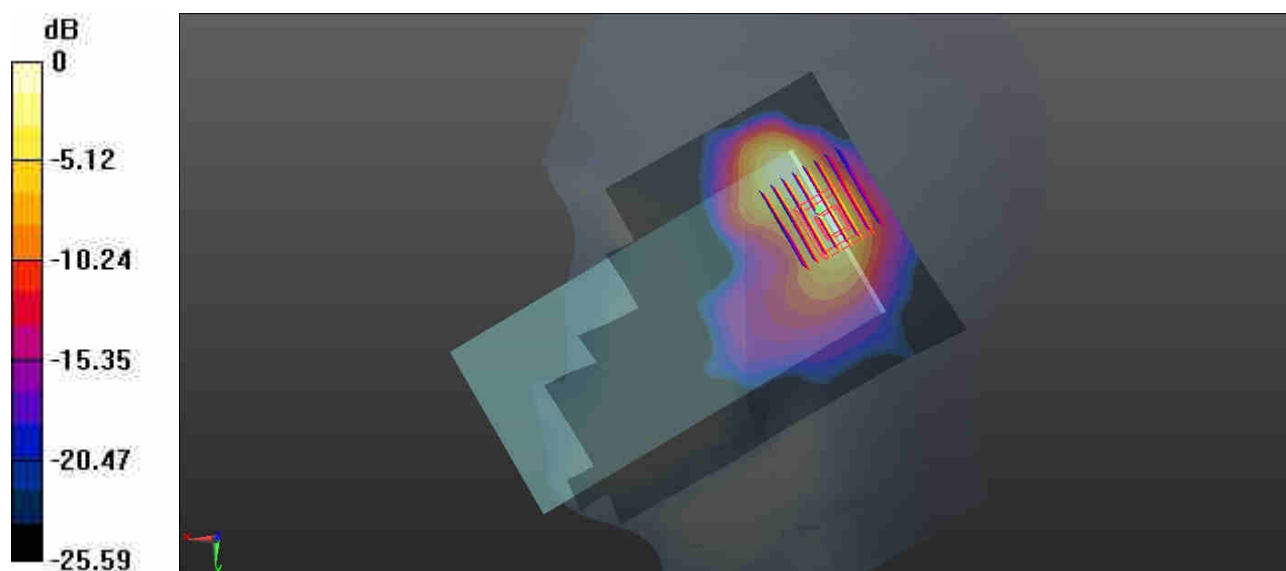
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.58 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 0.634 W/kg; SAR(10 g) = 0.259 W/kg

Maximum value of SAR (measured) = 1.09 W/kg



0 dB = 1.09 W/kg = 0.37 dBW/kg

13_LTE Band 42_20M_QPSK_50RB_0Offset_Left Tilted_0mm_Ch42990

Communication System: UID 0, LTE-TDD (0); Frequency: 3540 MHz; Duty Cycle: 1:1.59

Medium: HSL_3500 Medium parameters used: $f = 3540$ MHz; $\sigma = 2.844$ S/m; $\epsilon_r = 38.941$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7684; ConvF(7.37, 7.37, 7.37); Calibrated: 2021/10/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x191x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.65 W/kg

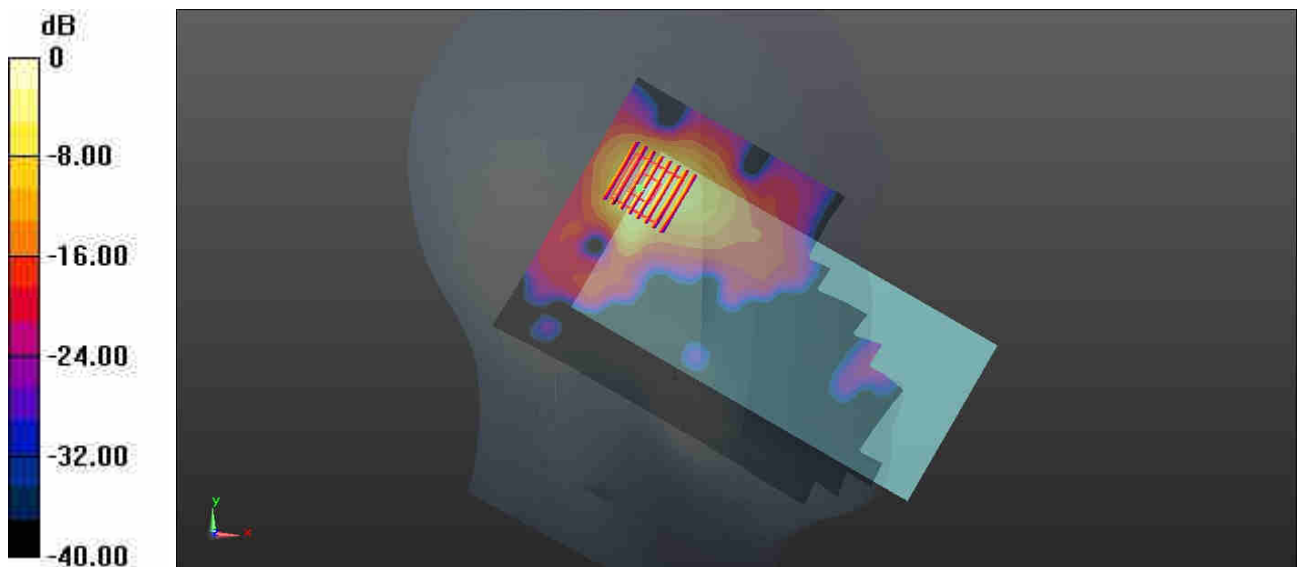
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 20.82 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.12 W/kg

SAR(1 g) = 0.768 W/kg; SAR(10 g) = 0.272 W/kg

Maximum value of SAR (measured) = 1.52 W/kg



0 dB = 1.52 W/kg = 1.82 dBW/kg