



FCC SAR Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2225-1
FCC ID : IHDT56AE5
STANDARD : FCC 47 CFR Part 2 (2.1093)

We, Sporton International Inc. (Kunshan), 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 Inc. (Kunshan), the test report shall not be reproduced except in full.

Tony Zhang

Reviewed by: Tony Zhang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA212701	Rev. 01	Initial issue of report.	Mar. 22, 2022



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2225-1**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.29	1.34	1.34	1.58
		GSM1900	0.18	1.40	1.40	
	WCDMA	Band II	0.32	1.23	1.23	
		Band IV	0.29	1.22	1.22	
		Band V	0.36	1.13	1.13	
	LTE	Band 2	0.25	1.30	1.16	
		Band 7	0.59	1.18	1.18	
		Band 12/ 17	0.31	0.93	0.93	
		Band 13	0.35	1.03	1.03	
		Band 26/ 5	0.29	0.94	0.94	
		Band 41/38	0.57	1.22	1.22	
		Band 42	1.15	1.11	1.10	
		Band 66/ 4	0.57	1.24	1.20	
	5G NR	n2	0.15	0.58	0.54	
		n7	0.57	1.37	1.37	
		n5	0.25	0.59	0.59	
		n66	0.57	0.57	0.48	
		n77	0.54	0.57	0.57	
		n78	1.13	1.18	1.18	
DTS	WLAN	2.4GHz WLAN	0.61	0.38	0.78	1.58
NII		5GHz WLAN	1.19	0.40	1.19	1.58
DSS	Bluetooth	2.4GHz Bluetooth	0.10	0.12	0.12	1.52



Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	1.79	3.98
		GSM1900	3.16	
	WCDMA	Band II	3.23	
		Band IV	3.59	
	LTE	Band 2	3.26	
		Band 7	1.42	
		Band 41/38	1.15	
		Band 42	1.17	
	5G NR	Band 66/ 4	2.93	
		n2	1.66	
		n7	1.70	
		n66	1.47	
		n77	1.01	
		n78	1.99	
NII	WLAN	5GHz WLAN	2.90	3.98
Date of Testing:			2022/2/1 ~ 2022/3/2	

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

Declaration of Conformity:

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

Comments and Explanations:

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

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



2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
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.
	SAR02-KS	CN1257	314309

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

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

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2225-1
FCC ID	IHDT56AE5
IMEI Code	Sample 1: 350714860019191 Sample 2: SIM1: 350714860031493 SIM2: 350714860031501
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 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	DVT2
SW Version	S1SU32.41
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.



EUT Stage	Identical Prototype
Remark:	
<ol style="list-style-type: none"> 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 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. 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. 6. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld. 7. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively. 8. LTE band 38/41 supports HPUE, we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR. 9. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR. 10. There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile. The others are the same including circuit design, PCB board, structure and all components. It is special to declare. After pre-scan two types of EUT, we found test result of the sample that single SIM was the worst, so we chose single SIM card mobile to perform all tests. 11. 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. 12. There are two samples, the difference between them could be referred to the XT2225-1_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose the sample 1 to full test and the sample 2 are verified the difference. 13. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR. 14. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission. 15. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time. 16. 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. 17. 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. 18. 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. 19. This device supports 5G NR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately. 	

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n66	FDD	15	5, 10, 15, 20, 30, 40
	n77	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
SA	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n78	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100



4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																															
FCC ID	IHDT56AE5																																																														
Equipment Name	Mobile Cellular Phone																																																														
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz LTE Band 66: 1710 MHz ~ 1780 MHz																																																														
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz																																																														
uplink modulations used	QPSK / 16QAM / 64QAM																																																														
LTE Voice / Data requirements	Voice and Data																																																														
LTE Release Version	R16, Cat16																																																														
CA Support	Supported, Uplink and Downlink																																																														
LTE MPR permanently built-in by design	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table>	Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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256 QAM	≥ 1						≤ 5																																																								
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																														
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																														
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors/receiver/hotspot detect mechanism, head/body-worn /hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.																																																														
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.																																																														
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band 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				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq. (MHz)		Channel #		Freq. (MHz)		Channel #		Freq. (MHz)		Channel #
L	23205		779.5		23230		782		23230		782		782
M	23230		782										
H	23255		784.5										
LTE Band 17													
	Bandwidth 5 MHz				Bandwidth 10 MHz				Bandwidth 15 MHz				Bandwidth 20 MHz
	Channel #		Freq. (MHz)		Channel #		Freq. (MHz)		Channel #		Freq. (MHz)		Channel #
L	23755		706.5		23780		709		23780		709		709
M	23790		710		23790		710		23790		710		710
H	23825		713.5		23800		711		23800		711		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	26740	819	26765	821.5	
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26990	844	26965	841.5	
LTE Band 38													
	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	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37850	2580	37850	2580	
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38150	2610	38150	2610	



LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506				
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593				
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680				

LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

LTE Band 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)	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 n2 : 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz, 30MHz, 40MHz 5G NR n77: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n78: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
SCS	FDD: SCS15KHz, 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 n2	LTE B66
LTE Anchor Bands for n5	LTE B7/66
LTE Anchor Bands for n7	LTE B2/5/66
LTE Anchor Bands for n66	LTE B2/5/7
LTE Anchor Bands for n77	LTE B41
LTE Anchor Bands for n78	LTE B2/4/5/7/38/41/66

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band								
NR Band 2								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900

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

NR Band 7														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550

NR Band 66												
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	345000	1725	346000	1730
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353000	1765	352000	1760



NR Band 77																		
	Bandwidth 20MHz		Bandwidth30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	664668	3970.02	664334	3965.01	664000	3960	663668	3955.02	663334	3950.01	663000	3945	662668	3940.02	662334	3935.01	662000	3930

NR Band 78																		
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	652668	3790.02	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

For <3450 MHz ~ 3550 MHz >

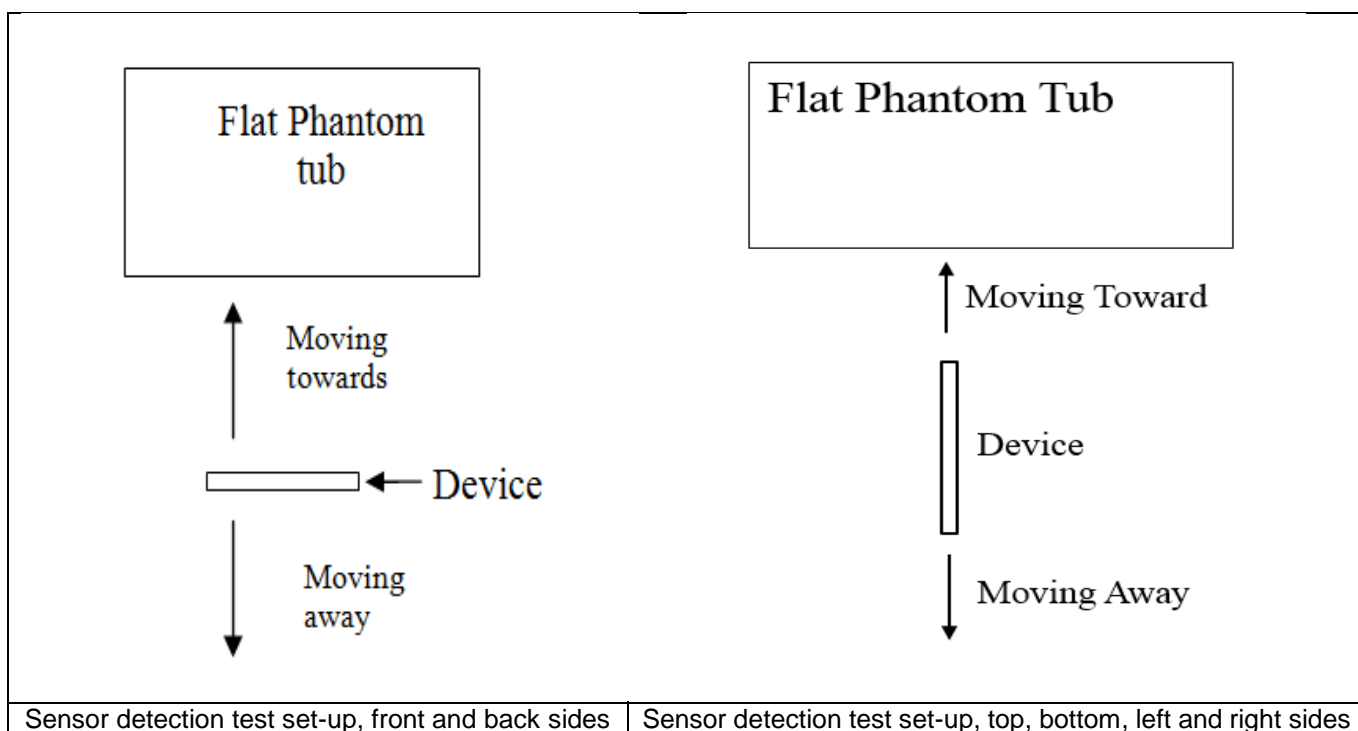
NR Band 77																		
	Bandwidth 20MHz		Bandwidth30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633334	3500.01	633334	3500.01	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	634334	3515.01	634000	3510	633668	3505.02		

NR Band 78																		
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633334	3500.01	633334	3500.01	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	634334	3515.01	634000	3510	633668	3505.02		

5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left/right sides of the device. When front/back/top/bottom/left/right sides of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:





<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	18	19	25	26

<Handheld for ANT0>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Bottom Side		Right Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	8	8	16	18	17	18	6	7

<Handheld for ANT1>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Top Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	7	10	18	20	15	17	10	10

<Handheld for ANT2>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	3	5	8	10	6	7

<Handheld for ANT8>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	8	10	14	18	8	11	14	15

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

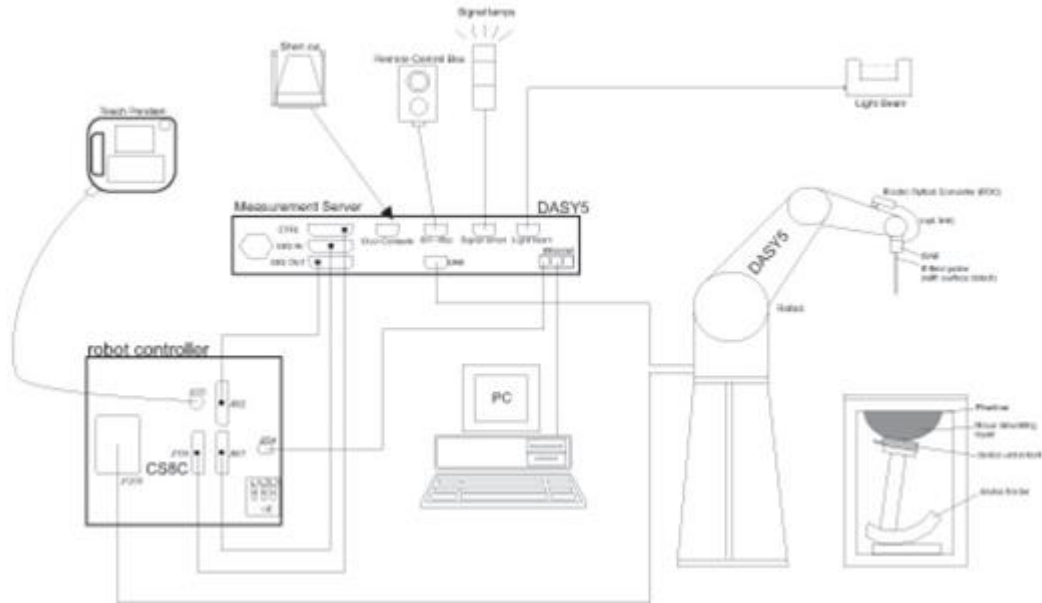
SAR is expressed in units of Watts per kilogram (W/kg)

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

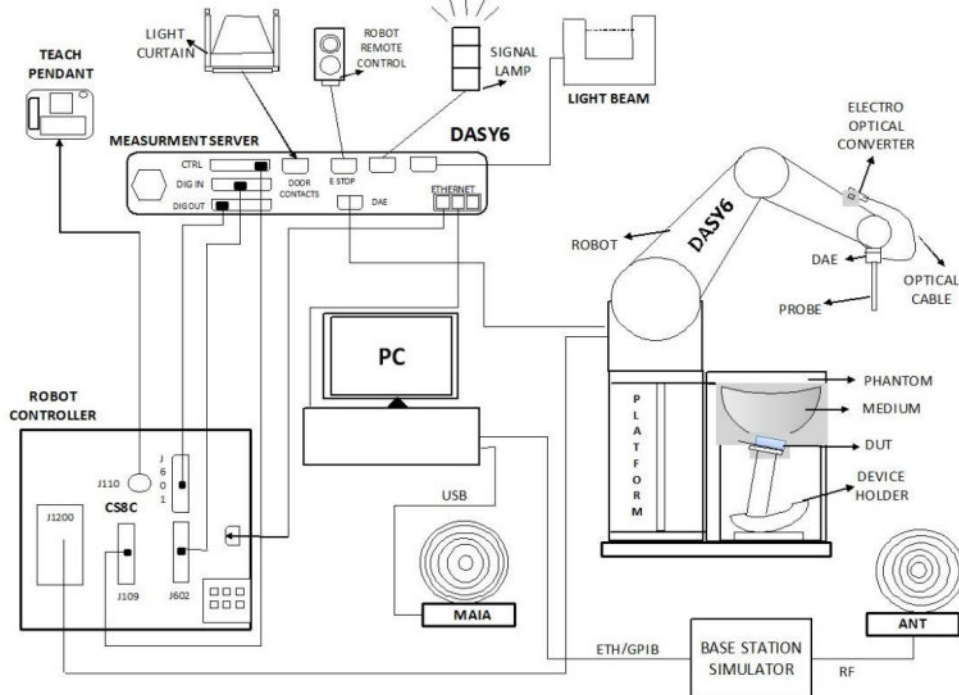
Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

8. System Description and Setup

The DASY5 system used for performing compliance tests consists of the following items:



The DASY6 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 Win10 and the DASY5/DASY6 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.


8.1 E-Field Probe

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

<EX3DV4 Probe>

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

<ES3DV3 Probe>

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

8.2 Data Acquisition Electronics (DAE)

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


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



Photo of DAE

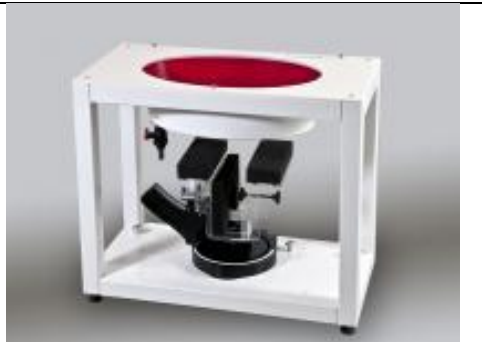
8.3 Phantom

<SAM Twin Phantom>

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: $\Delta x_{Area}, \Delta y_{Area}$	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \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: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 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
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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 DASYS 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	1338	2021/12/1	2022/11/30
SPEAG	Data Acquisition Electronics	DAE4	1303	2021/6/18	2022/6/17
SPEAG	Data Acquisition Electronics	DAE4	1691	2021/10/4	2022/10/3
SPEAG	Dosimetric E-Field Probe	ES3DV3	3279	2021/8/24	2022/8/23
SPEAG	Dosimetric E-Field Probe	EX3DV4	7684	2021/10/4	2022/10/3
SPEAG	Dosimetric E-Field Probe	EX3DV4	7592	2021/6/24	2022/6/23
SPEAG	SAM Twin Phantom	SAM Twin	TP-1842	NCR	NCR
SPEAG	SAM Twin Phantom	SAM Twin	TP-1697	NCR	NCR
Testo	Thermo-Hygrometer	608-H1	1241332126	2022/1/6	2023/1/5
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	2022/1/6	2023/1/5
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	101631	2021/10/14	2022/10/13
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.

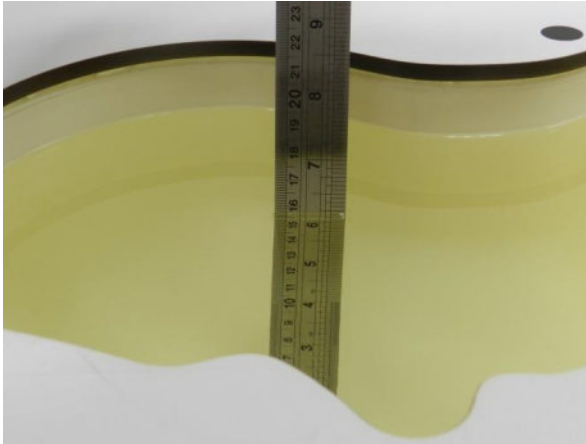


Fig 11.1 Photo of Liquid Height for Head SAR

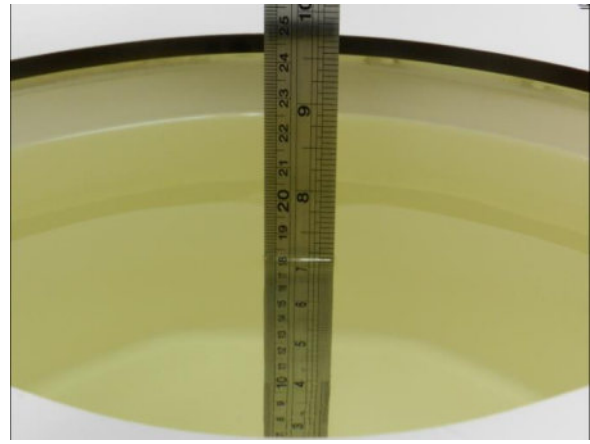


Fig 11.2 Photo of Liquid Height for Body SAR



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	22.8	0.900	41.210	0.89	41.90	1.12	-1.65	±5	2022/2/1
835	Head	22.6	0.933	41.482	0.90	41.50	3.67	-0.04	±5	2022/2/3
1750	Head	22.7	1.410	40.674	1.37	40.10	2.92	1.43	±5	2022/2/6
1900	Head	22.8	1.466	41.036	1.40	40.00	4.71	2.59	±5	2022/2/9
2600	Head	22.6	1.922	38.213	1.96	39.00	-1.94	-2.02	±5	2022/2/13
750	Head	22.6	0.917	42.769	0.89	41.90	3.03	2.07	±5	2022/2/7
835	Head	22.6	0.943	42.500	0.90	41.50	4.78	2.41	±5	2022/2/14
1750	Head	22.8	1.344	39.018	1.37	40.10	-1.90	-2.70	±5	2022/2/16
1900	Head	22.9	1.428	38.741	1.40	40.00	2.00	-3.15	±5	2022/2/18
2600	Head	22.9	1.928	38.986	1.96	39.00	-1.63	-0.04	±5	2022/2/21
2450	Head	22.8	1.770	39.400	1.80	39.20	-1.67	0.51	±5	2022/2/19
3500	Head	22.7	2.809	39.002	2.91	37.90	-3.47	2.91	±5	2022/2/27
3700	Head	22.6	2.995	38.682	3.12	37.70	-4.01	2.60	±5	2022/2/27
3900	Head	22.8	3.195	38.391	3.32	37.50	-3.77	2.38	±5	2022/3/2
5250	Head	22.9	4.600	35.900	4.71	35.90	-2.34	0.00	±5	2022/2/20
5600	Head	22.7	5.020	35.300	5.07	35.50	-0.99	-0.56	±5	2022/2/22
5750	Head	22.8	5.180	35.100	5.22	35.40	-0.77	-0.85	±5	2022/2/25
2450	Head	22.9	1.879	40.868	1.80	39.20	4.39	4.26	±5	2022/2/26
5250	Head	22.9	4.566	35.959	4.71	35.90	-3.06	0.16	±5	2022/2/26
5600	Head	22.9	4.965	35.423	5.07	35.50	-2.07	-0.22	±5	2022/2/26
5750	Head	22.9	5.130	35.233	5.22	35.40	-1.72	-0.47	±5	2022/2/26



11.3 System Performance Check Results

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

<1g SAR>

Table with 11 columns: 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 (%). It contains 24 rows of test data.

<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 (%)
2022/2/1	750	Head	50	1087	3279	1338	0.290	5.65	5.8	2.65
2022/2/3	835	Head	50	4d258	3279	1338	0.312	6.13	6.24	1.79
2022/2/6	1750	Head	50	1090	3279	1338	0.966	19.20	19.32	0.63
2022/2/9	1900	Head	50	5d170	3279	1338	0.995	20.30	19.9	-1.97
2022/2/13	2600	Head	50	1061	3279	1338	1.240	25.10	24.8	-1.20
2022/2/7	750	Head	50	1087	3279	1338	0.296	5.65	5.92	4.78
2022/2/14	835	Head	50	4d258	3279	1338	0.316	6.13	6.32	3.10
2022/2/16	1750	Head	50	1090	3279	1338	0.984	19.20	19.68	2.50
2022/2/18	1900	Head	50	5d170	3279	1338	0.969	20.30	19.38	-4.53
2022/2/21	2600	Head	50	1061	3279	1338	1.250	25.10	25	-0.40
2022/2/19	2450	Head	50	908	7592	1691	1.260	24.20	25.2	4.13
2022/2/27	3500	Head	50	1037	7684	1303	1.180	25.40	23.6	-7.09
2022/2/27	3700	Head	50	1008	7684	1303	1.240	24.40	24.8	1.64
2022/3/2	3900	Head	50	1048	7684	1303	1.130	24.40	22.6	-7.38
2022/2/20	5250	Head	50	1113	7592	1691	1.110	23.10	22.2	-3.90
2022/2/22	5600	Head	50	1113	7592	1691	1.150	23.80	23	-3.36
2022/2/25	5750	Head	50	1113	7592	1691	1.170	22.80	23.4	2.63
2022/2/26	2450	Head	50	908	7684	1303	1.290	24.20	25.8	6.61
2022/2/26	5250	Head	50	1113	7684	1303	1.200	23.10	24	3.90
2022/2/26	5600	Head	50	1113	7684	1303	1.120	23.80	22.4	-5.88
2022/2/26	5750	Head	50	1113	7684	1303	1.060	22.80	21.2	-7.02

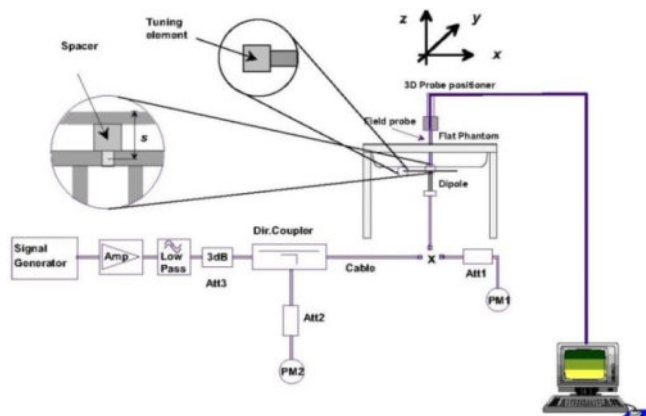


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

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

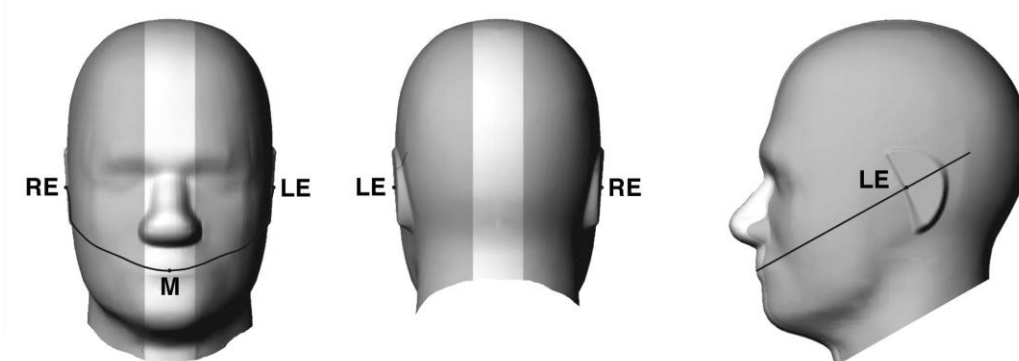


Fig 12.1.1 Front, back, and side views of SAM twin phantom

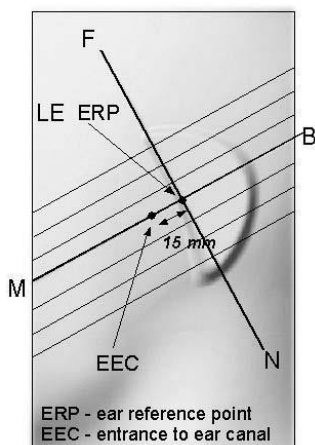


Fig 12.1.2 Close-up side view of phantom showing the ear region.

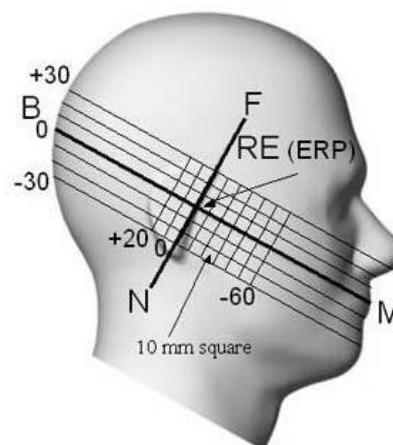


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

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

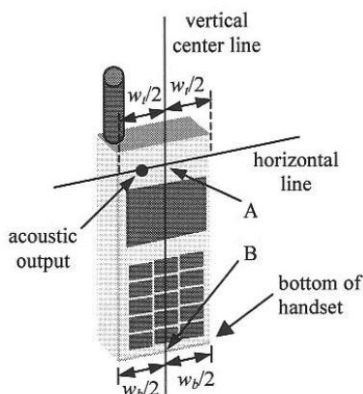


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

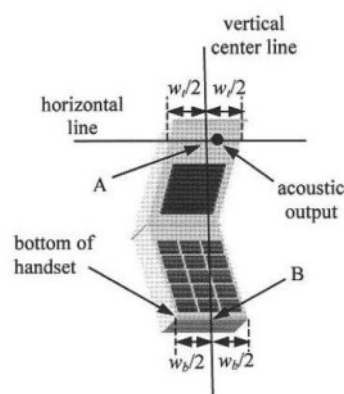


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

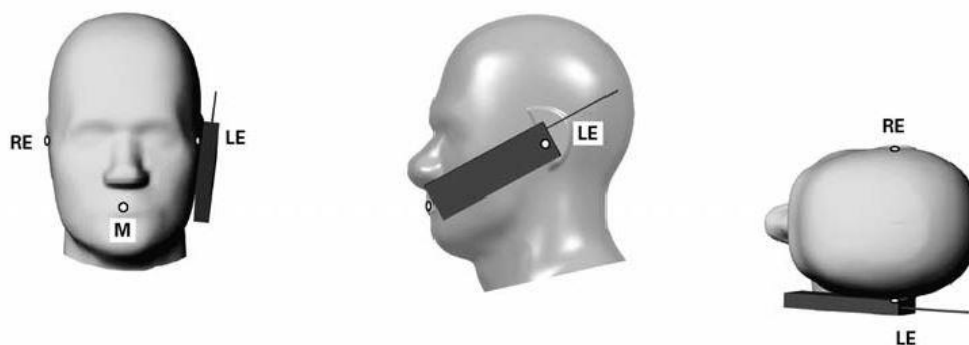


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 Definition of the tilt position

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

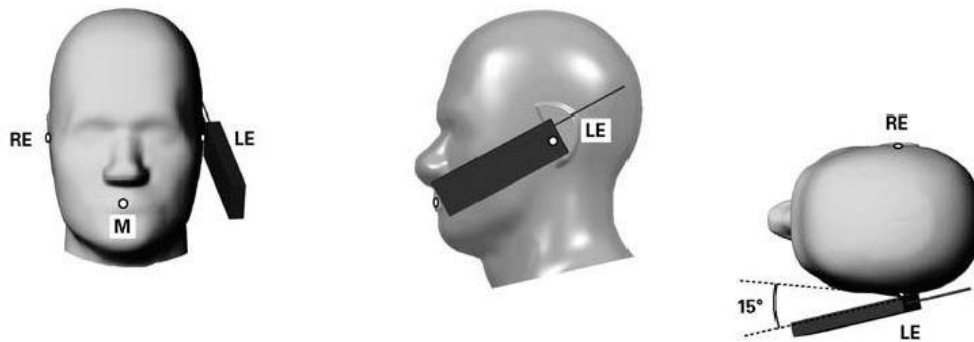


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 Body Worn Accessory

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

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

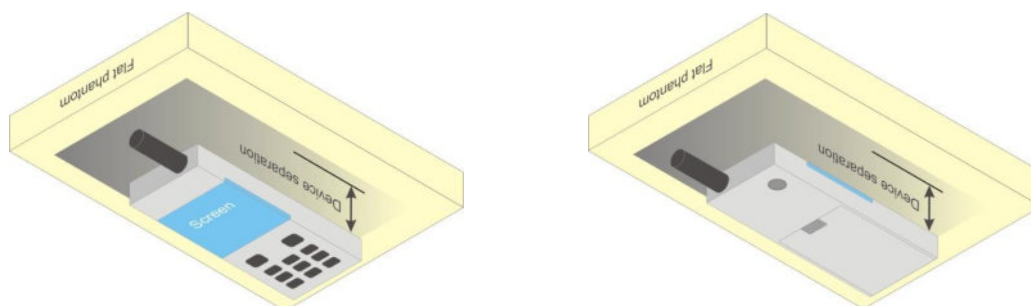


Fig 12.4 Body Worn Position



12.5 Product Specific 10g SAR Exposure

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

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

12.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ 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 $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (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} (Note1)	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 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 $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

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

Note 3: For subtest 1 the 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.		

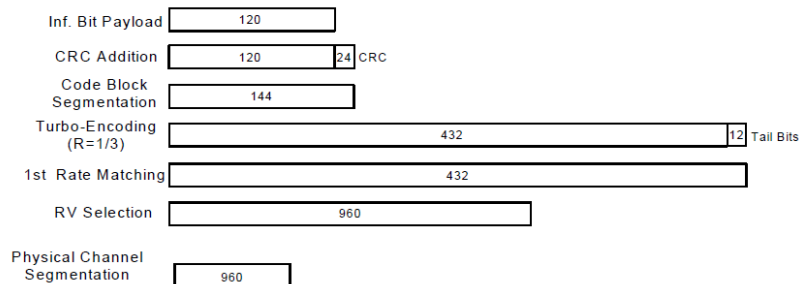


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration



<WCDMA Conducted Power>

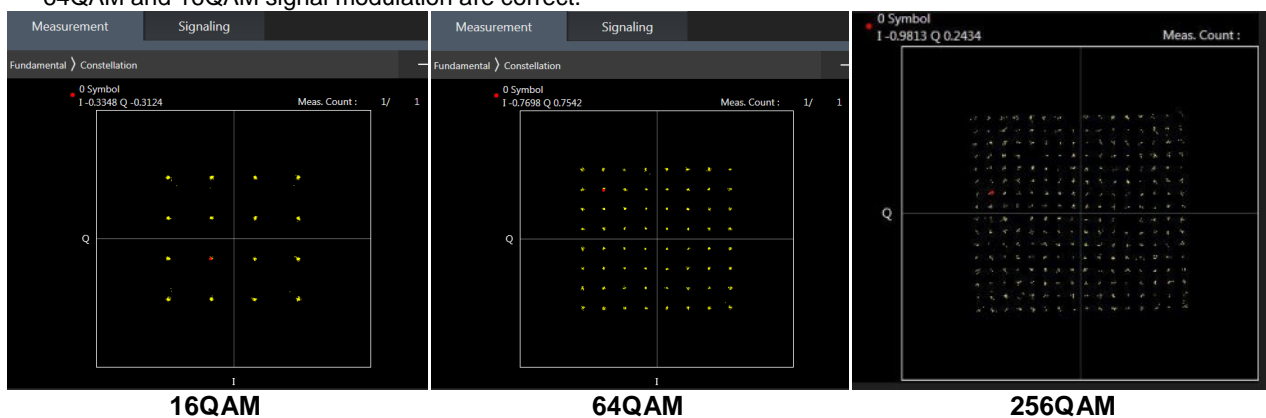
General Note:

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/256QAM 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/256QAM 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 B4 / B5 / B17 / B38 SAR test was covered by B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 256 QAM, 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 256 QAM, 64QAM and 16QAM signal modulation are correct.



<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

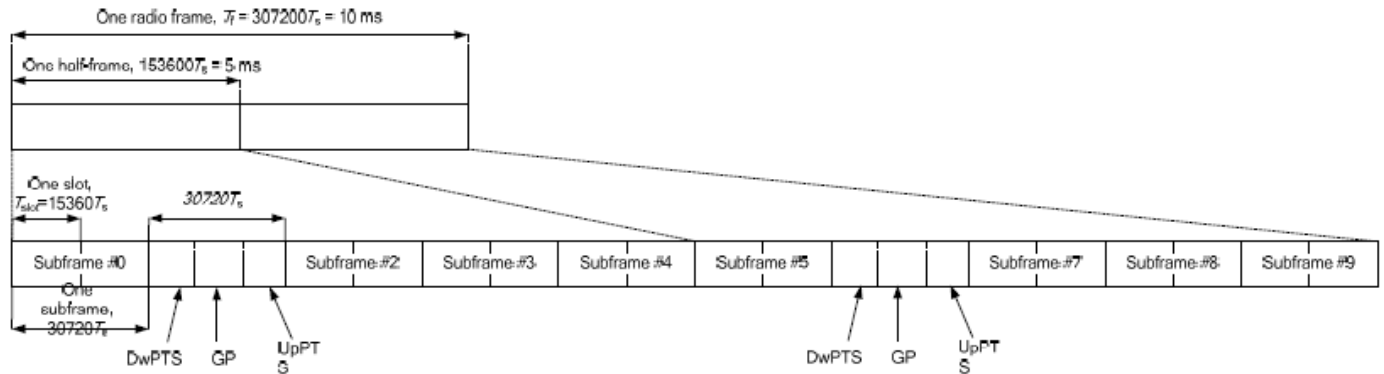


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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:

For LTE Band 41 Power class 2

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

For LTE Band 41 Power class 3

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

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

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



<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. All permutations exist. No restrictions on Pcell & Scell combinations. Only LTE Band 29A is limited to Scell.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	CA_2C		1	CA_2A-7C		1	CA_41C-41C	
2	CA_2A-4A		2	CA_2A-7A-7A		2	CA_41E	
3	CA_2A-5A		3	CA_4A-7C		3	CA_41A-41D	
4	CA_2A-7A	3CC #2	4	CA_5A-7C		4	CA_41A-41A-41C	
5	CA_4A-5A		5	CA_5A-66A-66A		5	CA_41C-42C	
6	CA_4A-7A		6	CA_7A-66A-66A				
7	CA_5A-7A		7	CA_41D	4CC #3			
8	CA_5A-41A		8	CA_41A-41C	4CC #4			
9	CA_5A-66A	3CC #5	9	CA_41A-41A-41A				
10	CA_7B		10	CA_41C-42A				
11	CA_7C		11	CA_41A-42C				
12	CA_7A-7A	3CC #2	12	CA_42D				
13	CA_7A-26A							
14	CA_7A-42A							
15	CA_7A-66A	3CC #6						
16	CA_26A-41A							
17	CA_38C							
18	CA_41C	3CC #8						
19	CA_41A-41A	3CC #9						
20	CA_41A-42A							
21	CA_42C	3CC #11						
22	CA_66B							
23	CA_66C							
24	CA_66A-66A	3CC #6						

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 2/4/7/38/41/42/66 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	Band
	LTE Band 2/4/7/38/41/42/66



LTE Carrier Aggregation Conducted Power (Uplink)

2CC Uplink Carrier Aggregation		
Number	Combination	Ant No.
1	CA_7C	ANT5
2	CA_41C	ANT5
3	CA_42C	ANT2

<Intra-band>

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B7/41/42 with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. The device supports uplink carrier aggregation with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.
- iii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iv. Additional SAR measurement for LTE UL CA 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.
CA_4A-7A	LTE B4: Ant1	LTE B7: Ant5
CA_2A-4A	LTE B2: Ant0	LTE B4: Ant1
CA_4A-5A	LTE B4: Ant1	LTE B5: Ant0

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 n2 / n5 / n7 / n66 / n77 / n78 is NSA mode.
2. 5G NR n7 / n78 is SA mode.
3. 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/64QAM/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 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
4. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR.
5. 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.
6. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
7. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.
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.

<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	

Inter Band EN-DC Configuration

EN-DC	4G UL	5G-NR UL	EN-DC	4G UL	5G-NR UL
DC_2A_n7A	ANT0	ANT1	DC_66A_n7A	ANT0	ANT1
DC_2A_n66A	ANT0	ANT1	DC_66A_n78A	ANT0	ANT2
DC_2A_n78A	ANT0	ANT2			
DC_4A_n78A	ANT0	ANT2			
DC_5A_n7A	ANT0	ANT1			
DC_5A_n66A	ANT0	ANT1			
DC_5A_n78A	ANT0	ANT2			
DC_7A_n5A	ANT1	ANT0			
DC_7A_n66A	ANT5	ANT1			
DC_7A_n78A	ANT5	ANT2			
DC_38A_n78A	ANT1	ANT2			
DC_41A_n77A	ANT1	ANT2			
DC_41A_n78A	ANT1	ANT2			
DC_66A_n2A	ANT1	ANT0			
DC_66A_n5A	ANT1	ANT0			

Note: 1. For EN-DC component, LTE band 7/4/66/38/41 for ANT 1 is limited to EN-DC active and they will act as anchor mode. When EN-DC is not active, LTE band 7/4/66/38/41 will not transmit.

<WLAN Conducted Power>

General Note:

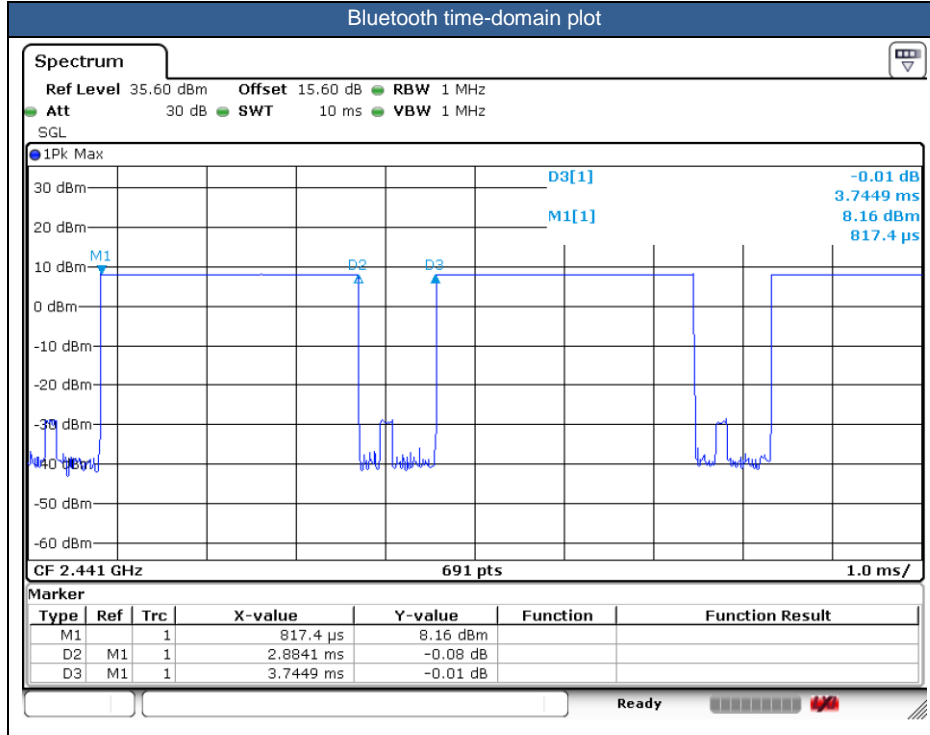
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 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 are 77.01 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation





14. Antenna Location

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

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
 - f. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $43.3\%/42.9\% = 1.009$ is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 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. 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.
5. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, extremity. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and Handheld.
6. There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile. The others are the same including circuit design, PCB board, structure and all components. It is special to declare. After pre-scan two types of EUT, we found test result of the sample that single SIM was the worst, so we chose single SIM card mobile to perform all tests.
7. 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.
8. There are three samples. The difference between them could be referred to the XT2225-1_Operational Description of Product Equality Declaration which is exhibited separately. According to the difference, we choose sample 1 for full testing and sample 2 for worst case verification. For sample 3, the differences do not affect the test, so sample 3 is not tested.
9. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
10. LTE band 38/41 supports HPUE, we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR.
11. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR.
12. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
13. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
14. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.



15. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
16. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
17. This device supports 5G NR FR1 bands, including NSA mode and SA mode. NSA and SA mode performed SAR separately.
18. 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.
19. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
 - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV, LTE Band 2/4/7/66/38/41/42, 5G NR n2 /n7/ n66/ n77/n78, 5.2GHz/5.8GHz, therefore product specific 10g SAR is necessary.
 - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
20. For distance SAR and non-distance SAR, always chose higher SAR 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 ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is \leq ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is \leq 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA) are less than ¼ 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 \leq 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is \leq 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per



KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

7. LTE B4 / B5 / B17 / B38 SAR test was covered by LTE B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is \leq the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - b. 50% RB allocation for QPSK SAR testing follows 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 n5/n7/n66 /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. 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.
3. 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.
4. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																			
01	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant0	Full	23095	707.5	1	22.81	24.00	1.315	0.15	0.235	0.309
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant0	Full	23095	707.5	1	21.87	23.00	1.297	-0.1	0.129	0.167
	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant0	Full	23095	707.5	1	22.81	24.00	1.315	0.08	0.134	0.176
	LTE Band 12	10M	QPSK	25	0	-	Right Tilted	0mm	Ant0	Full	23095	707.5	1	21.87	23.00	1.297	0.14	0.074	0.096
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant0	Full	23095	707.5	1	22.81	24.00	1.315	0.01	0.215	0.283
	LTE Band 12	10M	QPSK	25	0	-	Left Cheek	0mm	Ant0	Full	23095	707.5	1	21.87	23.00	1.297	-0.15	0.119	0.154
	LTE Band 12	10M	QPSK	1	0	-	Left Tilted	0mm	Ant0	Full	23095	707.5	1	22.81	24.00	1.315	0.05	0.116	0.153
	LTE Band 12	10M	QPSK	25	0	-	Left Tilted	0mm	Ant0	Full	23095	707.5	1	21.87	23.00	1.297	-0.09	0.060	0.078
02	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant0	Full	23230	782	1	22.64	24.00	1.368	0.02	0.258	0.353
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant0	Full	23230	782	1	21.61	23.00	1.377	0.07	0.140	0.193
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant0	Full	23230	782	1	22.64	24.00	1.368	-0.08	0.187	0.256
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant0	Full	23230	782	1	21.61	23.00	1.377	0.13	0.104	0.143
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant0	Full	23230	782	1	22.64	24.00	1.368	0.01	0.242	0.331
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant0	Full	23230	782	1	21.61	23.00	1.377	-0.04	0.132	0.182
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant0	Full	23230	782	1	22.64	24.00	1.368	0.01	0.000	0.000
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant0	Full	23230	782	1	21.61	23.00	1.377	0.04	0.086	0.118
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	0.02	0.215	0.283
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	0.09	0.132	0.174
03	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	-0.09	0.221	0.291
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	-0.05	0.133	0.175
04	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant0	Full	4182	836.4	1	22.69	24.00	1.352	-0.06	0.264	0.357
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant0	Full	4182	836.4	1	22.69	24.00	1.352	-0.08	0.153	0.207
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant0	Full	4182	836.4	1	22.69	24.00	1.352	0.04	0.252	0.341
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant0	Full	4182	836.4	1	22.69	24.00	1.352	-0.07	0.146	0.197
05	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant0	Full	26865	831.5	1	22.75	24.00	1.334	-0.01	0.219	0.292
	LTE Band 26	15M	QPSK	36	0	-	Right Cheek	0mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	0.07	0.132	0.174
	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant0	Full	26865	831.5	1	22.75	24.00	1.334	-0.12	0.131	0.175
	LTE Band 26	15M	QPSK	36	0	-	Right Tilted	0mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	0.13	0.079	0.104
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant0	Full	26865	831.5	1	22.75	24.00	1.334	-0.04	0.216	0.288
	LTE Band 26	15M	QPSK	36	0	-	Left Cheek	0mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	0.08	0.129	0.170
	LTE Band 26	15M	QPSK	1	0	-	Left Tilted	0mm	Ant0	Full	26865	831.5	1	22.75	24.00	1.334	-0.07	0.119	0.159
	LTE Band 26	15M	QPSK	36	0	-	Left Tilted	0mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	-0.18	0.071	0.094
EN-DC																			
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	Full	167300	836.5	1	23.19	24.00	1.205	-0.17	0.185	0.223
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	Full	167300	836.5	1	23.14	24.00	1.219	-0.02	0.194	0.236
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	Full	167300	836.5	1	23.19	24.00	1.205	0.01	0.113	0.136
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	Full	167300	836.5	1	23.14	24.00	1.219	0.09	0.115	0.140
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	Full	167300	836.5	1	23.19	24.00	1.205	-0.14	0.185	0.223
06	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	Full	167300	836.5	1	23.14	24.00	1.219	0.03	0.207	0.252
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	Full	167300	836.5	1	23.19	24.00	1.205	0.14	0.108	0.130
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	Full	167300	836.5	1	23.14	24.00	1.219	-0.02	0.117	0.143



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																			
07	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant0	Full	1413	1732.6	1	22.48	24.00	1.419	-0.01	0.206	0.292
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant0	Full	1413	1732.6	1	22.48	24.00	1.419	0.05	0.104	0.148
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant0	Full	1413	1732.6	1	22.48	24.00	1.419	-0.12	0.152	0.216
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant0	Full	1413	1732.6	1	22.48	24.00	1.419	0.02	0.093	0.132
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant0	Full	132322	1745	1	22.45	24.00	1.429	0.01	0.177	0.253
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant0	Full	132322	1745	1	21.45	23.00	1.429	0.16	0.113	0.161
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant0	Full	132322	1745	1	22.45	24.00	1.429	0.1	0.081	0.116
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant0	Full	132322	1745	1	21.45	23.00	1.429	0.01	0.000	0.000
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant0	Full	132322	1745	1	22.45	24.00	1.429	0.02	0.126	0.180
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant0	Full	132322	1745	1	21.45	23.00	1.429	-0.15	0.082	0.117
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant0	Full	132322	1745	1	22.45	24.00	1.429	-0.19	0.085	0.121
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant0	Full	132322	1745	1	21.45	23.00	1.429	0.04	0.056	0.080
EN-DC																			
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Reduced	132322	1745	1	17.16	18.50	1.361	-0.01	0.278	0.378
	LTE Band 66	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	Reduced	132322	1745	1	17.15	18.50	1.365	0.19	0.178	0.243
08	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	Reduced	132322	1745	1	17.16	18.50	1.361	-0.06	0.415	0.565
	LTE Band 66	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	Reduced	132322	1745	1	17.15	18.50	1.365	0.16	0.233	0.318
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Reduced	132322	1745	1	17.16	18.50	1.361	-0.03	0.220	0.300
	LTE Band 66	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Reduced	132322	1745	1	17.15	18.50	1.365	-0.14	0.140	0.191
	LTE Band 66	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	Reduced	132322	1745	1	17.16	18.50	1.361	0.02	0.290	0.395
	LTE Band 66	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	Reduced	132322	1745	1	17.15	18.50	1.365	0.12	0.187	0.255
EN-DC																			
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	Reduced	349000	1745	1	18.47	19.50	1.268	0.05	0.337	0.427
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	Reduced	349000	1745	1	18.38	19.50	1.294	-0.07	0.306	0.396
09	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	Reduced	349000	1745	1	18.47	19.50	1.268	-0.01	0.447	0.567
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	Reduced	349000	1745	1	18.38	19.50	1.294	0.18	0.406	0.525
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	Reduced	349000	1745	1	18.47	19.50	1.268	0.18	0.273	0.346
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	Reduced	349000	1745	1	18.38	19.50	1.294	-0.06	0.243	0.314
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	Reduced	349000	1745	1	18.47	19.50	1.268	0.12	0.355	0.450
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	Reduced	349000	1745	1	18.38	19.50	1.294	0.06	0.324	0.419
1900MHz																			
10	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant0	Full	661	1880	1	25.36	26.50	1.300	-0.15	0.140	0.182
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant0	Full	661	1880	1	25.36	26.50	1.300	-0.18	0.100	0.130
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant0	Full	661	1880	1	25.36	26.50	1.300	-0.06	0.023	0.030
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant0	Full	661	1880	1	25.36	26.50	1.300	-0.02	0.022	0.029
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant0	Full	9400	1880	1	22.49	24.00	1.416	-0.01	0.223	0.316
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant0	Full	9400	1880	1	22.49	24.00	1.416	0.1	0.135	0.191
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant0	Full	9400	1880	1	22.49	24.00	1.416	-0.02	0.144	0.204
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant0	Full	9400	1880	1	22.49	24.00	1.416	-0.12	0.145	0.205
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant0	Full	18900	1880	1	22.47	24.00	1.422	0.04	0.178	0.253
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant0	Full	18900	1880	1	21.63	23.00	1.371	0.11	0.131	0.180
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant0	Full	18900	1880	1	22.47	24.00	1.422	-0.19	0.114	0.162
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant0	Full	18900	1880	1	21.63	23.00	1.371	0.07	0.083	0.114
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant0	Full	18900	1880	1	22.47	24.00	1.422	0.06	0.128	0.182
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant0	Full	18900	1880	1	21.63	23.00	1.371	0.1	0.087	0.119
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant0	Full	18900	1880	1	22.47	24.00	1.422	0.07	0.127	0.181
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant0	Full	18900	1880	1	21.63	23.00	1.371	-0.03	0.095	0.130
EN-DC																			
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	Full	376000	1880	1	22.68	24.00	1.355	0.09	0.107	0.145
13	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	Full	376000	1880	1	22.56	24.00	1.393	-0.08	0.108	0.150
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	Full	376000	1880	1	22.68	24.00	1.355	-0.17	0.063	0.085
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Tilted	0mm	Ant 0	Full	376000	1880	1	22.56	24.00	1.393	0.15	0.065	0.091
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	Full	376000	1880	1	22.68	24.00	1.355	-0.13	0.071	0.096
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	Full	376000	1880	1	22.56	24.00	1.393	0.12	0.071	0.099
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	Full	376000	1880	1	22.68	24.00	1.355	-0.05	0.059	0.080
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Tilted	0mm	Ant 0	Full	376000	1880	1	22.56	24.00	1.393	-0.01	0.067	0.093



FCC SAR Test Report

Report No. : FA212701

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.08	0.278	0.350
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant5	Full	21100	2535	1	22.14	23.00	1.219	-	-	-0.16	0.203	0.247
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.12	0.267	0.336
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant5	Full	21100	2535	1	22.14	23.00	1.219	-	-	0.16	0.191	0.233
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.02	0.459	0.578
	LTE Band 7C	20M	QPSK	1	99	-	Left Cheek	0mm	Ant5	Full	21100+21298	2535+2554.8	1	22.96	24.00	1.271	-	-	0.01	0.442	0.562
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant5	Full	21100	2535	1	22.14	23.00	1.219	-	-	-0.07	0.320	0.390
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.02	0.140	0.176
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant5	Full	21100	2535	1	22.14	23.00	1.219	-	-	0.06	0.101	0.123
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Reduced	21100	2535	1	18.97	19.50	1.130	-	-	0.05	0.414	0.468
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	Reduced	21100	2535	1	18.89	19.50	1.151	-	-	0.18	0.279	0.321
14	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	Reduced	21100	2535	1	18.97	19.50	1.130	-	-	-0.03	0.521	0.589
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	Reduced	21100	2535	1	18.89	19.50	1.151	-	-	-0.1	0.343	0.395
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Reduced	21100	2535	1	18.97	19.50	1.130	-	-	-0.19	0.146	0.165
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Reduced	21100	2535	1	18.89	19.50	1.151	-	-	0.03	0.100	0.115
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	Reduced	21100	2535	1	18.97	19.50	1.130	-	-	0.01	0.193	0.218
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	Reduced	21100	2535	1	18.89	19.50	1.151	-	-	0.09	0.132	0.152
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	0.06	0.220	0.300
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant5	Full	507000	2535	1	22.61	24.00	1.377	-	-	-0.05	0.199	0.274
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	-0.05	0.217	0.296
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant5	Full	507000	2535	1	22.61	24.00	1.377	-	-	0.04	0.212	0.292
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	0.05	0.386	0.527
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant5	Full	507000	2535	1	22.61	24.00	1.377	-	-	0.17	0.342	0.471
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	0.02	0.110	0.150
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant5	Full	507000	2535	1	22.61	24.00	1.377	-	-	0.15	0.108	0.149
EN-DC																					
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	Reduced	507000	2535	1	18.41	19.00	1.146	-	-	0.11	0.397	0.455
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	Reduced	507000	2535	1	18.29	19.00	1.178	-	-	-0.12	0.352	0.415
15	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	Reduced	507000	2535	1	18.41	19.00	1.146	-	-	-0.07	0.495	0.567
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Tilted	0mm	Ant 1	Reduced	507000	2535	1	18.29	19.00	1.178	-	-	-0.07	0.431	0.508
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	Reduced	507000	2535	1	18.41	19.00	1.146	-	-	-0.03	0.141	0.162
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	Reduced	507000	2535	1	18.29	19.00	1.178	-	-	-0.05	0.120	0.141
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	Reduced	507000	2535	1	18.41	19.00	1.146	-	-	0.03	0.188	0.215
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Tilted	0mm	Ant 1	Reduced	507000	2535	1	18.29	19.00	1.178	-	-	-0.04	0.156	0.184
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant5	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	-0.17	0.117	0.132
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant5	Full	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.15	0.101	0.117
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant5	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	-0.13	0.122	0.138
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant5	Full	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.12	0.101	0.117
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant5	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	0.01	0.186	0.210
	LTE Band 41C	20M	QPSK	1	99	-	Left Cheek	0mm	Ant5	Full	40620+40818	2593+2612.8	1	23.45	24.00	1.135	62.9	1.006	0.02	0.168	0.192
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant5	Full	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.05	0.150	0.174
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant5	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	-0.01	0.060	0.068
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant5	Full	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.05	0.049	0.057
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Left Cheek	0mm	Ant5	Full	40620	2593	1	26.36	27.00	1.159	42.9	1.009	0.16	0.244	0.285
EN-DC																					
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	Reduced	40620	2593	1	21.20	21.50	1.072	-	-	-0.16	0.445	0.477
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	Reduced	40620	2593	1	21.19	21.50	1.074	-	-	-0.06	0.401	0.431
16	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	Reduced	40620	2593	1	21.20	21.50	1.072	-	-	0.11	0.529	0.567
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	Reduced	40620	2593	1	21.19	21.50	1.074	-	-	0.04	0.476	0.511
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	Reduced	40620	2593	1	21.20	21.50	1.072	-	-	-0.1	0.141	0.151
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	Reduced	40620	2593	1	21.19	21.50	1.074	-	-	0.18	0.141	0.151



	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	Reduced	40620	2593	1	21.20	21.50	1.072	-	-	0.12	0.184	0.197
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	Reduced	40620	2593	1	21.19	21.50	1.074	-	-	-0.12	0.184	0.198
3300-4100MHz																					
	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant2	Reduced	42590	3500	1	18.93	20.00	1.279	62.9	1.006	0.18	0.484	0.623
	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant2	Reduced	42590	3500	1	18.91	20.00	1.285	62.9	1.006	-0.1	0.314	0.406
	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant2	Reduced	42590	3500	1	18.93	20.00	1.279	62.9	1.006	-0.19	0.511	0.658
	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant2	Reduced	42590	3500	1	18.91	20.00	1.285	62.9	1.006	0.03	0.336	0.434
	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant2	Reduced	42590	3500	1	18.93	20.00	1.279	62.9	1.006	0.01	0.746	0.960
	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant2	Reduced	42590	3500	1	18.91	20.00	1.285	62.9	1.006	0.09	0.584	0.755
	LTE Band 42	20M	QPSK	100	0	-	Left Cheek	0mm	Ant2	Reduced	42590	3500	1	18.90	20.00	1.288	62.9	1.006	0.08	0.480	0.622
17	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant2	Reduced	42590	3500	1	18.93	20.00	1.279	62.9	1.006	0.07	0.891	1.147
	LTE Band 42C	20M	QPSK	1	99	-	Left Tilted	0mm	Ant2	Reduced	42590+42788	3500+3519.8	1	18.85	20.00	1.303	62.9	1.006	0.07	0.828	1.085
	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant2	Reduced	42590	3500	1	18.91	20.00	1.285	62.9	1.006	-0.16	0.566	0.732
	LTE Band 42	20M	QPSK	100	0	-	Left Tilted	0mm	Ant2	Reduced	42590	3500	1	18.90	20.00	1.288	62.9	1.006	-0.12	0.561	0.727
EN-DC																					
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	Reduced	656000	3840	1	13.73	15.00	1.340	-	-	-0.07	0.208	0.279
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	Reduced	656000	3840	1	13.71	15.00	1.346	-	-	-0.02	0.189	0.254
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	Reduced	656000	3840	1	13.73	15.00	1.340	-	-	0.06	0.218	0.292
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	Reduced	656000	3840	1	13.71	15.00	1.346	-	-	0.06	0.216	0.291
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	Reduced	656000	3840	1	13.73	15.00	1.340	-	-	-0.05	0.316	0.423
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	Reduced	656000	3840	1	13.71	15.00	1.346	-	-	-0.05	0.365	0.491
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	Reduced	656000	3840	1	13.73	15.00	1.340	-	-	0.04	0.342	0.458
18	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	Reduced	656000	3840	1	13.71	15.00	1.346	-	-	-0.05	0.402	0.541
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	Reduced	633334	3500.01	1	13.67	15.00	1.358	-	-	0.07	0.189	0.257
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 2	Reduced	633334	3500.01	1	13.60	15.00	1.380	-	-	0.17	0.158	0.218
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	Reduced	633334	3500.01	1	13.67	15.00	1.358	-	-	0.02	0.198	0.269
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 2	Reduced	633334	3500.01	1	13.60	15.00	1.380	-	-	0.15	0.164	0.226
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	Reduced	633334	3500.01	1	13.67	15.00	1.358	-	-	0.11	0.305	0.414
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	Reduced	633334	3500.01	1	13.60	15.00	1.380	-	-	-0.12	0.252	0.348
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	Reduced	633334	3500.01	1	13.67	15.00	1.358	-	-	-0.01	0.333	0.452
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 2	Reduced	633334	3500.01	1	13.60	15.00	1.380	-	-	-0.03	0.271	0.374
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	Reduced	650000	3750	1	17.27	18.00	1.183	-	-	-0.04	0.416	0.492
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	Reduced	650000	3750	1	17.22	18.00	1.197	-	-	-0.16	0.374	0.448
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant2	Reduced	650000	3750	1	17.27	18.00	1.183	-	-	-0.06	0.403	0.477
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant2	Reduced	650000	3750	1	17.22	18.00	1.197	-	-	0.04	0.382	0.457
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	650000	3750	1	17.27	18.00	1.183	-	-	-0.06	0.693	0.820
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	650000	3750	1	17.22	18.00	1.197	-	-	-0.1	0.633	0.758
	Part27O FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	650000	3750	1	17.19	18.00	1.205	-	-	0.18	0.511	0.616
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant2	Reduced	650000	3750	1	17.27	18.00	1.183	-	-	0.12	0.645	0.763
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant2	Reduced	650000	3750	1	17.22	18.00	1.197	-	-	-0.12	0.623	0.746
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	Reduced	633334	3500.01	1	17.28	18.00	1.180	-	-	0.1	0.622	0.734
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant2	Reduced	633334	3500.01	1	17.17	18.00	1.211	-	-	-0.03	0.513	0.621
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.28	18.00	1.180	-	-	-0.18	0.598	0.706
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.17	18.00	1.211	-	-	0.07	0.507	0.614
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Right Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.15	18.00	1.216	-	-	-0.06	0.428	0.521
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	633334	3500.01	1	17.28	18.00	1.180	-	-	-0.14	0.723	0.853
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	633334	3500.01	1	17.17	18.00	1.211	-	-	-0.13	0.750	0.908
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant2	Reduced	633334	3500.01	1	17.15	18.00	1.216	-	-	0.04	0.627	0.763
19	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.28	18.00	1.180	-	-	0.03	0.953	1.125
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.17	18.00	1.211	-	-	0.08	0.773	0.936
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Left Tilted	0mm	Ant2	Reduced	633334	3500.01	1	17.15	18.00	1.216	-	-	-0.18	0.694	0.844



Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Sample, Power Reduction, Ch., Freq. (MHz), Power Setting, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). The table contains multiple rows of test data for various configurations.



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN/Bluetooth																	
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 8	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	0.02	0.172	0.233
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 8	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	0.09	0.149	0.202
20	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 8	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	-0.06	0.449	0.609
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 8	Simultaneous	11	2462	1	15.99	17.50	1.416	99.31	1.007	0.05	0.279	0.398
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	0.07	0.445	0.603
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 8	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.08	0.047	0.070
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 8	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.11	0.050	0.075
21	Bluetooth	1Mbps	Left Cheek	0mm	Ant 8	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.01	0.065	0.097
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 8	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.14	0.054	0.081
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8	Reduced	42	5210	1	13.38	15.00	1.452	92.75	1.078	0.04	0.412	0.645
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8	Reduced	42	5210	1	13.38	15.00	1.452	92.75	1.078	0.06	0.472	0.739
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8	Reduced	42	5210	1	13.38	15.00	1.452	92.75	1.078	0.08	0.524	0.820
22	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Reduced	42	5210	1	13.38	15.00	1.452	92.75	1.078	-0.06	0.715	1.119
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Simultaneous	42	5210	1	9.43	11.00	1.435	92.75	1.078	0.04	0.253	0.392
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8	Reduced	58	5290	1	13.24	14.50	1.337	92.75	1.078	0.05	0.483	0.696
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8	Reduced	58	5290	1	13.24	14.50	1.337	92.75	1.078	0.08	0.558	0.804
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8	Reduced	58	5290	1	13.24	14.50	1.337	92.75	1.078	0.02	0.587	0.846
23	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Reduced	58	5290	1	13.24	14.50	1.337	92.75	1.078	0.03	0.775	1.117
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Simultaneous	58	5290	1	8.36	10.00	1.459	92.75	1.078	-0.02	0.209	0.329
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8	Reduced	138	5690	1	12.08	13.50	1.388	92.75	1.078	0.05	0.398	0.595
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8	Reduced	138	5690	1	12.08	13.50	1.388	92.75	1.078	0.09	0.462	0.691
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8	Reduced	138	5690	1	12.08	13.50	1.388	92.75	1.078	0.01	0.486	0.727
24	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Reduced	138	5690	1	12.08	13.50	1.388	92.75	1.078	-0.16	0.674	1.008
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Simultaneous	138	5690	1	8.17	10.00	1.525	92.75	1.078	0.04	0.238	0.391
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8	Reduced	155	5775	1	13.07	14.50	1.390	92.75	1.078	0.08	0.483	0.724
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8	Reduced	155	5775	1	13.07	14.50	1.390	92.75	1.078	0.06	0.562	0.842
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8	Reduced	155	5775	1	13.07	14.50	1.390	92.75	1.078	0.01	0.558	0.836
25	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Reduced	155	5775	1	13.07	14.50	1.390	92.75	1.078	0.04	0.796	1.193
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Reduced	155	5775	2	13.07	14.50	1.390	92.75	1.078	-0.01	0.701	1.050
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8	Simultaneous	155	5775	1	9.18	10.50	1.356	92.75	1.078	-0.03	0.268	0.392



15.2 Hotspot SAR

Table with columns: Plot No., Band, BW (MHz), Modulation, RB Size, RB offset, Mode, Test Position, Gap (mm), Antenna, Power Reduction, Ch., Freq. (MHz), Sample, Average Power (dBm), Tune-Up Limit (dBm), Tune-up Scaling Factor, Power Drift (dB), Measured 1g SAR (W/kg), Reported 1g SAR (W/kg). Rows include 750MHz and 835MHz sections with various test configurations and results.

Sporton International Inc. (Kunshan)

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FCC ID : IHDT56AE5

Issued Date : Mar. 22, 2022

Form version. : 200414



FCC SAR Test Report

Report No. : FA212701

LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	0.06	0.153	0.202	
LTE Band 26	15M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Full	26865	831.5	1	22.75	24.00	1.334	0.01	0.295	0.393	
LTE Band 26	15M	QPSK	36	0	-	Bottom Side	5mm	Ant0	Full	26865	831.5	1	21.79	23.00	1.321	-0.08	0.177	0.234	
EN-DC																			
LTE Band 5	10M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.07	0.197	0.258	
LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 0	Reduced	20525	836.5	1	19.79	21.00	1.321	-0.01	0.119	0.157	
31	LTE Band 5	10M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.06	0.435	0.569
LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 0	Reduced	20525	836.5	1	19.79	21.00	1.321	0.08	0.261	0.345	
LTE Band 5	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.15	0.210	0.275	
LTE Band 5	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	Reduced	20525	836.5	1	19.79	21.00	1.321	-0.19	0.128	0.169	
LTE Band 5	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	Reduced	20525	836.5	1	19.83	21.00	1.309	0.15	0.316	0.414	
LTE Band 5	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	Reduced	20525	836.5	1	19.79	21.00	1.321	0.1	0.193	0.255	
LTE Band 5	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.01	0.370	0.484	
LTE Band 5	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	Reduced	20525	836.5	1	19.79	21.00	1.321	0.18	0.223	0.295	
EN-DC																			
FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 0	Reduced	167300	836.5	1	20.45	22.00	1.429	0.12	0.186	0.266	
FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 0	Reduced	167300	836.5	1	20.42	22.00	1.439	0.13	0.212	0.305	
FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	Reduced	167300	836.5	1	20.45	22.00	1.429	-0.15	0.399	0.570	
32	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	Reduced	167300	836.5	1	20.42	22.00	1.439	-0.15	0.413	0.594
FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 0	Reduced	167300	836.5	1	20.45	22.00	1.429	-0.18	0.188	0.269	
FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Left Side	5mm	Ant 0	Reduced	167300	836.5	1	20.42	22.00	1.439	0.1	0.196	0.282	
FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant 0	Reduced	167300	836.5	1	20.45	22.00	1.429	0.16	0.248	0.354	
FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Right Side	5mm	Ant 0	Reduced	167300	836.5	1	20.42	22.00	1.439	0.04	0.271	0.390	
FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	Reduced	167300	836.5	1	20.45	22.00	1.429	-0.13	0.387	0.553	
FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	Reduced	167300	836.5	1	20.42	22.00	1.439	0.02	0.404	0.581	

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	Reduced	1413	1732.6	1	13.91	15.50	1.442	-0.02	0.364	0.525
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	1413	1732.6	1	13.91	15.50	1.442	-0.06	0.840	1.211
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	1312	1712.4	1	13.74	15.50	1.500	0.1	0.813	1.219
33	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	1513	1752.6	1	13.89	15.50	1.449	0.1	0.845	1.224
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant0	Reduced	1413	1732.6	1	13.91	15.50	1.442	0.01	0.061	0.088
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant0	Reduced	1413	1732.6	1	13.91	15.50	1.442	-0.1	0.066	0.095
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	1413	1732.6	1	13.91	15.50	1.442	0.1	0.831	1.198
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	1312	1712.4	1	13.74	15.50	1.500	-0.09	0.815	1.222
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	1513	1752.6	1	13.89	15.50	1.449	-0.15	0.827	1.198
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant0	Reduced	132322	1745	1	13.99	15.50	1.416	-0.1	0.322	0.456
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant0	Reduced	132322	1745	1	13.97	15.50	1.422	0.04	0.213	0.303
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	132322	1745	1	13.99	15.50	1.416	-0.18	0.700	0.991
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	132072	1720	1	13.84	15.50	1.466	0.03	0.683	1.001
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	132572	1770	1	13.82	15.50	1.472	0.01	0.813	1.197
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	132322	1745	1	13.97	15.50	1.422	0.17	0.666	0.947
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	132072	1720	1	13.94	15.50	1.432	0.04	0.616	0.882
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	132572	1770	1	13.91	15.50	1.442	-0.01	0.603	0.870
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant0	Reduced	132322	1745	1	13.96	15.50	1.426	0.15	0.455	0.649
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant0	Reduced	132322	1745	1	13.99	15.50	1.416	0.01	0.011	0.016
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant0	Reduced	132322	1745	1	13.97	15.50	1.422	0.15	0.007	0.010
	LTE Band 66	20M	QPSK	1	0	-	Right Side	5mm	Ant0	Reduced	132322	1745	1	13.99	15.50	1.416	0.11	0.059	0.084
	LTE Band 66	20M	QPSK	50	0	-	Right Side	5mm	Ant0	Reduced	132322	1745	1	13.97	15.50	1.422	-0.15	0.039	0.055
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	132322	1745	1	13.99	15.50	1.416	0.12	0.828	1.172
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	132072	1720	1	13.84	15.50	1.466	-0.11	0.795	1.165
34	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	132572	1770	1	13.82	15.50	1.472	-0.04	0.843	1.241
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	132572	1770	2	13.82	15.50	1.472	-0.02	0.801	1.179

Sporton International Inc. (Kunshan)

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FCC ID : IHDT56AE5

Issued Date : Mar. 22, 2022

Form version. : 200414



FCC SAR Test Report

Report No. : FA212701

Table with 19 columns: LTE Band, BW, Modulation, RB Size, RB Offset, Mode, Test Position, Gap, Antenna, Power Reduction, Ch., Freq., Sample, Average Power, Tune-Up Limit, Tune-up Scaling Factor, Power Drift, Measured 1g SAR, Reported 1g SAR. Rows 1-4 show LTE Band 66 tests.

EN-DC

Table with 19 columns (same as above). Rows 5-25 show EN-DC tests for LTE Band 66 with various test positions (Front, Back, Left Side, Right Side, Top Side, Bottom Side).

EN-DC

Table with 19 columns (same as above). Rows 26-35 show EN-DC tests for FR1 n66 with various test positions and bandwidths.

Table with 19 columns (same as above). Rows 36-48 show tests for 1900MHz bands including GSM1900 and WCDMA II with various test positions and bandwidths.

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FCC SAR Test Report

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	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	9538	1907.6	1	13.97	15.50	1.422	-0.03	0.859	1.222
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant0	Reduced	9400	1880	1	14.14	15.50	1.368	-0.1	0.065	0.089
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant0	Reduced	9400	1880	1	14.14	15.50	1.368	0.05	0.071	0.097
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9400	1880	1	14.14	15.50	1.368	-0.01	0.891	1.219
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9262	1852.4	1	14.06	15.50	1.393	-0.01	0.826	1.151
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9538	1907.6	1	13.97	15.50	1.422	0.01	0.807	1.148
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant0	Reduced	18900	1880	1	14.39	16.00	1.449	-0.05	0.343	0.497
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant0	Reduced	18900	1880	1	14.38	16.00	1.452	-0.11	0.244	0.354
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	18900	1880	1	14.39	16.00	1.449	0.04	0.803	1.163
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	18700	1860	1	14.16	16.00	1.528	-0.12	0.700	1.069
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	Reduced	19100	1900	1	14.31	16.00	1.476	0.02	0.779	1.150
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	18900	1880	1	14.38	16.00	1.452	-0.15	0.561	0.815
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	18700	1860	1	14.22	16.00	1.507	-0.13	0.553	0.833
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	Reduced	19100	1900	1	14.26	16.00	1.493	-0.05	0.568	0.848
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant0	Reduced	18900	1880	1	14.37	16.00	1.455	0.13	0.572	0.833
	LTE Band 2	20M	QPSK	1	0	-	Left Side	5mm	Ant0	Reduced	18900	1880	1	14.39	16.00	1.449	-0.19	0.011	0.016
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant0	Reduced	18900	1880	1	14.38	16.00	1.452	-0.01	0.008	0.012
	LTE Band 2	20M	QPSK	1	0	-	Right Side	5mm	Ant0	Reduced	18900	1880	1	14.39	16.00	1.449	0.11	0.064	0.093
	LTE Band 2	20M	QPSK	50	0	-	Right Side	5mm	Ant0	Reduced	18900	1880	1	14.38	16.00	1.452	-0.08	0.044	0.064
38	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	18900	1880	1	14.39	16.00	1.449	-0.07	0.898	1.301
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	18700	1860	1	14.16	16.00	1.528	0.1	0.819	1.251
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant0	Reduced	19100	1900	1	14.31	16.00	1.476	-0.1	0.872	1.287
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant0	Reduced	18900	1880	1	14.38	16.00	1.452	-0.09	0.593	0.861
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant0	Reduced	18700	1860	1	14.22	16.00	1.507	0.11	0.600	0.904
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant0	Reduced	19100	1900	1	14.26	16.00	1.493	-0.14	0.630	0.940
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	5mm	Ant0	Reduced	18900	1880	1	14.37	16.00	1.455	-0.04	0.596	0.867
EN-DC																			
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 0	Reduced	18900	1880	1	11.47	13.00	1.422	-0.07	0.151	0.215
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 0	Reduced	18900	1880	1	11.46	13.00	1.426	-0.01	0.104	0.148
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	18900	1880	1	11.47	13.00	1.422	-0.06	0.354	0.504
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 0	Reduced	18900	1880	1	11.46	13.00	1.426	-0.1	0.238	0.339
	LTE Band 2	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	Reduced	18900	1880	1	11.47	13.00	1.422	-0.19	0.005	0.007
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	Reduced	18900	1880	1	11.46	13.00	1.426	0.08	0.004	0.006
	LTE Band 2	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	Reduced	18900	1880	1	11.47	13.00	1.422	0.14	0.030	0.043
	LTE Band 2	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	Reduced	18900	1880	1	11.46	13.00	1.426	0.05	0.020	0.029
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	Reduced	18900	1880	1	11.47	13.00	1.422	-0.04	0.400	0.569
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	Reduced	18900	1880	1	11.46	13.00	1.426	0.09	0.274	0.391
EN-DC																			
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 0	Reduced	376000	1880	1	11.32	13.00	1.472	-0.15	0.139	0.205
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 0	Reduced	376000	1880	1	11.29	13.00	1.483	-0.17	0.142	0.211
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	Reduced	376000	1880	1	11.32	13.00	1.472	-0.04	0.341	0.502
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	Reduced	376000	1880	1	11.29	13.00	1.483	0.06	0.362	0.537
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 0	Reduced	376000	1880	1	11.32	13.00	1.472	0.05	0.007	0.010
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Left Side	5mm	Ant 0	Reduced	376000	1880	1	11.29	13.00	1.483	0.06	0.008	0.012
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant 0	Reduced	376000	1880	1	11.32	13.00	1.472	-0.15	0.023	0.034
	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Right Side	5mm	Ant 0	Reduced	376000	1880	1	11.29	13.00	1.483	0.03	0.025	0.037
	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	Reduced	376000	1880	1	11.32	13.00	1.472	0.02	0.345	0.508
39	FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	Reduced	376000	1880	1	11.29	13.00	1.483	-0.04	0.392	0.581



FCC SAR Test Report

Report No. : FA212701

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.08	0.666	0.817
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	Reduced	20850	2510	1	18.93	20.00	1.279	-	-	-0.16	0.689	0.881
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	Reduced	21350	2560	1	18.93	20.00	1.279	-	-	-0.06	0.615	0.787
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	-0.17	0.548	0.674
	LTE Band 7	20M	QPSK	100	0	-	Front	5mm	Ant5	Reduced	21100	2535	1	19.06	20.00	1.242	-	-	-0.14	0.468	0.581
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	0.02	0.899	1.103
40	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	20850	2510	1	18.93	20.00	1.279	-	-	0.03	0.921	1.178
	LTE Band 7C	20M	QPSK	1	99	-	Back	5mm	Ant5	Reduced	20850+21048	2510+2529.8	1	18.89	20.00	1.291	-	-	0.03	0.911	1.176
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	21350	2560	1	18.93	20.00	1.279	-	-	-0.17	0.859	1.099
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	-0.05	0.624	0.768
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	20850	2510	1	19.01	20.00	1.256	-	-	0.13	0.636	0.799
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	21350	2560	1	19.04	20.00	1.247	-	-	-0.11	0.585	0.730
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant5	Reduced	21100	2535	1	19.06	20.00	1.242	-	-	0.03	0.627	0.779
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.1	0.423	0.519
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.16	0.298	0.367
	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.18	0.122	0.150
	LTE Band 7	20M	QPSK	50	0	-	Right Side	5mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.1	0.081	0.100
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.16	0.441	0.541
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	5mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	-0.07	0.314	0.386
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	21100	2535	1	16.85	17.50	1.161	-	-	-0.07	0.127	0.148
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	21100	2535	1	16.83	17.50	1.167	-	-	-0.07	0.103	0.120
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	21100	2535	1	16.85	17.50	1.161	-	-	0.04	0.494	0.574
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	21100	2535	2	16.85	17.50	1.161	-	-	0.01	0.414	0.481
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	21100	2535	1	16.83	17.50	1.167	-	-	-0.19	0.383	0.447
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	1	16.41	17.00	1.146	-	-	-0.1	0.050	0.057
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	21100	2535	1	16.36	17.00	1.159	-	-	-0.09	0.038	0.044
	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	Reduced	21100	2535	1	16.41	17.00	1.146	-	-	-0.06	0.003	0.003
	LTE Band 7	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	Reduced	21100	2535	1	16.36	17.00	1.159	-	-	0.1	0.004	0.005
	LTE Band 7	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	Reduced	21100	2535	1	16.41	17.00	1.146	-	-	-0.02	0.448	0.513
	LTE Band 7	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	Reduced	21100	2535	1	16.36	17.00	1.159	-	-	-0.05	0.232	0.269
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 5	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	0.12	0.269	0.323
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 5	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	-0.18	0.185	0.223
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 5	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	-0.08	0.372	0.447
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 5	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	0.05	0.252	0.304
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 5	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	-0.01	0.171	0.206
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 5	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	-0.02	0.120	0.145
	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant 5	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	0.09	0.049	0.059
	LTE Band 7	20M	QPSK	50	0	-	Right Side	5mm	Ant 5	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	0.18	0.033	0.040
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 5	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	0.13	0.178	0.214
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 5	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	0.18	0.127	0.153
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	0.06	0.679	0.993
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	5mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.16	0.669	0.983
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Front	5mm	Ant5	Reduced	507000	2535	1	18.31	20.00	1.476	-	-	-0.1	0.574	0.847
41	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.04	0.935	1.367
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant5	Reduced	507000	2535	2	18.35	20.00	1.462	-	-	0.02	0.912	1.334
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	5mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	0.07	0.871	1.279
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Back	5mm	Ant5	Reduced	507000	2535	1	18.31	20.00	1.476	-	-	-0.12	0.684	1.009
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.01	0.417	0.610
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	5mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	0.02	0.380	0.558
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.17	0.098	0.143
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Side	5mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.09	0.112	0.165
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.05	0.453	0.662
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Bottom Side	5mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.1	0.432	0.635

Sporton International Inc. (Kunshan)

TEL : 86-512-57900158 / FAX : 86-512-57900958

FCC ID : IHDT56AE5

Issued Date : Mar. 22, 2022

Form version. : 200414



EN-DC																						
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	-0.01	0.168	0.189	
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	5mm	Ant 1	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	-0.11	0.138	0.156	
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	-0.02	0.479	0.540	
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	5mm	Ant 1	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	-0.01	0.480	0.544	
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 1	Reduced	507000	2535	1	16.88	17.50	1.153	-	-	-0.09	0.064	0.074	
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	5mm	Ant 1	Reduced	507000	2535	1	16.87	17.50	1.156	-	-	0.06	0.067	0.077	
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant 1	Reduced	507000	2535	1	16.88	17.50	1.153	-	-	-0.03	0.001	0.001	
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Right Side	5mm	Ant 1	Reduced	507000	2535	1	16.87	17.50	1.156	-	-	0.13	0.001	0.001	
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	5mm	Ant 1	Reduced	507000	2535	1	16.88	17.50	1.153	-	-	-0.12	0.433	0.499	
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	5mm	Ant 1	Reduced	507000	2535	1	16.87	17.50	1.156	-	-	0.16	0.372	0.430	
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.11	0.468	0.544	
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.04	0.382	0.446	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.06	0.700	0.814	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	41490	2680	1	22.07	23.00	1.239	62.9	1.006	0.04	0.693	0.864	
42	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	39750	2506	1	22.01	23.00	1.256	62.9	1.006	-0.03	0.963	1.217	
	LTE Band 41C	20M	QPSK	1	99	-	Back	5mm	Ant5	Reduced	39750+39948	2506+2525.8	1	21.91	23.00	1.285	62.9	1.006	0.06	0.927	1.199	
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	39750	2506	1	22.10	23.00	1.230	42.9	1.009	-0.04	0.660	0.819	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	40185	2549.5	1	22.24	23.00	1.191	62.9	1.006	-0.16	0.883	1.058	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	41055	2636.5	1	22.25	23.00	1.189	62.9	1.006	0.14	0.713	0.852	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.03	0.642	0.750	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	41490	2680	1	22.31	23.00	1.172	62.9	1.006	0.06	0.634	0.748	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	39750	2506	1	22.18	23.00	1.208	62.9	1.006	0.01	0.627	0.762	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	40185	2549.5	1	22.23	23.00	1.194	62.9	1.006	0.04	0.631	0.758	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	Reduced	41055	2636.5	1	22.18	23.00	1.208	62.9	1.006	0.09	0.642	0.780	
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant5	Reduced	40620	2593	1	22.10	23.00	1.230	62.9	1.006	0.08	0.646	0.800	
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.13	0.344	0.400	
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.08	0.282	0.329	
	LTE Band 41	20M	QPSK	1	0	-	Right Side	5mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.06	0.106	0.123	
	LTE Band 41	20M	QPSK	50	0	-	Right Side	5mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	-0.17	0.087	0.102	
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.05	0.380	0.442	
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	-0.17	0.312	0.365	
EN-DC																						
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.12	0.163	0.190	
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	0.13	0.145	0.170	
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.08	0.467	0.544	
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	0.07	0.423	0.495	
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.08	0.075	0.087	
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	-0.14	0.065	0.076	
	LTE Band 41	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	0.18	0.001	0.001	
	LTE Band 41	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	0.18	0.001	0.001	
	LTE Band 41	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.08	0.324	0.377	
	LTE Band 41	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	-0.16	0.476	0.557	
3300-4100MHz																						
	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant2	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.17	0.526	0.688	
	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant2	Reduced	42590	3500	1	20.35	21.50	1.303	62.9	1.006	0.07	0.424	0.556	
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.02	0.693	0.906	
43	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	Reduced	42190	3460	1	20.19	21.50	1.352	62.9	1.006	-0.08	0.817	1.111	
	LTE Band 42C	20M	QPSK	1	99	-	Back	5mm	Ant2	Reduced	42190+42388	3460+3479.8	1	20.15	21.50	1.364	62.9	1.006	0.05	0.779	1.069	
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	Reduced	42990	3540	1	20.30	21.50	1.318	62.9	1.006	0.15	0.618	0.820	
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant2	Reduced	42590	3500	1	20.35	21.50	1.303	62.9	1.006	0.02	0.551	0.722	
	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant2	Reduced	42590	3500	1	20.34	21.50	1.306	62.9	1.006	0.1	0.455	0.598	
	LTE Band 42	20M	QPSK	1	0	-	Left Side	5mm	Ant2	Reduced	42590	3500	1	18.43	19.00	1.140	62.9	1.006	-0.06	0.039	0.045	
	LTE Band 42	20M	QPSK	50	0	-	Left Side	5mm	Ant2	Reduced	42590	3500	1	18.42	19.00	1.143	62.9	1.006	0.07	0.026	0.030	
	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant2	Reduced	42590	3500	1	18.43	19.00	1.140	62.9	1.006	0.13	0.008	0.009	
	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant2	Reduced	42590	3500	1	18.42	19.00	1.143	62.9	1.006	-0.03	0.082	0.094	
	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant2	Reduced	42590	3500	1	18.43	19.00	1.140	62.9	1.006	0.06	0.683	0.783	



FCC SAR Test Report

Report No. : FA212701

Table with columns for LTE Band, Modulation, Power, etc. Rows include LTE Band 42, 42C, 42, 42, 42, 42.

EN-DC

Large table with columns for Part, Modulation, Power, etc. Rows include Part270 FR1 n77, Part27Q FR1 n77, Part270 FR1 n78-HPUE, Part27Q FR1 n78-HPUE.



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Power Setting	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
SRS																				
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	-0.14	0.056	0.061	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	0.09	0.058	0.065	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	-0.02	0.479	0.524	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	-0.11	0.446	0.498	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	0.06	0.214	0.234	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	-0.16	0.206	0.230	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	0.15	0.013	0.014	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	-0.18	0.017	0.019	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	-0.06	0.058	0.063	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	0.18	0.055	0.061	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	-0.17	0.014	0.016	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	-0.06	0.012	0.015	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	0.02	0.161	0.189	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	-0.02	0.188	0.241	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	0.09	0.062	0.073	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	-0.15	0.075	0.096	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	0.16	0.020	0.023	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	0.17	0.016	0.020	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	-0.13	0.023	0.027	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	0.07	0.016	0.020	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	0.15	0.245	0.258	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.11	0.217	0.241	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	-0.16	0.350	0.369	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.13	0.313	0.348	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	-0.06	0.356	0.375	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.17	0.320	0.356	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	-0.06	0.032	0.034	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.14	0.043	0.048	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	0.15	0.277	0.292	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.15	0.215	0.239	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	-0.15	0.149	0.196	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	0.18	0.236	0.315	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	0.01	0.228	0.299	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	-0.08	0.322	0.429	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	-0.1	0.165	0.217	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	-0.15	0.240	0.320	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	0.14	0.028	0.037	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	0.09	0.027	0.036	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	0.18	0.116	0.152	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	-0.11	0.188	0.251	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.12	0.056	0.061	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	0.02	0.050	0.056	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.07	1.050	1.136	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	0.19	0.919	1.022	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.17	0.017	0.018	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	-0.12	0.019	0.021	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.03	0.217	0.235	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	-0.04	0.218	0.242	
Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.19	0.060	0.065	
Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	-0.11	0.060	0.067	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.04	0.025	0.027	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.13	0.022	0.025	



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Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.02	0.496	0.534
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.18	0.428	0.490
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	0.16	0.014	0.015
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.09	0.013	0.015
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.12	0.100	0.108
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.02	0.100	0.115
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.15	0.034	0.037
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.01	0.036	0.041

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
WLAN/Bluetooth																		
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 8	Reduced	11	2462	1	15.47	17.00	1.422	99.31	1.007	-0.04	0.153	0.219	
46	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8	Reduced	11	2462	1	15.47	17.00	1.422	99.31	1.007	0.01	0.267	0.382	
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant 8	Reduced	11	2462	1	15.47	17.00	1.422	99.31	1.007	0.05	0.010	0.014	
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 8	Reduced	11	2462	1	15.47	17.00	1.422	99.31	1.007	0.03	0.222	0.318	
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 8	Reduced	11	2462	1	15.47	17.00	1.422	99.31	1.007	-0.02	0.170	0.243	
	Bluetooth	1Mbps	Back	5mm	Ant 8	Full	39	2441	1	10.15	11.00	1.216	77.01	1.299	0.02	0.071	0.112	
	Bluetooth	1Mbps	Back	5mm	Ant 8	Full	0	2402	1	10.15	11.00	1.216	77.01	1.299	0.08	0.076	0.120	
47	Bluetooth	1Mbps	Back	5mm	Ant 8	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.01	0.082	0.123	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 8	Reduced	42	5190	1	10.54	12.00	1.400	92.75	1.078	0.09	0.101	0.152	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	Reduced	42	5190	1	10.54	12.00	1.400	92.75	1.078	-0.06	0.184	0.278	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 8	Reduced	42	5190	1	10.54	12.00	1.400	92.75	1.078	0.06	0.010	0.015	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 8	Reduced	42	5190	1	10.54	12.00	1.400	92.75	1.078	-0.09	0.073	0.110	
48	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8	Reduced	42	5210	1	10.54	12.00	1.400	92.75	1.078	0.05	0.264	0.398	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 8	Reduced	155	5775	1	9.18	10.50	1.356	92.75	1.078	-0.05	0.115	0.168	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	Reduced	155	5775	1	9.18	10.50	1.356	92.75	1.078	-0.11	0.182	0.266	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 8	Reduced	155	5775	1	9.18	10.50	1.356	92.75	1.078	0.06	0.014	0.020	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 8	Reduced	155	5775	1	9.18	10.50	1.356	92.75	1.078	0.12	0.047	0.069	
49	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8	Reduced	155	5775	1	9.18	10.50	1.356	92.75	1.078	0.05	0.255	0.373	



15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 12	10M	QPSK	1	0	-	Front	5mm	Ant0	-	Full	23095	707.5	1	22.81	24.00	1.315	0.02	0.273	0.359
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant0	-	Full	23095	707.5	1	21.87	23.00	1.297	0.08	0.145	0.188
50	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant0	-	Full	23095	707.5	1	22.81	24.00	1.315	-0.08	0.705	0.927
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant0	-	Full	23095	707.5	1	21.87	23.00	1.297	-0.09	0.656	0.851
	LTE Band 12	10M	QPSK	50	0	-	Back	5mm	Ant0	-	Full	23095	707.5	1	21.76	23.00	1.330	-0.09	0.631	0.840
	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant0	-	Full	23230	782	1	22.64	24.00	1.368	0.01	0.353	0.483
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant0	-	Full	23230	782	1	21.61	23.00	1.377	0.08	0.196	0.270
51	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant0	-	Full	23230	782	1	22.64	24.00	1.368	-0.12	0.753	1.030
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant0	-	Full	23230	782	2	22.64	24.00	1.368	0.02	0.731	1.000
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant0	-	Full	23230	782	1	21.61	23.00	1.377	-0.09	0.538	0.741
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant0	-	Full	23230	782	1	21.70	23.00	1.349	-0.03	0.526	0.710
835MHz																				
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant0	-	Full	189	836.4	1	26.81	28.00	1.315	0.02	0.524	0.689
52	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	-	Full	189	836.4	1	26.81	28.00	1.315	-0.05	1.020	1.342
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	-	Full	189	836.4	2	26.81	28.00	1.315	0.02	0.945	1.243
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	-	Full	128	824.2	1	26.72	28.00	1.343	-0.08	0.710	0.953
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	-	Full	251	848.8	1	26.62	28.00	1.374	-0.06	0.749	1.029
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	Headset	Full	189	836.4	1	26.81	28.00	1.315	0.04	0.906	1.192
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	17mm	Ant0	-	Full	189	836.4	1	26.81	28.00	1.315	-0.03	0.011	0.014
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	24mm	Ant0	-	Full	189	836.4	1	26.81	28.00	1.315	0.05	0.168	0.221
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	-	Full	4182	836.4	1	22.69	24.00	1.352	0.01	0.422	0.571
53	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Full	4182	836.4	1	22.69	24.00	1.352	-0.03	0.832	1.125
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Full	4132	826.4	1	22.66	24.00	1.361	-0.02	0.789	1.074
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Full	4233	846.6	1	22.62	24.00	1.374	-0.01	0.762	1.047
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant0	-	Full	26865	831.5	1	22.75	24.00	1.334	0.05	0.318	0.424
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant0	-	Full	26865	831.5	1	21.79	23.00	1.321	0.08	0.185	0.244
54	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant0	-	Full	26865	831.5	1	22.75	24.00	1.334	-0.03	0.705	0.940
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant0	-	Full	26865	831.5	1	21.79	23.00	1.321	0.09	0.659	0.871
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant0	-	Full	26865	831.5	1	21.75	23.00	1.334	0.05	0.634	0.845
EN-DC																				
	LTE Band 5	10M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.07	0.197	0.258
	LTE Band 5	10M	QPSK	25	0	-	Front	5mm	Ant 0	-	Reduced	20525	836.5	1	19.79	21.00	1.321	-0.01	0.119	0.157
55	LTE Band 5	10M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	20525	836.5	1	19.83	21.00	1.309	-0.06	0.435	0.569
	LTE Band 5	10M	QPSK	25	0	-	Back	5mm	Ant 0	-	Reduced	20525	836.5	1	19.79	21.00	1.321	0.08	0.261	0.345
	LTE Band 5	10M	QPSK	1	0	-	Front	17mm	Ant 0	-	Full	20525	836.5	1	22.62	24.00	1.374	0.07	0.113	0.155
	LTE Band 5	10M	QPSK	1	0	-	Back	24mm	Ant 0	-	Full	20525	836.5	1	22.62	24.00	1.374	0.01	0.211	0.290
EN-DC																				
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 0	-	Reduced	167300	836.5	1	20.45	22.00	1.429	0.12	0.186	0.266
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 0	-	Reduced	167300	836.5	1	20.42	22.00	1.439	0.13	0.212	0.305
	FR1 n5	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	-	Reduced	167300	836.5	1	20.45	22.00	1.429	-0.15	0.399	0.570
56	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	-	Reduced	167300	836.5	1	20.42	22.00	1.439	-0.15	0.413	0.594
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Front	17mm	Ant 0	-	Full	167300	836.5	1	23.14	24.00	1.219	0.11	0.078	0.095
	FR1 n5	20M	QPSK	50	28	DFT-SCS-15KHz	Back	24mm	Ant 0	-	Full	167300	836.5	1	23.14	24.00	1.219	-0.03	0.187	0.228



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	1413	1732.6	1	13.91	15.50	1.442	-0.02	0.364	0.525
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	1413	1732.6	1	13.91	15.50	1.442	-0.06	0.840	1.211
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	1312	1712.4	1	13.74	15.50	1.500	0.07	0.813	1.219
57	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	1513	1752.6	1	13.89	15.50	1.449	0.1	0.845	1.224
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Headset	Reduced	1513	1752.6	1	13.89	15.50	1.449	-0.01	0.825	1.195
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	17mm	Ant0	-	Full	1413	1732.6	1	22.48	24.00	1.419	0.15	0.441	0.626
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant0	-	Full	1513	1752.6	1	22.45	24.00	1.429	-0.04	0.521	0.744
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant0	-	Reduced	132322	1745	1	13.99	15.50	1.416	-0.1	0.322	0.456
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant0	-	Reduced	132322	1745	1	13.97	15.50	1.422	0.04	0.213	0.303
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	132322	1745	1	13.99	15.50	1.416	-0.18	0.700	0.991
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	132072	1720	1	13.84	15.50	1.466	0.03	0.683	1.001
58	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	132572	1770	1	13.82	15.50	1.472	0.01	0.813	1.197
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	132322	1745	1	13.97	15.50	1.422	0.17	0.666	0.947
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	132072	1720	1	13.94	15.50	1.432	0.04	0.616	0.882
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	132572	1770	1	13.91	15.50	1.442	-0.01	0.603	0.870
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant0	-	Reduced	132322	1745	1	13.96	15.50	1.426	0.15	0.455	0.649
	LTE Band 66	20M	QPSK	1	0	-	Front	17mm	Ant0	-	Full	132322	1745	1	22.45	24.00	1.429	-0.18	0.368	0.526
	LTE Band 66	20M	QPSK	1	0	-	Back	24mm	Ant0	-	Full	132572	1770	1	22.41	24.00	1.442	0.12	0.427	0.616
EN-DC																				
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 0	-	Reduced	132322	1745	1	10.44	12.00	1.432	0.07	0.152	0.218
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 0	-	Reduced	132322	1745	1	10.41	12.00	1.442	0.13	0.100	0.144
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	-	Reduced	132322	1745	1	10.44	12.00	1.432	0.11	0.352	0.504
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 0	-	Reduced	132322	1745	1	10.41	12.00	1.442	0.17	0.220	0.317
	LTE Band 66	20M	QPSK	1	0	-	Front	17mm	Ant 0	-	Full	132322	1745	1	22.45	24.00	1.429	-0.18	0.368	0.526
	LTE Band 66	20M	QPSK	1	0	-	Back	24mm	Ant 0	-	Full	132322	1745	1	22.45	24.00	1.429	0.03	0.318	0.454
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	132322	1745	1	16.61	18.00	1.377	-0.11	0.164	0.226
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	132322	1745	1	16.59	18.00	1.384	0.08	0.121	0.167
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	132322	1745	1	16.61	18.00	1.377	0.08	0.390	0.537
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	132322	1745	1	16.59	18.00	1.384	0.09	0.243	0.336
	LTE Band 66	20M	QPSK	1	0	-	Front	17mm	Ant 1	-	Full	132322	1745	1	22.66	24.00	1.361	0.05	0.153	0.208
	LTE Band 66	20M	QPSK	1	0	-	Back	24mm	Ant 1	-	Full	132072	1720	1	22.62	24.00	1.374	-0.03	0.117	0.161
EN-DC																				
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	-	Reduced	349000	1745	1	17.94	19.00	1.276	-0.08	0.197	0.251
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Front	5mm	Ant 1	-	Reduced	349000	1745	1	17.92	19.00	1.282	-0.18	0.162	0.208
59	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	-	Reduced	349000	1745	1	17.94	19.00	1.276	-0.1	0.372	0.475
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Back	5mm	Ant 1	-	Reduced	349000	1745	1	17.92	19.00	1.282	-0.13	0.342	0.439
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Front	17mm	Ant 1	-	Full	349000	1745	1	22.88	24.00	1.294	0.06	0.103	0.133
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Back	24mm	Ant 1	-	Full	349000	1745	1	22.88	24.00	1.294	0.15	0.087	0.113



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	
1900MHz																					
60	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Front	5mm	Ant0	-	Reduced	661	1880	1	19.41	20.00	1.146	-0.19	0.494	0.566	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	-	Reduced	661	1880	1	19.41	20.00	1.146	0.19	1.220	1.398	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	-	Reduced	661	1880	2	19.41	20.00	1.146	0.09	0.960	1.100	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	-	Reduced	512	1850.2	1	19.26	20.00	1.186	0.05	0.821	0.974	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	-	Reduced	810	1909.8	1	19.23	20.00	1.194	-0.14	1.080	1.290	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	Headset	Reduced	661	1880	1	19.41	20.00	1.146	0.1	0.998	1.143	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Front	17mm	Ant0	-	Full	661	1880	1	25.36	26.50	1.300	0.18	0.177	0.230	
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	24mm	Ant0	-	Full	661	1880	1	25.36	26.50	1.300	-0.02	0.225	0.293	
	EN-DC																				
61	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	9400	1880	1	14.14	15.50	1.368	-0.12	0.627	0.858	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	9262	1852.4	1	14.06	15.50	1.393	-0.02	0.573	0.798	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	9538	1907.6	1	13.97	15.50	1.422	-0.01	0.552	0.785	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9400	1880	1	14.14	15.50	1.368	0.08	0.899	1.230	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9262	1852.4	1	14.06	15.50	1.393	0.07	0.830	1.156	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9538	1907.6	1	13.97	15.50	1.422	-0.03	0.859	1.222	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Headset	Reduced	9400	1880	1	14.14	15.50	1.368	-0.08	0.746	1.020	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	17mm	Ant0	-	Full	9400	1880	1	22.49	24.00	1.416	-0.13	0.414	0.586	
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	24mm	Ant0	-	Full	9400	1880	1	22.49	24.00	1.416	0.1	0.503	0.712	
EN-DC																					
62	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant0	-	Reduced	18900	1880	1	14.39	16.00	1.449	-0.05	0.343	0.497	
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant0	-	Reduced	18900	1880	1	14.38	16.00	1.452	-0.11	0.244	0.354	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	18900	1880	1	14.39	16.00	1.449	0.04	0.803	1.163	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	18700	1860	1	14.16	16.00	1.528	-0.12	0.700	1.069	
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant0	-	Reduced	19100	1900	1	14.31	16.00	1.476	0.02	0.779	1.150	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	18900	1880	1	14.38	16.00	1.452	-0.15	0.561	0.815	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	18700	1860	1	14.22	16.00	1.507	-0.13	0.553	0.833	
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant0	-	Reduced	19100	1900	1	14.26	16.00	1.493	-0.05	0.568	0.848	
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant0	-	Reduced	18900	1880	1	14.37	16.00	1.455	0.13	0.572	0.833	
EN-DC																					
63	LTE Band 2	20M	QPSK	1	0	-	Front	17mm	Ant0	-	Full	18900	1880	1	22.47	24.00	1.422	0.04	0.338	0.481	
	LTE Band 2	20M	QPSK	50	0	-	Front	17mm	Ant0	-	Full	18900	1880	1	21.63	23.00	1.371	0.18	0.241	0.330	
	LTE Band 2	20M	QPSK	1	0	-	Back	24mm	Ant0	-	Full	18900	1880	1	22.47	24.00	1.422	-0.01	0.353	0.502	
	LTE Band 2	20M	QPSK	50	0	-	Back	24mm	Ant0	-	Full	18900	1880	1	21.63	23.00	1.371	0.11	0.305	0.418	
	EN-DC																				
	63	FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 0	-	Reduced	376000	1880	1	11.32	13.00	1.472	-0.15	0.139	0.205
		FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Front	5mm	Ant 0	-	Reduced	376000	1880	1	11.29	13.00	1.483	-0.17	0.142	0.211
		FR1 n2	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	-	Reduced	376000	1880	1	11.32	13.00	1.472	-0.04	0.341	0.502
		FR1 n2	20M	QPSK	50	28	DFT-SCS-15KHz	Back	5mm	Ant 0	-	Reduced	376000	1880	1	11.29	13.00	1.483	0.16	0.362	0.537
FR1 n2		20M	QPSK	50	28	DFT-SCS-15KHz	Front	17mm	Ant 0	-	Full	376000	1880	1	22.56	24.00	1.393	-0.09	0.294	0.410	
FR1 n2		20M	QPSK	50	28	DFT-SCS-15KHz	Back	24mm	Ant 0	-	Full	376000	1880	1	22.56	24.00	1.393	-0.19	0.369	0.514	



FCC SAR Test Report

Report No. : FA212701

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																						
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	-	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.08	0.666	0.817
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	-	Reduced	20850	2510	1	18.93	20.00	1.279	-	-	-0.16	0.689	0.881
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant5	-	Reduced	21350	2560	1	18.93	20.00	1.279	-	-	-0.06	0.615	0.787
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant5	-	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	-0.17	0.548	0.674
	LTE Band 7	20M	QPSK	100	0	-	Front	5mm	Ant5	-	Reduced	21100	2535	1	19.06	20.00	1.242	-	-	-0.14	0.468	0.581
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	0.02	0.899	1.103
64	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	20850+21048	2510+2529.8	1	18.89	20.00	1.291	-	-	0.03	0.921	1.178
	LTE Band 7C	20M	QPSK	1	99	-	Back	5mm	Ant5	-	Reduced	20850+21048	2510+2529.8	1	18.89	20.00	1.291	-	-	0.03	0.911	1.176
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	21350	2560	1	18.93	20.00	1.279	-	-	-0.17	0.859	1.099
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	-0.05	0.624	0.768
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	20850	2510	1	19.01	20.00	1.256	-	-	0.13	0.636	0.799
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	21350	2560	1	19.04	20.00	1.247	-	-	-0.11	0.585	0.730
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant5	-	Reduced	21100	2535	1	19.06	20.00	1.242	-	-	0.03	0.627	0.779
	LTE Band 7	20M	QPSK	1	0	-	Front	17mm	Ant5	-	Full	20850	2510	1	22.97	24.00	1.268	-	-	0.02	0.320	0.406
	LTE Band 7	20M	QPSK	1	0	-	Back	24mm	Ant5	-	Full	20850	2510	1	22.97	24.00	1.268	-	-	0.09	0.201	0.255
EN-DC																						
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	1	16.85	17.50	1.161	-	-	-0.07	0.127	0.148
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	21100	2535	1	16.83	17.50	1.167	-	-	-0.07	0.103	0.120
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	1	16.85	17.50	1.161	-	-	0.04	0.494	0.574
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	21100	2535	1	16.83	17.50	1.167	-	-	-0.19	0.383	0.447
	LTE Band 7	20M	QPSK	1	0	-	Front	17mm	Ant 1	-	Full	21100	2535	1	23.90	24.00	1.023	-	-	0.04	0.059	0.060
	LTE Band 7	20M	QPSK	1	0	-	Back	24mm	Ant 1	-	Full	21100	2535	1	23.90	24.00	1.023	-	-	0.12	0.114	0.117
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 5	-	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	0.12	0.269	0.323
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 5	-	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	-0.18	0.185	0.223
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 5	-	Reduced	21100	2535	1	15.20	16.00	1.202	-	-	-0.08	0.372	0.447
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 5	-	Reduced	21100	2535	1	15.18	16.00	1.208	-	-	0.05	0.252	0.304
	LTE Band 7	20M	QPSK	1	0	-	Front	17mm	Ant 5	-	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.01	0.297	0.374
	LTE Band 7	20M	QPSK	1	0	-	Back	24mm	Ant 5	-	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.03	0.218	0.274
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant5	-	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	0.06	0.679	0.993
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	5mm	Ant5	-	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.16	0.669	0.983
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Front	5mm	Ant5	-	Reduced	507000	2535	1	18.31	20.00	1.476	-	-	-0.1	0.574	0.847
65	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant5	-	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.04	0.935	1.367
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant5	-	Reduced	507000	2535	2	18.35	20.00	1.462	-	-	0.04	0.911	1.332
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	5mm	Ant5	-	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	0.07	0.871	1.279
	FR1 n7	40M	QPSK	216	0	DFT-SCS-15KHz	Back	5mm	Ant5	-	Reduced	507000	2535	1	18.31	20.00	1.476	-	-	-0.12	0.684	1.009
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant5	Headset	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.01	0.815	1.192
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	17mm	Ant5	-	Full	507000	2535	1	22.65	24.00	1.365	-	-	0.18	0.301	0.411
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	24mm	Ant5	-	Full	507000	2535	1	22.65	24.00	1.365	-	-	-0.11	0.185	0.252
EN-DC																						
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 1	-	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	-0.01	0.168	0.189
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	5mm	Ant 1	-	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	-0.11	0.138	0.156
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	-	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	-0.02	0.479	0.540
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	5mm	Ant 1	-	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	-0.01	0.480	0.544
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	17mm	Ant 1	-	Full	507000	2535	1	23.18	24.00	1.208	-	-	-0.07	0.144	0.174
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	24mm	Ant 1	-	Full	507000	2535	1	23.18	24.00	1.208	-	-	-0.02	0.154	0.186
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant5	-	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.11	0.468	0.544
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant5	-	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.04	0.382	0.446
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	0.06	0.700	0.814
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	41490	2680	1	22.07	23.00	1.239	62.9	1.006	0.04	0.693	0.864
66	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	39750	2506	1	22.01	23.00	1.256	62.9	1.006	-0.03	0.963	1.217
	LTE Band 41C	20M	QPSK	1	99	-	Back	5mm	Ant5	-	Reduced	39750+39948	2506+2525.8	1	21.91	23.00	1.285	62.9	1.006	0.06	0.927	1.199
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	39750	2506	1	22.10	23.00	1.230	42.9	1.009	-0.04	0.660	0.819
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Headset	Reduced	39750	2506	1	22.01	23.00	1.256	62.9	1.006	-0.01	0.871	1.101



	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	40185	2549.5	1	22.24	23.00	1.191	62.9	1.006	-0.16	0.883	1.058
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	-	Reduced	41055	2636.5	1	22.25	23.00	1.189	62.9	1.006	0.14	0.713	0.852
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.03	0.642	0.750
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	41490	2680	1	22.31	23.00	1.172	62.9	1.006	0.06	0.634	0.748
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	39750	2506	1	22.18	23.00	1.208	62.9	1.006	0.01	0.627	0.762
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	40185	2549.5	1	22.23	23.00	1.194	62.9	1.006	0.04	0.631	0.758
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant5	-	Reduced	41055	2636.5	1	22.18	23.00	1.208	62.9	1.006	0.09	0.642	0.780
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant5	-	Reduced	40620	2593	1	22.10	23.00	1.230	62.9	1.006	0.08	0.646	0.800
	LTE Band 41	20M	QPSK	1	0	-	Front	17mm	Ant5	-	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	-0.17	0.197	0.222
	LTE Band 41	20M	QPSK	1	0	-	Back	24mm	Ant5	-	Full	39750	2506	1	23.24	24.00	1.191	62.9	1.006	-0.13	0.148	0.177
EN-DC																						
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.12	0.163	0.190
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	-	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	0.13	0.145	0.170
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.08	0.467	0.544
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	-	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	0.07	0.423	0.495
	LTE Band 41	20M	QPSK	1	0	-	Front	17mm	Ant 1	-	Full	40620	2593	1	23.21	24.00	1.199	-	-	0.09	0.163	0.196
	LTE Band 41	20M	QPSK	1	0	-	Back	24mm	Ant 1	-	Full	39750	2506	1	23.15	24.00	1.216	-	-	0.01	0.075	0.091
3300~4100MHz																						
	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant2	-	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.17	0.526	0.688
	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant2	-	Reduced	42590	3500	1	20.35	21.50	1.303	62.9	1.006	0.07	0.424	0.556
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	-	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.02	0.693	0.906
67	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	-	Reduced	42190	3460	1	20.19	21.50	1.352	62.9	1.006	-0.08	0.808	1.099
	LTE Band 42C	20M	QPSK	1	99	-	Back	5mm	Ant2	-	Reduced	42190+ 42388	3460+ 3479.8	1	20.15	21.50	1.364	62.9	1.006	0.05	0.779	1.069
	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant2	-	Reduced	42990	3540	1	20.30	21.50	1.318	62.9	1.006	0.15	0.618	0.820
	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant2	-	Reduced	42590	3500	1	20.35	21.50	1.303	62.9	1.006	0.02	0.551	0.722
	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant2	-	Reduced	42590	3500	1	20.34	21.50	1.306	62.9	1.006	0.1	0.455	0.598
	LTE Band 42	20M	QPSK	1	0	-	Front	17mm	Ant2	-	Full	42190	3460	1	22.82	24.00	1.312	62.9	1.006	0.02	0.306	0.404
	LTE Band 42	20M	QPSK	1	0	-	Back	24mm	Ant2	-	Full	42190	3460	1	22.82	24.00	1.312	62.9	1.006	-0.01	0.288	0.380
EN-DC																						
	Part270 FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 2	-	Reduced	656000	3840	1	16.24	18.00	1.500	-	-	0.09	0.190	0.285
	Part270 FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 2	-	Reduced	656000	3840	1	16.14	18.00	1.535	-	-	0.1	0.207	0.318
	Part270 FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 2	-	Reduced	656000	3840	1	16.24	18.00	1.500	-	-	0.05	0.357	0.535
	Part270 FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 2	-	Reduced	656000	3840	1	16.14	18.00	1.535	-	-	-0.07	0.342	0.525
	Part270 FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Front	17mm	Ant 2	-	Full	656000	3840	1	22.96	24.00	1.271	-	-	0.05	0.314	0.399
	Part270 FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Back	24mm	Ant 2	-	Full	656000	3840	1	22.96	24.00	1.271	-	-	0.06	0.281	0.357
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 2	-	Reduced	633334	3500.01	1	16.26	18.00	1.493	-	-	-0.08	0.250	0.373
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 2	-	Reduced	633334	3500.01	1	16.12	18.00	1.542	-	-	-0.03	0.209	0.322
68	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 2	-	Reduced	633334	3500.01	1	16.26	18.00	1.493	-	-	-0.03	0.379	0.566
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 2	-	Reduced	633334	3500.01	1	16.12	18.00	1.542	-	-	-0.06	0.338	0.521
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Front	17mm	Ant 2	-	Full	633334	3500.01	1	22.78	24.00	1.324	-	-	0.02	0.330	0.437
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Back	24mm	Ant 2	-	Full	633334	3500.01	1	22.78	24.00	1.324	-	-	-0.08	0.275	0.364
	Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant2	-	Reduced	650000	3750	1	20.73	21.50	1.194	-	-	-0.17	0.588	0.702
	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant2	-	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	-0.03	0.580	0.707
	Part270 FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	650000	3750	1	20.73	21.50	1.194	-	-	-0.08	0.844	1.008
69	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	-0.12	0.970	1.182
	Part270 FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	650000	3750	1	20.52	21.50	1.253	-	-	0.08	0.867	1.086
	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	17mm	Ant2	-	Full	650000	3750	1	25.30	27.00	1.479	-	-	0.09	0.302	0.447
	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Back	24mm	Ant2	-	Full	650000	3750	1	25.30	27.00	1.479	-	-	-0.03	0.285	0.422
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant2	-	Reduced	633334	3500.01	1	20.74	21.50	1.191	-	-	0.06	0.676	0.805
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant2	-	Reduced	633334	3500.01	1	20.73	21.50	1.194	-	-	-0.16	0.541	0.646
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Front	5mm	Ant2	-	Reduced	633334	3500.01	1	20.59	21.50	1.233	-	-	-0.04	0.556	0.686
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	633334	3500.01	1	20.74	21.50	1.191	-	-	-0.06	0.928	1.105
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	633334	3500.01	1	20.73	21.50	1.194	-	-	-0.01	0.956	1.141
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant2	-	Reduced	633334	3500.01	1	20.59	21.50	1.233	-	-	0.1	0.919	1.133
	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	17mm	Ant2	-	Full	633334	3500.01	1	25.28	27.00	1.486	-	-	0.01	0.315	0.468
	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Back	24mm	Ant2	-	Full	633334	3500.01	1	25.28	27.00	1.486	-	-	0.03	0.291	0.432



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Power Setting	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
SRS																				
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	-0.14	0.056	0.061	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	0.09	0.058	0.065	
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	650000	3750	260	22.61	23.00	1.094	-0.02	0.479	0.524	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	650000	3750	260	22.52	23.00	1.117	-0.11	0.446	0.498	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	-0.17	0.014	0.016	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	-0.06	0.012	0.015	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	633334	3500.01	260	22.31	23.00	1.172	0.02	0.161	0.189	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant3	1	Full	633334	3500.01	260	21.93	23.00	1.279	-0.02	0.188	0.241	
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	0.15	0.245	0.258	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.11	0.217	0.241	
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	650000	3750	260	21.27	21.50	1.054	-0.16	0.350	0.369	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	650000	3750	260	21.04	21.50	1.112	-0.13	0.313	0.348	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	-0.15	0.149	0.196	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	0.18	0.236	0.315	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	633334	3500.01	260	20.32	21.50	1.312	0.01	0.228	0.299	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant6	1	Full	633334	3500.01	260	20.25	21.50	1.334	-0.08	0.322	0.429	
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.12	0.056	0.061	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	0.02	0.050	0.056	
Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	650000	3750	260	22.66	23.00	1.081	-0.07	1.050	1.136	
Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	650000	3750	260	22.54	23.00	1.112	0.19	0.919	1.022	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.04	0.025	0.027	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.13	0.022	0.025	
Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	633334	3500.01	260	22.68	23.00	1.076	-0.02	0.496	0.534	
Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant7	1	Full	633334	3500.01	260	22.41	23.00	1.146	-0.18	0.428	0.490	



FCC SAR Test Report

Report No. : FA212701

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN/Bluetooth																		
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 8	-	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	0.01	0.296	0.401
70	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8	-	Full	11	2462	1	18.21	19.50	1.346	99.31	1.007	-0.03	0.576	0.781
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8	-	Full	11	2462	2	18.21	19.50	1.346	99.31	1.007	-0.03	0.523	0.709
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8	-	Simultaneous	11	2462	1	15.47	17.00	1.422	99.31	1.007	0.01	0.267	0.382
	Bluetooth	1Mbps	Back	5mm	Ant 8	-	Full	39	2441	1	10.15	11.00	1.216	77.01	1.299	0.02	0.071	0.112
	Bluetooth	1Mbps	Back	5mm	Ant 8	-	Full	0	2402	1	10.15	11.00	1.216	77.01	1.299	0.08	0.076	0.120
71	Bluetooth	1Mbps	Back	5mm	Ant 8	-	Full	78	2480	1	10.38	11.00	1.153	77.01	1.299	0.01	0.082	0.123
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	5mm	Ant 8	-	Full	38	5190	1	17.27	19.00	1.488	96.32	1.038	0.09	0.506	0.782
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Full	38	5190	1	17.27	19.00	1.488	96.32	1.038	0.04	0.744	1.149
72	WLAN5.2GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Full	46	5230	1	16.77	18.50	1.488	96.32	1.038	-0.06	0.772	1.193
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Full	46	5230	2	16.77	18.50	1.488	96.32	1.038	0.03	0.631	0.975
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Simultaneous	42	5210	1	12.50	14.00	1.413	92.75	1.078	-0.05	0.242	0.368
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5mm	Ant 8	-	Reduced	62	5310	1	16.08	17.50	1.387	96.32	1.038	0.01	0.515	0.741
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Reduced	62	5310	1	16.08	17.50	1.387	96.32	1.038	0.06	0.758	1.091
73	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Reduced	54	5270	1	15.65	17.50	1.531	96.32	1.038	-0.05	0.716	1.138
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8	-	Reduced	54	5270	2	15.65	17.50	1.531	96.32	1.038	0.03	0.702	1.116
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Simultaneous	58	5290	1	11.53	12.50	1.250	92.75	1.078	0.03	0.224	0.302
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 8	-	Reduced	138	5690	1	15.09	17.00	1.554	92.75	1.078	0.06	0.674	1.129
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 8	-	Reduced	122	5610	1	14.00	15.50	1.414	92.75	1.078	0.04	0.515	0.785
74	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Reduced	138	5690	1	15.09	17.00	1.554	92.75	1.078	0.05	0.711	1.191
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Reduced	138	5690	2	15.09	17.00	1.554	92.75	1.078	0.03	0.691	1.157
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Reduced	122	5610	1	14.00	15.50	1.414	92.75	1.078	0.08	0.701	1.068
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Simultaneous	138	5690	1	11.62	13.00	1.375	92.75	1.078	0.04	0.261	0.387
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	17mm	Ant 8	-	Full	138	5690	1	17.25	19.00	1.495	96.32	1.038	-0.11	0.199	0.309
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	24mm	Ant 8	-	Full	138	5690	1	17.25	19.00	1.495	96.32	1.038	0.03	0.198	0.307
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 8	-	Reduced	155	5775	1	14.47	16.00	1.423	92.75	1.078	0.09	0.435	0.667
75	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Reduced	155	5775	1	14.47	16.00	1.423	92.75	1.078	0.05	0.621	0.953
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Reduced	155	5775	2	14.47	16.00	1.423	92.75	1.078	0.08	0.554	0.850
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8	-	Simultaneous	155	5775	1	11.17	12.50	1.359	92.75	1.078	0.04	0.257	0.377
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Front	17mm	Ant 8	-	Full	155	5775	1	17.01	18.50	1.409	96.35	1.038	0.08	0.138	0.202
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Back	24mm	Ant 8	-	Full	155	5775	1	17.01	18.50	1.409	96.35	1.038	0.04	0.145	0.212



15.4 Product specific 10g SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	0.08	1.060	1.394
76	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	0.02	1.360	1.789
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant0	Full	189	836.4	2	26.81	28.00	1.315	-0.08	1.280	1.683
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	0mm	Ant0	Full	189	836.4	1	26.81	28.00	1.315	0.05	1.120	1.473
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	1413	1732.6	1	18.43	20.00	1.435	0.13	1.530	2.196
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	1312	1712.4	1	18.39	20.00	1.449	0.15	1.580	2.289
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	1513	1752.6	1	18.41	20.00	1.442	0.05	1.630	2.351
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	1413	1732.6	1	18.43	20.00	1.435	-0.05	2.310	3.316
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	1312	1712.4	1	18.39	20.00	1.449	0.16	2.230	3.231
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	1513	1752.6	1	18.41	20.00	1.442	0.1	2.260	3.259
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1413	1732.6	1	18.43	20.00	1.435	-0.07	2.460	3.531
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1312	1712.4	1	18.39	20.00	1.449	-0.07	2.450	3.549
77	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1513	1752.6	1	18.41	20.00	1.442	-0.08	2.490	3.591
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1513	1752.6	2	18.41	20.00	1.442	-0.05	2.410	3.475
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	7mm	Ant0	Full	1513	1752.6	1	22.45	24.00	1.429	-0.04	0.955	1.365
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant0	Full	1413	1732.6	1	22.48	24.00	1.419	-0.18	0.738	1.047
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	16mm	Ant0	Full	1513	1752.6	1	22.45	24.00	1.429	-0.14	0.735	1.050
	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant0	Reduced	132322	1745	1	18.46	20.00	1.426	-0.18	1.110	1.582
	LTE Band 66	20M	QPSK	50	0	-	Front	0mm	Ant0	Reduced	132322	1745	1	18.45	20.00	1.429	0.09	0.730	1.043
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant0	Reduced	132322	1745	1	18.46	20.00	1.426	0.14	1.700	2.424
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant0	Reduced	132072	1720	1	18.41	20.00	1.442	0.13	1.640	2.365
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant0	Reduced	132572	1770	1	18.37	20.00	1.455	-0.12	1.760	2.562
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant0	Reduced	132322	1745	1	18.45	20.00	1.429	0.15	1.100	1.572
	LTE Band 66	20M	QPSK	100	0	-	Back	0mm	Ant0	Reduced	132322	1745	1	18.44	20.00	1.432	0.13	1.100	1.575
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant0	Reduced	132322	1745	1	18.46	20.00	1.426	-0.06	1.950	2.780
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant0	Reduced	132072	1720	1	18.41	20.00	1.442	-0.01	1.850	2.668
78	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant0	Reduced	132572	1770	1	18.37	20.00	1.455	-0.05	2.010	2.925
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant0	Reduced	132322	1745	1	18.45	20.00	1.429	-0.16	1.270	1.815
	LTE Band 66	20M	QPSK	100	0	-	Bottom Side	0mm	Ant0	Reduced	132322	1745	1	18.44	20.00	1.432	0.09	1.270	1.819
	LTE Band 66	20M	QPSK	1	0	-	Front	7mm	Ant0	Full	132322	1745	1	22.45	24.00	1.429	0.13	0.706	1.009
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant0	Full	132572	1770	1	22.41	24.00	1.442	0.05	0.604	0.871
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	16mm	Ant0	Full	132572	1770	1	22.41	24.00	1.442	0.02	0.578	0.834
EN-DC																			
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 0	Reduced	132322	1745	1	15.39	17.00	1.449	-0.03	0.796	1.153
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 0	Reduced	132322	1745	1	15.38	17.00	1.452	0.09	0.516	0.749
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	Reduced	132322	1745	1	15.39	17.00	1.449	-0.01	0.985	1.427
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	Reduced	132322	1745	1	15.38	17.00	1.452	0.01	0.596	0.865
	LTE Band 66	20M	QPSK	1	0	-	Back	15mm	Ant 0	Full	132322	1745	1	22.45	24.00	1.429	0.05	0.601	0.859
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	16mm	Ant 0	Full	132322	1745	1	22.45	24.00	1.429	0.02	0.548	0.783
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	132322	1745	1	20.14	21.50	1.368	-0.15	0.994	1.360
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	132322	1745	1	20.11	21.50	1.377	-0.07	0.792	1.091
	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	Reduced	132322	1745	1	20.14	21.50	1.368	-0.01	1.040	1.422
	LTE Band 66	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	Reduced	132322	1745	1	20.11	21.50	1.377	-0.05	0.918	1.264
	LTE Band 66	20M	QPSK	1	0	-	Back	17mm	Ant 1	Full	132322	1745	1	22.66	24.00	1.361	-0.12	0.122	0.166
	LTE Band 66	20M	QPSK	1	0	-	Top Side	14mm	Ant 1	Full	132322	1745	1	22.66	24.00	1.361	-0.06	0.136	0.185
EN-DC																			
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	Reduced	349000	1745	1	21.94	23.00	1.276	-0.03	1.080	1.379
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Back	0mm	Ant 1	Reduced	349000	1745	1	21.92	23.00	1.282	-0.13	0.975	1.250
79	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	Reduced	349000	1745	1	21.94	23.00	1.276	-0.01	1.150	1.468
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	Reduced	349000	1745	2	21.94	23.00	1.276	-0.09	0.993	1.268
	FR1 n66	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	0mm	Ant 1	Reduced	349000	1745	1	21.92	23.00	1.282	-0.18	1.120	1.436
	FR1 n66	40M	QPSK	1	1	DFT-SCS-15KHz	Back	17mm	Ant 1	Full	349000	1745	1	22.88	24.00	1.294	-0.17	0.111	0.144



FCC SAR Test Report

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Table with columns for test parameters (FR1 n66, 40M, QPSK, etc.) and SAR results. Includes sections for 1900MHz and EN-DC, with values like 3.158, 3.232, 3.262, and 1.660 highlighted in yellow.



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Front	0mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	0.13	0.936	1.149
	LTE Band 7	20M	QPSK	50	0	-	Front	0mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.1	0.670	0.824
84	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.08	1.160	1.424
	LTE Band 7C	20M	QPSK	1	99	-	Back	0mm	Ant5	Reduced	21100+21298	2535+2554.8	1	19.08	20.00	1.236	-	-	0.05	1.010	1.248
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.16	0.795	0.978
	LTE Band 7	20M	QPSK	1	0	-	Left Side	0mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.14	0.677	0.831
	LTE Band 7	20M	QPSK	50	0	-	Left Side	0mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.18	0.697	0.857
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	0.15	0.501	0.615
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.1	0.513	0.631
	LTE Band 7	20M	QPSK	1	0	-	Front	4mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.04	1.090	1.372
	LTE Band 7	20M	QPSK	1	0	-	Back	11mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.09	0.430	0.541
	LTE Band 7	20M	QPSK	1	0	-	Left Side	4mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.18	0.726	0.914
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	12mm	Ant5	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.08	0.269	0.339
EN-DC																					
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	21100	2535	1	17.31	17.50	1.045	-	-	-0.08	1.160	1.212
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	21100	2535	1	17.30	17.50	1.047	-	-	-0.05	0.871	0.912
	LTE Band 7	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	Reduced	21100	2535	1	17.31	17.50	1.045	-	-	-0.18	0.814	0.850
	LTE Band 7	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	Reduced	21100	2535	1	17.30	17.50	1.047	-	-	0.02	0.633	0.663
	LTE Band 7	20M	QPSK	1	0	-	Back	17mm	Ant 1	Full	21100	2535	1	23.90	24.00	1.023	-	-	-0.02	0.110	0.113
	LTE Band 7	20M	QPSK	1	0	-	Top Side	14mm	Ant 1	Full	21100	2535	1	23.90	24.00	1.023	-	-	0.07	0.184	0.188
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	-0.08	1.160	1.424
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.16	0.795	0.978
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 5	Reduced	21100	2535	1	19.11	20.00	1.227	-	-	0.15	0.501	0.615
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 5	Reduced	21100	2535	1	19.10	20.00	1.230	-	-	0.1	0.513	0.631
	LTE Band 7	20M	QPSK	1	0	-	Back	11mm	Ant 5	Full	21100	2535	1	23.00	24.00	1.259	-	-	0.09	0.430	0.541
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	12mm	Ant 5	Full	21100	2535	1	23.00	24.00	1.259	-	-	-0.08	0.269	0.339
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	0.16	1.050	1.535
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Front	0mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	0.01	1.020	1.498
85	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.07	1.160	1.696
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant5	Reduced	507000	2535	2	18.35	20.00	1.462	-	-	-0.07	1.060	1.550
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	0mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.03	1.130	1.660
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	0mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.03	0.721	1.054
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Left Side	0mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	-0.12	0.695	1.021
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	0mm	Ant5	Reduced	507000	2535	1	18.35	20.00	1.462	-	-	-0.12	0.437	0.639
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Bottom Side	0mm	Ant5	Reduced	507000	2535	1	18.33	20.00	1.469	-	-	0.12	0.463	0.680
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Front	4mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	-0.1	1.050	1.433
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	11mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	-0.06	0.419	0.572
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Left Side	4mm	Ant5	Full	507000	2535	1	22.65	24.00	1.365	-	-	-0.05	0.692	0.944
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Bottom Side	12mm	Ant5	Full	507000	2535	1	22.61	24.00	1.377	-	-	-0.06	0.207	0.285
EN-DC																					
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	-0.14	0.454	0.512
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Back	0mm	Ant 1	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	-0.17	0.422	0.478
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 1	Reduced	507000	2535	1	17.48	18.00	1.127	-	-	0.08	0.359	0.405
	FR1 n7	40M	QPSK	108	54	DFT-SCS-15KHz	Top Side	0mm	Ant 1	Reduced	507000	2535	1	17.46	18.00	1.132	-	-	0.02	0.270	0.306
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Back	17mm	Ant 1	Full	507000	2535	1	23.18	24.00	1.208	-	-	0.07	0.096	0.116
	FR1 n7	40M	QPSK	1	1	DFT-SCS-15KHz	Top Side	14mm	Ant 1	Full	507000	2535	1	23.18	24.00	1.208	-	-	-0.19	0.180	0.217
86	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant5	Reduced	40620	2593	1	22.37	23.00	1.156	62.9	1.006	-0.07	0.991	1.153
	LTE Band 41C	20M	QPSK	1	99	-	Back	0mm	Ant5	Reduced	40620+40818	2593+2612.8	1	22.27	23.00	1.183	62.9	1.006	0.02	0.952	1.133
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	62.9	1.006	0.03	0.873	1.020
	LTE Band 41_HPUE	20M	QPSK	1	0	-	Back	0mm	Ant5	Reduced	40620	2593	1	22.35	23.00	1.161	42.9	1.009	-0.07	0.646	0.757
	LTE Band 41	20M	QPSK	1	0	-	Back	11mm	Ant5	Full	40620	2593	1	23.50	24.00	1.122	62.9	1.006	-0.06	0.311	0.351
EN-DC																					



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	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	-0.08	0.463	0.539
	LTE Band 41	20M	QPSK	50	0	-	Back	0mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	-0.03	0.411	0.481
	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 1	Reduced	40620	2593	1	17.34	18.00	1.164	-	-	0.09	0.442	0.515
	LTE Band 41	20M	QPSK	50	0	-	Top Side	0mm	Ant 1	Reduced	40620	2593	1	17.32	18.00	1.169	-	-	-0.19	0.431	0.504
	LTE Band 41	20M	QPSK	1	0	-	Back	17mm	Ant 1	Full	40620	2593	1	23.21	24.00	1.199	-	-	-0.04	0.116	0.139
	LTE Band 41	20M	QPSK	1	0	-	Top Side	14mm	Ant 1	Full	40620	2593	1	23.21	24.00	1.199	-	-	-0.01	0.189	0.227
3300-4100MHz																					
	LTE Band 42	20M	QPSK	1	0	-	Front	0mm	Ant2	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.13	0.524	0.685
87	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant2	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.06	0.896	1.172
	LTE Band 42C	20M	QPSK	1	99	-	Back	0mm	Ant2	Reduced	42590+ 42788	3500+ 3519.8	1	20.13	21.50	1.371	62.9	1.006	0.05	0.837	1.154
	LTE Band 42	20M	QPSK	1	0	-	Top Side	0mm	Ant2	Reduced	42590	3500	1	20.36	21.50	1.300	62.9	1.006	-0.01	0.727	0.951
	LTE Band 42	20M	QPSK	50	0	-	Top Side	0mm	Ant2	Reduced	42590	3500	1	20.35	21.50	1.303	62.9	1.006	-0.08	0.677	0.888
	LTE Band 42	20M	QPSK	1	0	-	Front	2mm	Ant2	Full	42590	3500	1	22.83	24.00	1.309	62.9	1.006	-0.03	0.618	0.814
	LTE Band 42	20M	QPSK	1	0	-	Back	7mm	Ant2	Full	42590	3500	1	22.83	24.00	1.309	62.9	1.006	-0.01	0.319	0.420
	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant2	Full	42590	3500	1	22.83	24.00	1.309	62.9	1.006	-0.01	0.488	0.643
EN-DC																					
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant 2	Reduced	656000	3840	1	16.24	18.00	1.500	-	-	-0.18	0.267	0.400
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant 2	Reduced	656000	3840	1	16.14	18.00	1.535	-	-	-0.12	0.319	0.490
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 2	Reduced	656000	3840	1	16.24	18.00	1.500	-	-	-0.13	0.310	0.465
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 2	Reduced	656000	3840	1	16.14	18.00	1.535	-	-	0.01	0.431	0.661
	Part27O FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 2	Reduced	656000	3840	1	16.24	18.00	1.500	-	-	0.13	0.381	0.571
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant 2	Reduced	656000	3840	1	16.14	18.00	1.535	-	-	-0.06	0.429	0.658
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-15KHz	Front	2mm	Ant 2	Full	656000	3840	1	22.86	24.00	1.300	-	-	-0.05	0.562	0.731
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-15KHz	Back	7mm	Ant 2	Full	656000	3840	1	22.86	24.00	1.300	-	-	-0.13	0.588	0.764
	Part27O FR1 n77	100M	QPSK	135	69	DFT-SCS-15KHz	Top Side	5mm	Ant 2	Full	656000	3840	1	22.86	24.00	1.300	-	-	-0.13	0.616	0.801
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant 2	Reduced	633334	3500.01	1	16.26	18.00	1.493	-	-	-0.13	0.269	0.402
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant 2	Reduced	633334	3500.01	1	16.12	18.00	1.542	-	-	-0.18	0.273	0.421
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant 2	Reduced	633334	3500.01	1	16.26	18.00	1.493	-	-	0.01	0.444	0.663
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 2	Reduced	633334	3500.01	1	16.12	18.00	1.542	-	-	-0.03	0.423	0.652
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 2	Reduced	633334	3500.01	1	16.26	18.00	1.493	-	-	-0.04	0.382	0.570
	Part27Q FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant 2	Reduced	633334	3500.01	1	16.12	18.00	1.542	-	-	-0.14	0.361	0.557
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Front	2mm	Ant 2	Full	633334	3500.01	1	22.78	24.00	1.324	-	-	-0.01	0.679	0.899
	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Back	7mm	Ant 2	Full	633334	3500.01	1	22.78	24.00	1.324	-	-	-0.1	0.687	0.910
88	Part27Q FR1 n77	100M	QPSK	1	1	DFT-SCS-15KHz	Top Side	5mm	Ant 2	Full	633334	3500.01	1	22.78	24.00	1.324	-	-	-0.06	0.763	1.010
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant2	Reduced	650000	3750	1	20.73	21.50	1.194	-	-	0.12	0.901	1.076
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant2	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	0.16	0.984	1.199
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant2	Reduced	650000	3750	1	20.73	21.50	1.194	-	-	0.11	1.070	1.278
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant2	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	-0.05	1.230	1.499
	Part27O FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant2	Reduced	650000	3750	1	20.73	21.50	1.194	-	-	0.07	0.786	0.938
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant2	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	-0.12	1.082	1.319
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	2mm	Ant2	Full	650000	3750	1	25.30	27.00	1.479	-	-	-0.18	0.879	1.300
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	2mm	Ant2	Full	650000	3750	2	25.30	27.00	1.479	-	-	-0.01	1.200	1.775
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Back	7mm	Ant2	Full	650000	3750	1	25.30	27.00	1.479	-	-	0.12	0.712	1.053
	Part27O FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Top Side	5mm	Ant2	Full	650000	3750	1	25.30	27.00	1.479	-	-	0.11	1.120	1.657
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Front	0mm	Ant2	Reduced	633334	3500.01	1	20.74	21.50	1.191	-	-	0.13	0.977	1.164
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Front	0mm	Ant2	Reduced	633334	3500.01	1	20.73	21.50	1.194	-	-	-0.1	1.074	1.282
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Back	0mm	Ant2	Reduced	633334	3500.01	1	20.74	21.50	1.191	-	-	0.08	1.280	1.525
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant2	Reduced	633334	3500.01	1	20.73	21.50	1.194	-	-	-0.03	1.124	1.342
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Back	0mm	Ant2	Reduced	633334	3500.01	1	20.59	21.50	1.233	-	-	0.12	1.034	1.275
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant2	Reduced	633334	3500.01	1	20.74	21.50	1.191	-	-	0.09	1.173	1.397
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant2	Reduced	633334	3500.01	1	20.73	21.50	1.194	-	-	0.1	1.164	1.390
	Part27Q FR1 n78-HPUE	100M	BPSK	270	0	DFT-SCS-30KHz	Top Side	0mm	Ant2	Reduced	633334	3500.01	1	20.59	21.50	1.233	-	-	0.13	1.210	1.492
89	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	2mm	Ant2	Full	633334	3500.01	1	25.28	27.00	1.486	-	-	0.03	1.340	1.991
	Part27Q FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-15KHz	Front	2mm	Ant2	Full	633334	3500.01	2	25.28	27.00	1.486	-	-	0.01	1.270	1.887
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-15KHz	Back	7mm	Ant2	Full	633334	3500.01	1	25.36	27.00	1.459	-	-	-0.02	0.786	1.147
	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-15KHz	Top Side	5mm	Ant2	Full	633334	3500.01	1	25.36	27.00	1.459	-	-	0.09	1.320	1.926

Sporton International Inc. (Kunshan)

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FCC ID : IHDT56AE5

Issued Date : Mar. 22, 2022

Form version. : 200414



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	
WLAN																		
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	Ant 8	Full	38	5190	1	17.27	19.00	1.488	96.32	1.038	0.03	0.890	1.375	
90	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	38	5190	1	17.27	19.00	1.488	96.32	1.038	0.04	1.120	1.730	
	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	38	5190	2	17.27	19.00	1.488	96.32	1.038	0.04	1.080	1.669	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 8	Simultaneous	42	5210	1	14.23	15.50	1.340	92.75	1.078	-0.09	0.413	0.596	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8	Simultaneous	42	5210	1	14.23	15.50	1.340	92.75	1.078	0.01	0.593	0.856	
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	0mm	Ant 8	Full	62	5310	1	16.91	18.50	1.441	96.32	1.038	0.03	0.868	1.298	
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	Ant 8	Full	62	5310	1	16.91	18.50	1.441	96.32	1.038	0.06	0.639	0.956	
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 8	Full	62	5310	1	16.91	18.50	1.441	96.32	1.038	0.02	0.036	0.054	
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 8	Full	62	5310	1	16.91	18.50	1.441	96.32	1.038	-0.05	0.270	0.404	
91	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	62	5310	1	16.91	18.50	1.441	96.32	1.038	0.01	1.470	2.199	
	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	62	5310	2	16.91	18.50	1.441	96.32	1.038	0.01	1.290	1.930	
	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	54	5270	1	16.51	18.50	1.580	96.32	1.038	0.08	1.210	1.985	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 8	Simultaneous	58	5290	1	14.14	15.50	1.368	92.75	1.078	-0.08	0.401	0.591	
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8	Simultaneous	58	5290	1	14.14	15.50	1.368	92.75	1.078	0.06	0.656	0.967	
	WLAN5.5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 8	Full	102	5510	1	17.25	19.00	1.495	96.32	1.038	-0.05	1.030	1.599	
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 8	Full	102	5510	1	17.25	19.00	1.495	96.32	1.038	-0.01	0.773	1.200	
	WLAN5.5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 8	Full	102	5510	1	17.25	19.00	1.495	96.32	1.038	-0.12	0.063	0.098	
	WLAN5.5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 8	Full	102	5510	1	17.25	19.00	1.495	96.32	1.038	-0.11	0.408	0.633	
92	WLAN5.5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	102	5510	1	17.25	19.00	1.495	96.32	1.038	0.01	1.870	2.902	
	WLAN5.5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	102	5510	2	17.25	19.00	1.495	96.32	1.038	0.09	1.790	2.778	
	WLAN5.5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	142	5710	1	17.03	19.00	1.573	96.32	1.038	-0.09	1.420	2.318	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 8	Simultaneous	138	5690	1	12.63	14.00	1.372	92.75	1.078	0.01	0.383	0.566	
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8	Simultaneous	138	5690	1	12.63	14.00	1.372	92.75	1.078	0.03	0.661	0.978	
	WLAN5.8GHz	802.11n-HT40 MCS0	Back	0mm	Ant 8	Full	151	5755	1	16.98	18.50	1.418	96.32	1.038	0.03	0.941	1.385	
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	151	5755	1	16.98	18.50	1.418	96.32	1.038	0.03	1.490	2.193	
93	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	159	5795	1	16.57	18.50	1.560	96.32	1.038	0.06	1.620	2.622	
	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8	Full	159	5795	2	16.57	18.50	1.560	96.32	1.038	-0.12	1.140	1.845	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 8	Simultaneous	155	5775	1	13.91	15.50	1.443	92.75	1.078	-0.1	0.424	0.660	
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8	Simultaneous	155	5775	1	13.91	15.50	1.443	92.75	1.078	-0.14	0.624	0.971	



15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	Reduced	189	836.4	1	25.31	26.00	1.172	-	-	-0.05	1.020	1	1.342
2nd	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant0	Reduced	189	836.4	1	25.31	26.00	1.172	-	-	0.04	0.961	1.061	1.264
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	1513	1752.6	1	13.89	15.50	1.449	-	-	0.1	0.845	1	1.224
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	1513	1752.6	1	13.89	15.50	1.449	-	-	0.03	0.832	1.016	1.205
1st	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	Reduced	661	1880	1	19.41	20.00	1.146	-	-	0.19	1.220	1	1.398
2nd	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant0	Reduced	661	1880	1	19.41	20.00	1.146	-	-	0.06	1.130	1.080	1.294
1st	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	39750	2506	1	22.01	23.00	1.256	62.9	1.006	-0.03	0.963	1	1.217
2nd	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant5	Reduced	39750	2506	1	22.01	23.00	1.256	62.9	1.006	-0.01	0.948	1.016	1.198
1st	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant2	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	-0.01	0.970	1	1.182
2nd	Part270 FR1 n78-HPUE	100M	BPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant2	Reduced	650000	3750	1	20.64	21.50	1.219	-	-	0.14	0.955	1.016	1.164
1st	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant2	Reduced	633334	3500.01	1	18.36	19.00	1.159	-	-	0.04	0.998	1	1.156
2nd	Part27Q FR1 n78-HPUE	100M	BPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant2	Reduced	633334	3500.01	1	18.36	19.00	1.159	-	-	0.02	0.975	1.024	1.130

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1513	1752.6	1	18.41	20.00	1.442	-	-	-0.08	2.490	1	3.591
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	1513	1752.6	1	18.41	20.00	1.442	-	-	0.07	2.350	1.060	3.389
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	9400	1880	1	19.17	20.00	1.211	-	-	-0.03	2.670	1	3.232
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	9400	1880	1	19.17	20.00	1.211	-	-	-0.01	2.520	1.060	3.051

General Note:

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



15.6 TDD B41 Linearity Data Analysis

General Note:

This device support Power Class 2 and Power Class 3 operations for LTE Ban41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes, and all reported 1g SAR are < 1.4 W/kg and all reported 10g SAR are < 3.5 W/kg, Separate SAR testing for Power Class 2 is not required

LTE Band 41(HPUE)-Linearity Data for Head		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	24.00	27.00
Reported 1g SAR (W/kg)	0.210	0.285
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	159.00	217.01
Linearity SAR (W/kg)	0.287	
% deviation from expected linearity		-0.56%

LTE Band 41(HPUE)-Linearity Data for Hotspot		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	23.00	23.00
Reported 1g SAR (W/kg)	1.217	0.819
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	126.30	86.39
Linearity SAR (W/kg)	0.832	
% deviation from expected linearity		-1.62%

LTE Band 41(HPUE)-Linearity Data for Body-worn		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	23.00	23.00
Reported 1g SAR (W/kg)	1.217	0.819
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	126.30	86.39
Linearity SAR (W/kg)	0.832	
% deviation from expected linearity		-1.62%

LTE Band 41(HPUE)-Linearity Data for Extremity		
	LTE Band 41 (Power Class 3)	LTE Band 41 (Power Class 2)
Maximum Tune up Power (dBm)	23.00	23.00
Reported 10g SAR (W/kg)	1.153	0.757
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	126.30	86.39
Linearity SAR (W/kg)	0.789	
% deviation from expected linearity		-4.02%

16. Simultaneous Transmission Analysis

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

General Note:

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



16.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3	1+4
		WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)
GSM850 Ant0	Right Cheek	0.283	0.398	0.392	0.070	0.68	0.68	0.35
	Right Tilted	0.174	0.398	0.392	0.075	0.57	0.57	0.25
	Left Cheek	0.291	0.398	0.392	0.097	0.69	0.68	0.39
	Left Tilted	0.175	0.398	0.392	0.081	0.57	0.57	0.26
GSM1900 Ant0	Right Cheek	0.182	0.398	0.392	0.070	0.58	0.57	0.25
	Right Tilted	0.130	0.398	0.392	0.075	0.53	0.52	0.21
	Left Cheek	0.030	0.398	0.392	0.097	0.43	0.42	0.13
	Left Tilted	0.029	0.398	0.392	0.081	0.43	0.42	0.11
WCDMA II Ant0	Right Cheek	0.316	0.398	0.392	0.070	0.71	0.71	0.39
	Right Tilted	0.191	0.398	0.392	0.075	0.59	0.58	0.27
	Left Cheek	0.204	0.398	0.392	0.097	0.60	0.60	0.30
	Left Tilted	0.205	0.398	0.392	0.081	0.60	0.60	0.29
WCDMA IV Ant0	Right Cheek	0.292	0.398	0.392	0.070	0.69	0.68	0.36
	Right Tilted	0.148	0.398	0.392	0.075	0.55	0.54	0.22
	Left Cheek	0.216	0.398	0.392	0.097	0.61	0.61	0.31
	Left Tilted	0.132	0.398	0.392	0.081	0.53	0.52	0.21
WCDMA V Ant0	Right Cheek	0.357	0.398	0.392	0.070	0.76	0.75	0.43
	Right Tilted	0.207	0.398	0.392	0.075	0.61	0.60	0.28
	Left Cheek	0.341	0.398	0.392	0.097	0.74	0.73	0.44
	Left Tilted	0.197	0.398	0.392	0.081	0.60	0.59	0.28
LTE Band 2 Ant0	Right Cheek	0.253	0.398	0.392	0.070	0.65	0.65	0.32
	Right Tilted	0.162	0.398	0.392	0.075	0.56	0.55	0.24
	Left Cheek	0.182	0.398	0.392	0.097	0.58	0.57	0.28
	Left Tilted	0.181	0.398	0.392	0.081	0.58	0.57	0.26
LTE Band 7 Ant5	Right Cheek	0.350	0.398	0.392	0.070	0.75	0.74	0.42
	Right Tilted	0.336	0.398	0.392	0.075	0.73	0.73	0.41
	Left Cheek	0.578	0.398	0.392	0.097	0.98	0.97	0.68
	Left Tilted	0.176	0.398	0.392	0.081	0.57	0.57	0.26
LTE Band 12 Ant0	Right Cheek	0.309	0.398	0.392	0.070	0.71	0.70	0.38
	Right Tilted	0.176	0.398	0.392	0.075	0.57	0.57	0.25
	Left Cheek	0.283	0.398	0.392	0.097	0.68	0.68	0.38
	Left Tilted	0.153	0.398	0.392	0.081	0.55	0.55	0.23
LTE Band 13 Ant0	Right Cheek	0.353	0.398	0.392	0.070	0.75	0.75	0.42
	Right Tilted	0.256	0.398	0.392	0.075	0.65	0.65	0.33
	Left Cheek	0.331	0.398	0.392	0.097	0.73	0.72	0.43
	Left Tilted	0.118	0.398	0.392	0.081	0.52	0.51	0.20
LTE Band 26 Ant0	Right Cheek	0.292	0.398	0.392	0.070	0.69	0.68	0.36
	Right Tilted	0.175	0.398	0.392	0.075	0.57	0.57	0.25
	Left Cheek	0.288	0.398	0.392	0.097	0.69	0.68	0.39
	Left Tilted	0.159	0.398	0.392	0.081	0.56	0.55	0.24
LTE Band 66 Ant0	Right Cheek	0.253	0.398	0.392	0.070	0.65	0.65	0.32
	Right Tilted	0.116	0.398	0.392	0.075	0.51	0.51	0.19
	Left Cheek	0.180	0.398	0.392	0.097	0.58	0.57	0.28
	Left Tilted	0.121	0.398	0.392	0.081	0.52	0.51	0.20
LTE Band 41 Ant5	Right Cheek	0.132	0.398	0.392	0.070	0.53	0.52	0.20
	Right Tilted	0.138	0.398	0.392	0.075	0.54	0.53	0.21
	Left Cheek	0.285	0.398	0.392	0.097	0.68	0.68	0.38
	Left Tilted	0.068	0.398	0.392	0.081	0.47	0.46	0.15
LTE Band 42 Ant2	Right Cheek	0.623	0.398	0.392	0.070	1.02	1.02	0.69
	Right Tilted	0.658	0.398	0.392	0.075	1.06	1.05	0.73
	Left Cheek	0.960	0.398	0.392	0.097	1.36	1.35	1.06



FR1 n7 Ant5	Left Tilted	1.147	0.398	0.392	0.081	1.55	1.54	1.23
	Right Cheek	0.300	0.398	0.392	0.070	0.70	0.69	0.37
	Right Tilted	0.296	0.398	0.392	0.075	0.69	0.69	0.37
	Left Cheek	0.527	0.398	0.392	0.097	0.93	0.92	0.62
	Left Tilted	0.150	0.398	0.392	0.081	0.55	0.54	0.23
Part27O FR1 n78-HPUE Ant2	Right Cheek	0.492	0.398	0.392	0.070	0.89	0.88	0.56
	Right Tilted	0.477	0.398	0.392	0.075	0.88	0.87	0.55
	Left Cheek	0.820	0.398	0.392	0.097	1.22	1.21	0.92
	Left Tilted	0.763	0.398	0.392	0.081	1.16	1.16	0.84
Part27Q FR1 n78-HPUE Ant2	Right Cheek	0.734	0.398	0.392	0.070	1.13	1.13	0.80
	Right Tilted	0.706	0.398	0.392	0.075	1.10	1.10	0.78
	Left Cheek	0.908	0.398	0.392	0.097	1.31	1.30	1.01
	Left Tilted	1.125	0.398	0.392	0.081	1.52	1.52	1.21

<5G NR EN-DC Mode>

WWAN Band		Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)
LTE Band 2 Ant0	FR1 n7 Ant 1	Right Cheek	0.253	0.455	0.398	0.392	0.070	1.11	1.10	0.78
		Right Tilted	0.162	0.567	0.398	0.392	0.075	1.13	1.12	0.80
		Left Cheek	0.182	0.162	0.398	0.392	0.097	0.74	0.74	0.44
		Left Tilted	0.181	0.215	0.398	0.392	0.081	0.79	0.79	0.48
LTE Band 2 Ant0	FR1 n66 Ant 1	Right Cheek	0.253	0.427	0.398	0.392	0.070	1.08	1.07	0.75
		Right Tilted	0.162	0.567	0.398	0.392	0.075	1.13	1.12	0.80
		Left Cheek	0.182	0.346	0.398	0.392	0.097	0.93	0.92	0.63
		Left Tilted	0.181	0.450	0.398	0.392	0.081	1.03	1.02	0.71
LTE Band 2 Ant0	Part27O FR1 n78 Ant 2	Right Cheek	0.253	0.279	0.398	0.392	0.070	0.93	0.92	0.60
		Right Tilted	0.162	0.292	0.398	0.392	0.075	0.85	0.85	0.53
		Left Cheek	0.182	0.491	0.398	0.392	0.097	1.07	1.07	0.77
		Left Tilted	0.181	0.541	0.398	0.392	0.081	1.12	1.11	0.80
LTE Band 2 Ant0	Part27Q FR1 n78 Ant 2	Right Cheek	0.253	0.257	0.398	0.392	0.070	0.91	0.90	0.58
		Right Tilted	0.162	0.269	0.398	0.392	0.075	0.83	0.82	0.51
		Left Cheek	0.182	0.414	0.398	0.392	0.097	0.99	0.99	0.69
		Left Tilted	0.181	0.452	0.398	0.392	0.081	1.03	1.03	0.71
LTE Band 5 Ant 0	FR1 n7 Ant 1	Right Cheek	0.292	0.455	0.398	0.392	0.070	1.15	1.14	0.82
		Right Tilted	0.175	0.567	0.398	0.392	0.075	1.14	1.13	0.82
		Left Cheek	0.288	0.162	0.398	0.392	0.097	0.85	0.84	0.55
		Left Tilted	0.159	0.215	0.398	0.392	0.081	0.77	0.77	0.46
LTE Band 5 Ant 0	FR1 n66 Ant 1	Right Cheek	0.292	0.427	0.398	0.392	0.070	1.12	1.11	0.79
		Right Tilted	0.175	0.567	0.398	0.392	0.075	1.14	1.13	0.82
		Left Cheek	0.288	0.346	0.398	0.392	0.097	1.03	1.03	0.73
		Left Tilted	0.159	0.450	0.398	0.392	0.081	1.01	1.00	0.69
LTE Band 5 Ant 0	Part27O FR1 n78 Ant 2	Right Cheek	0.292	0.279	0.398	0.392	0.070	0.97	0.96	0.64
		Right Tilted	0.175	0.292	0.398	0.392	0.075	0.87	0.86	0.54
		Left Cheek	0.288	0.491	0.398	0.392	0.097	1.18	1.17	0.88
		Left Tilted	0.159	0.541	0.398	0.392	0.081	1.10	1.09	0.78
LTE Band 5 Ant 0	Part27Q FR1 n78 Ant 2	Right Cheek	0.292	0.257	0.398	0.392	0.070	0.95	0.94	0.62
		Right Tilted	0.175	0.269	0.398	0.392	0.075	0.84	0.84	0.52
		Left Cheek	0.288	0.414	0.398	0.392	0.097	1.10	1.09	0.80
		Left Tilted	0.159	0.452	0.398	0.392	0.081	1.01	1.00	0.69
LTE Band 7 Ant 1	FR1 n5 Ant 0	Right Cheek	0.468	0.236	0.398	0.392	0.070	1.10	1.10	0.77
		Right Tilted	0.589	0.140	0.398	0.392	0.075	1.13	1.12	0.80
		Left Cheek	0.165	0.252	0.398	0.392	0.097	0.82	0.81	0.51
		Left Tilted	0.218	0.143	0.398	0.392	0.081	0.76	0.75	0.44



LTE Band 7 Ant5	FR1 n66 Ant 1	Right Cheek	0.350	0.427	0.398	0.392	0.070	1.18	1.17	0.85
		Right Tilted	0.336	0.567	0.398	0.392	0.075	1.30	1.30	0.98
		Left Cheek	0.578	0.346	0.398	0.392	0.097	1.32	1.32	1.02
		Left Tilted	0.176	0.450	0.398	0.392	0.081	1.02	1.02	0.71
LTE Band 7 Ant5	Part27O FR1 n78 Ant 2	Right Cheek	0.350	0.279	0.398	0.392	0.070	1.03	1.02	0.70
		Right Tilted	0.336	0.292	0.398	0.392	0.075	1.03	1.02	0.70
		Left Cheek	0.578	0.491	0.398	0.392	0.097	1.47	1.46	1.17
		Left Tilted	0.176	0.541	0.398	0.392	0.081	1.12	1.11	0.80
LTE Band 7 Ant5	Part27Q FR1 n78 Ant 2	Right Cheek	0.350	0.257	0.398	0.392	0.070	1.01	1.00	0.68
		Right Tilted	0.336	0.269	0.398	0.392	0.075	1.00	1.00	0.68
		Left Cheek	0.578	0.414	0.398	0.392	0.097	1.39	1.38	1.09
		Left Tilted	0.176	0.452	0.398	0.392	0.081	1.03	1.02	0.71
LTE Band 41(38) Ant 1	Part27O FR1 n77(78) Ant 2	Right Cheek	0.477	0.279	0.398	0.392	0.070	1.15	1.15	0.83
		Right Tilted	0.567	0.292	0.398	0.392	0.075	1.26	1.25	0.93
		Left Cheek	0.151	0.491	0.398	0.392	0.097	1.04	1.03	0.74
		Left Tilted	0.198	0.541	0.398	0.392	0.081	1.14	1.13	0.82
LTE Band 41(38) Ant 1	Part27Q FR1 n77(78) Ant 2	Right Cheek	0.477	0.257	0.398	0.392	0.070	1.13	1.13	0.80
		Right Tilted	0.567	0.269	0.398	0.392	0.075	1.23	1.23	0.91
		Left Cheek	0.151	0.414	0.398	0.392	0.097	0.96	0.96	0.66
		Left Tilted	0.198	0.452	0.398	0.392	0.081	1.05	1.04	0.73
LTE Band 66 Ant 1	FR1 n2 Ant 0	Right Cheek	0.378	0.150	0.398	0.392	0.070	0.93	0.92	0.60
		Right Tilted	0.565	0.091	0.398	0.392	0.075	1.05	1.05	0.73
		Left Cheek	0.300	0.099	0.398	0.392	0.097	0.80	0.79	0.50
		Left Tilted	0.395	0.093	0.398	0.392	0.081	0.89	0.88	0.57
LTE Band 66 Ant 1	FR1 n5 Ant 0	Right Cheek	0.378	0.236	0.398	0.392	0.070	1.01	1.01	0.68
		Right Tilted	0.565	0.140	0.398	0.392	0.075	1.10	1.10	0.78
		Left Cheek	0.300	0.252	0.398	0.392	0.097	0.95	0.94	0.65
		Left Tilted	0.395	0.143	0.398	0.392	0.081	0.94	0.93	0.62
LTE Band 66 Ant 1	FR1 n7 Ant 1	Right Cheek	0.378	0.455	0.398	0.392	0.070	1.23	1.23	0.90
		Right Tilted	0.565	0.567	0.398	0.392	0.075	1.53	1.52	1.21
		Left Cheek	0.300	0.162	0.398	0.392	0.097	0.86	0.85	0.56
		Left Tilted	0.395	0.215	0.398	0.392	0.081	1.01	1.00	0.69
LTE Band 66 Ant 1	Part27O FR1 n78 Ant 2	Right Cheek	0.378	0.279	0.398	0.392	0.070	1.06	1.05	0.73
		Right Tilted	0.565	0.292	0.398	0.392	0.075	1.26	1.25	0.93
		Left Cheek	0.300	0.491	0.398	0.392	0.097	1.19	1.18	0.89
		Left Tilted	0.395	0.541	0.398	0.392	0.081	1.33	1.33	1.02
LTE Band 66 Ant 1	Part27Q FR1 n78 Ant 2	Right Cheek	0.378	0.257	0.398	0.392	0.070	1.03	1.03	0.71
		Right Tilted	0.565	0.269	0.398	0.392	0.075	1.23	1.23	0.91
		Left Cheek	0.300	0.414	0.398	0.392	0.097	1.11	1.11	0.81
		Left Tilted	0.395	0.452	0.398	0.392	0.081	1.25	1.24	0.93



<Inter UL CA Mode>

WWAN Band		Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)
LTE Band 4 Ant 1	LTE Band 7 Ant5	Right Cheek	0.378	0.350	0.398	0.392	0.070	1.13	1.12	0.80
		Right Tilted	0.565	0.336	0.398	0.392	0.075	1.30	1.29	0.98
		Left Cheek	0.300	0.578	0.398	0.392	0.097	1.28	1.27	0.98
		Left Tilted	0.395	0.176	0.398	0.392	0.081	0.97	0.96	0.65
LTE Band 2 Ant0	LTE Band 4 Ant 1	Right Cheek	0.253	0.378	0.398	0.392	0.070	1.03	1.02	0.70
		Right Tilted	0.162	0.565	0.398	0.392	0.075	1.13	1.12	0.80
		Left Cheek	0.182	0.300	0.398	0.392	0.097	0.88	0.87	0.58
		Left Tilted	0.181	0.395	0.398	0.392	0.081	0.97	0.97	0.66
LTE Band 4 Ant 1	LTE Band 5 Ant 0	Right Cheek	0.378	0.292	0.398	0.392	0.070	1.07	1.06	0.74
		Right Tilted	0.565	0.175	0.398	0.392	0.075	1.14	1.13	0.82
		Left Cheek	0.300	0.288	0.398	0.392	0.097	0.99	0.98	0.69
		Left Tilted	0.395	0.159	0.398	0.392	0.081	0.95	0.95	0.64

<SRS Mode>

FR1 Band	Exposure Position	1	2	3	4	1+2	1+3	1+4
		FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)
Part270 FR1 n78-HPUE Ant3	Right Cheek	0.061	0.398	0.392	0.070	0.46	0.45	0.13
	Right Tilted	0.033	0.398	0.392	0.075	0.43	0.43	0.11
	Left Cheek	0.040	0.398	0.392	0.097	0.44	0.43	0.14
	Left Tilted	0.021	0.398	0.392	0.081	0.42	0.41	0.10
Part27Q FR1 n78-HPUE Ant3	Right Cheek	0.001	0.398	0.392	0.070	0.40	0.39	0.07
	Right Tilted	0.001	0.398	0.392	0.075	0.40	0.39	0.08
	Left Cheek	0.001	0.398	0.392	0.097	0.40	0.39	0.10
	Left Tilted	0.000	0.398	0.392	0.081	0.40	0.39	0.08
Part270 FR1 n78-HPUE Ant6	Right Cheek	0.261	0.398	0.392	0.070	0.66	0.65	0.33
	Right Tilted	0.122	0.398	0.392	0.075	0.52	0.51	0.20
	Left Cheek	0.115	0.398	0.392	0.097	0.51	0.51	0.21
	Left Tilted	0.061	0.398	0.392	0.081	0.46	0.45	0.14
Part27Q FR1 n78-HPUE Ant6	Right Cheek	0.053	0.398	0.392	0.070	0.45	0.45	0.12
	Right Tilted	0.028	0.398	0.392	0.075	0.43	0.42	0.10
	Left Cheek	0.016	0.398	0.392	0.097	0.41	0.41	0.11
	Left Tilted	0.017	0.398	0.392	0.081	0.42	0.41	0.10
Part27Q FR1 n78-HPUE Ant7	Right Cheek	0.027	0.398	0.392	0.070	0.43	0.42	0.10
	Right Tilted	0.000	0.398	0.392	0.075	0.40	0.39	0.08
	Left Cheek	0.034	0.398	0.392	0.097	0.43	0.43	0.13
	Left Tilted	0.025	0.398	0.392	0.081	0.42	0.42	0.11
Part270 FR1 n78-HPUE Ant7	Right Cheek	0.042	0.398	0.392	0.070	0.44	0.43	0.11
	Right Tilted	0.031	0.398	0.392	0.075	0.43	0.42	0.11
	Left Cheek	0.065	0.398	0.392	0.097	0.46	0.46	0.16
	Left Tilted	0.057	0.398	0.392	0.081	0.46	0.45	0.14



16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3	1+4	Case No
		WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	
GSM850 Ant0	Front	0.689	0.219	0.168	0.123	0.91	0.86	0.81	
	Back	1.342	0.382	0.278	0.123	1.72	1.62	1.47	1&2
	Left side	0.522	0.014	0.020	0.123	0.54	0.54	0.65	
	Right side	0.790	0.318	0.110	0.123	1.11	0.90	0.91	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.923			0.123	0.92	0.92	1.05	
GSM1900 Ant0	Front	0.566	0.219	0.168	0.123	0.79	0.73	0.69	
	Back	1.398	0.382	0.278	0.123	1.78	1.68	1.52	3&4
	Left side	0.026	0.014	0.020	0.123	0.04	0.05	0.15	
	Right side	0.103	0.318	0.110	0.123	0.42	0.21	0.23	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	1.135			0.123	1.14	1.14	1.26	
WCDMA II Ant0	Front	0.858	0.219	0.168	0.123	1.08	1.03	0.98	
	Back	1.230	0.382	0.278	0.123	1.61	1.51	1.35	5
	Left side	0.089	0.014	0.020	0.123	0.10	0.11	0.21	
	Right side	0.097	0.318	0.110	0.123	0.42	0.21	0.22	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	1.219			0.123	1.22	1.22	1.34	
WCDMA IV Ant0	Front	0.525	0.219	0.168	0.123	0.74	0.69	0.65	
	Back	1.224	0.382	0.278	0.123	1.61	1.50	1.35	6
	Left side	0.088	0.014	0.020	0.123	0.10	0.11	0.21	
	Right side	0.095	0.318	0.110	0.123	0.41	0.21	0.22	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	1.222			0.123	1.22	1.22	1.35	
WCDMA V Ant0	Front	0.571	0.219	0.168	0.123	0.79	0.74	0.69	
	Back	1.125	0.382	0.278	0.123	1.51	1.40	1.25	
	Left side	0.381	0.014	0.020	0.123	0.40	0.40	0.50	
	Right side	0.415	0.318	0.110	0.123	0.73	0.53	0.54	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.741			0.123	0.74	0.74	0.86	
LTE Band 2 Ant0	Front	0.497	0.219	0.168	0.123	0.72	0.67	0.62	
	Back	1.163	0.382	0.278	0.123	1.55	1.44	1.29	
	Left side	0.016	0.014	0.020	0.123	0.03	0.04	0.14	
	Right side	0.093	0.318	0.110	0.123	0.41	0.20	0.22	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	1.301			0.123	1.30	1.30	1.42	
LTE Band 7 Ant5	Front	0.881	0.219	0.168	0.123	1.10	1.05	1.00	
	Back	1.178	0.382	0.278	0.123	1.56	1.46	1.30	
	Left side	0.519	0.014	0.020	0.123	0.53	0.54	0.64	
	Right side	0.150	0.318	0.110	0.123	0.47	0.26	0.27	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.541			0.123	0.54	0.54	0.66	
LTE Band 12 Ant0	Front	0.359	0.219	0.168	0.123	0.58	0.53	0.48	
	Back	0.927	0.382	0.278	0.123	1.31	1.21	1.05	
	Left side	0.329	0.014	0.020	0.123	0.34	0.35	0.45	
	Right side	0.609	0.318	0.110	0.123	0.93	0.72	0.73	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.335			0.123	0.34	0.34	0.46	
LTE Band 13 Ant0	Front	0.483	0.219	0.168	0.123	0.70	0.65	0.61	
	Back	1.030	0.382	0.278	0.123	1.41	1.31	1.15	



	Left side	0.424	0.014	0.020	0.123	0.44	0.44	0.55	
	Right side	0.658	0.318	0.110	0.123	0.98	0.77	0.78	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.494			0.123	0.49	0.49	0.62	
LTE Band 26 Ant0	Front	0.424	0.219	0.168	0.123	0.64	0.59	0.55	
	Back	0.940	0.382	0.278	0.123	1.32	1.22	1.06	
	Left side	0.224	0.014	0.020	0.123	0.24	0.24	0.35	
	Right side	0.336	0.318	0.110	0.123	0.65	0.45	0.46	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.393			0.123	0.39	0.39	0.52	
LTE Band 66 Ant0	Front	0.456	0.219	0.168	0.123	0.68	0.62	0.58	
	Back	1.197	0.382	0.278	0.123	1.58	1.48	1.32	
	Left side	0.016	0.014	0.020	0.123	0.03	0.04	0.14	
	Right side	0.084	0.318	0.110	0.123	0.40	0.19	0.21	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	1.241			0.123	1.24	1.24	1.36	
LTE Band 41 Ant5	Front	0.544	0.219	0.168	0.123	0.76	0.71	0.67	
	Back	1.217	0.382	0.278	0.123	1.60	1.50	1.34	7
	Left side	0.400	0.014	0.020	0.123	0.41	0.42	0.52	
	Right side	0.123	0.318	0.110	0.123	0.44	0.23	0.25	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.442			0.123	0.44	0.44	0.57	
LTE Band 42 Ant2	Front	0.688	0.219	0.168	0.123	0.91	0.86	0.81	
	Back	1.111	0.382	0.278	0.123	1.49	1.39	1.23	
	Left side	0.045	0.014	0.020	0.123	0.06	0.07	0.17	
	Right side	0.094	0.318	0.110	0.123	0.41	0.20	0.22	
	Top side	1.110	0.243	0.398	0.123	1.35	1.51	1.23	
	Bottom side				0.123	0.00	0.00	0.12	
FR1 n7 Ant5	Front	0.993	0.219	0.168	0.123	1.21	1.16	1.12	
	Back	1.367	0.382	0.278	0.123	1.75	1.65	1.49	8&9
	Left side	0.610	0.014	0.020	0.123	0.62	0.63	0.73	
	Right side	0.165	0.318	0.110	0.123	0.48	0.28	0.29	
	Top side		0.243	0.398	0.123	0.24	0.40	0.12	
	Bottom side	0.662			0.123	0.66	0.66	0.79	
Part27Q FR1 n78-HPUE Ant 2	Front	0.707	0.219	0.168	0.123	0.93	0.88	0.83	
	Back	1.182	0.382	0.278	0.123	1.56	1.46	1.31	
	Left side	0.039	0.014	0.020	0.123	0.05	0.06	0.16	
	Right side	0.124	0.318	0.110	0.123	0.44	0.23	0.25	
	Top side	0.820	0.243	0.398	0.123	1.06	1.22	0.94	
	Bottom side				0.123	0.00	0.00	0.12	
Part27Q FR1 n78-HPUE Ant2	Front	0.805	0.219	0.168	0.123	1.02	0.97	0.93	
	Back	1.141	0.382	0.278	0.123	1.52	1.42	1.26	
	Left side	0.080	0.014	0.020	0.123	0.09	0.10	0.20	
	Right side	0.205	0.318	0.110	0.123	0.52	0.32	0.33	
	Top side	1.156	0.243	0.398	0.123	1.40	1.55	1.28	
	Bottom side				0.123	0.00	0.00	0.12	



<5G NR EN-DC Mode>

WWAN Band		Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n7 Ant 1	Front	0.215	0.189	0.219	0.168	0.123	0.62	0.57	0.53
		Back	0.504	0.544	0.382	0.278	0.123	1.43	1.33	1.17
		Left side	0.007	0.077	0.014	0.020	0.123	0.10	0.10	0.21
		Right side	0.043	0.001	0.318	0.110	0.123	0.36	0.15	0.17
		Top side		0.499	0.243	0.398	0.123	0.74	0.90	0.62
		Bottom side	0.569				0.123	0.57	0.57	0.69
LTE Band 2 Ant 0	FR1 n66 Ant 1	Front	0.215	0.251	0.219	0.168	0.123	0.69	0.63	0.59
		Back	0.504	0.526	0.382	0.278	0.123	1.41	1.31	1.15
		Left side	0.007	0.038	0.014	0.020	0.123	0.06	0.07	0.17
		Right side	0.043	0.020	0.318	0.110	0.123	0.38	0.17	0.19
		Top side		0.571	0.243	0.398	0.123	0.81	0.97	0.69
		Bottom side	0.569				0.123	0.57	0.57	0.69
LTE Band 2 Ant 0	Part27Q FR1 n78 Ant 2	Front	0.215	0.290	0.219	0.168	0.123	0.72	0.67	0.63
		Back	0.504	0.535	0.382	0.278	0.123	1.42	1.32	1.16
		Left side	0.007	0.017	0.014	0.020	0.123	0.04	0.04	0.15
		Right side	0.043	0.133	0.318	0.110	0.123	0.49	0.29	0.30
		Top side		0.553	0.243	0.398	0.123	0.80	0.95	0.68
		Bottom side	0.569				0.123	0.57	0.57	0.69
LTE Band 2 Ant 0	Part27Q FR1 n78 Ant 2	Front	0.215	0.373	0.219	0.168	0.123	0.81	0.76	0.71
		Back	0.504	0.549	0.382	0.278	0.123	1.44	1.33	1.18
		Left side	0.007	0.027	0.014	0.020	0.123	0.05	0.05	0.16
		Right side	0.043	0.073	0.318	0.110	0.123	0.43	0.23	0.24
		Top side		0.506	0.243	0.398	0.123	0.75	0.90	0.63
		Bottom side	0.569				0.123	0.57	0.57	0.69
LTE Band 66 Ant 1	FR1 n2 Ant 0	Front	0.226	0.211	0.219	0.168	0.123	0.66	0.61	0.56
		Back	0.537	0.537	0.382	0.278	0.123	1.46	1.35	1.20
		Left side	0.029	0.012	0.014	0.020	0.123	0.06	0.06	0.16
		Right side	0.016	0.037	0.318	0.110	0.123	0.37	0.16	0.18
		Top side	0.537		0.243	0.398	0.123	0.78	0.94	0.66
		Bottom side		0.581			0.123	0.58	0.58	0.70
LTE Band 66 Ant 1	FR1 n5 Ant 0	Front	0.226	0.305	0.219	0.168	0.123	0.75	0.70	0.65
		Back	0.537	0.594	0.382	0.278	0.123	1.51	1.41	1.25
		Left side	0.029	0.282	0.014	0.020	0.123	0.33	0.33	0.43
		Right side	0.016	0.390	0.318	0.110	0.123	0.72	0.52	0.53
		Top side	0.537		0.243	0.398	0.123	0.78	0.94	0.66
		Bottom side		0.581			0.123	0.58	0.58	0.70
LTE Band 66 Ant 0	FR1 n7 Ant 1	Front	0.218	0.189	0.219	0.168	0.123	0.63	0.58	0.53
		Back	0.504	0.544	0.382	0.278	0.123	1.43	1.33	1.17
		Left side	0.007	0.077	0.014	0.020	0.123	0.10	0.10	0.21
		Right side	0.037	0.001	0.318	0.110	0.123	0.36	0.15	0.16
		Top side		0.499	0.243	0.398	0.123	0.74	0.90	0.62
		Bottom side	0.564				0.123	0.56	0.56	0.69
LTE Band 66 Ant 0	Part27Q FR1 n77 Ant 2	Front	0.218	0.290	0.219	0.168	0.123	0.73	0.68	0.63
		Back	0.504	0.535	0.382	0.278	0.123	1.42	1.32	1.16
		Left side	0.007	0.017	0.014	0.020	0.123	0.04	0.04	0.15
		Right side	0.037	0.133	0.318	0.110	0.123	0.49	0.28	0.29
		Top side		0.553	0.243	0.398	0.123	0.80	0.95	0.68
		Bottom side	0.564				0.123	0.56	0.56	0.69
LTE Band 66 Ant 0	Part27Q FR1 n77 Ant 2	Front	0.218	0.373	0.219	0.168	0.123	0.81	0.76	0.71
		Back	0.504	0.566	0.382	0.278	0.123	1.45	1.35	1.19
		Left side	0.007	0.027	0.014	0.020	0.123	0.05	0.05	0.16
		Right side	0.037	0.073	0.318	0.110	0.123	0.43	0.22	0.23



		Top side		0.506	0.243	0.398	0.123	0.75	0.90	0.63
		Bottom side	0.564				0.123	0.56	0.56	0.69
LTE Band 5 Ant 0	FR1 n7 Ant 1	Front	0.258	0.189	0.219	0.168	0.123	0.67	0.62	0.57
		Back	0.569	0.544	0.382	0.278	0.123	1.50	1.39	1.24
		Left side	0.275	0.077	0.014	0.020	0.123	0.37	0.37	0.48
		Right side	0.414	0.001	0.318	0.110	0.123	0.73	0.53	0.54
		Top side		0.499	0.243	0.398	0.123	0.74	0.90	0.62
		Bottom side	0.484				0.123	0.48	0.48	0.61
LTE Band 5 Ant 0	FR1 n66 Ant 1	Front	0.258	0.251	0.219	0.168	0.123	0.73	0.68	0.63
		Back	0.569	0.526	0.382	0.278	0.123	1.48	1.37	1.22
		Left side	0.275	0.038	0.014	0.020	0.123	0.33	0.33	0.44
		Right side	0.414	0.020	0.318	0.110	0.123	0.75	0.54	0.56
		Top side		0.571	0.243	0.398	0.123	0.81	0.97	0.69
		Bottom side	0.484				0.123	0.48	0.48	0.61
LTE Band 5 Ant 0	Part270 FR1 n77 Ant 2	Front	0.258	0.290	0.219	0.168	0.123	0.77	0.72	0.67
		Back	0.569	0.535	0.382	0.278	0.123	1.49	1.38	1.23
		Left side	0.275	0.017	0.014	0.020	0.123	0.31	0.31	0.42
		Right side	0.414	0.133	0.318	0.110	0.123	0.87	0.66	0.67
		Top side		0.553	0.243	0.398	0.123	0.80	0.95	0.68
		Bottom side	0.484				0.123	0.48	0.48	0.61
LTE Band 5 Ant 0	Part27Q FR1 n77 Ant 2	Front	0.258	0.373	0.219	0.168	0.123	0.85	0.80	0.75
		Back	0.569	0.566	0.382	0.278	0.123	1.52	1.41	1.26
		Left side	0.275	0.027	0.014	0.020	0.123	0.32	0.32	0.43
		Right side	0.414	0.073	0.318	0.110	0.123	0.81	0.60	0.61
		Top side		0.506	0.243	0.398	0.123	0.75	0.90	0.63
		Bottom side	0.484				0.123	0.48	0.48	0.61
LTE Band 7 Ant 1	FR1 n5 Ant 0	Front	0.148	0.305	0.219	0.168	0.123	0.67	0.62	0.58
		Back	0.574	0.594	0.382	0.278	0.123	1.55	1.45	1.29
		Left side	0.057	0.282	0.014	0.020	0.123	0.35	0.36	0.46
		Right side	0.005	0.390	0.318	0.110	0.123	0.71	0.51	0.52
		Top side	0.513		0.243	0.398	0.123	0.76	0.91	0.64
		Bottom side		0.581			0.123	0.58	0.58	0.70
LTE Band 7 Ant 5	FR1 n66 Ant 1	Front	0.323	0.251	0.219	0.168	0.123	0.79	0.74	0.70
		Back	0.447	0.526	0.382	0.278	0.123	1.36	1.25	1.10
		Left side	0.206	0.038	0.014	0.020	0.123	0.26	0.26	0.37
		Right side	0.059	0.020	0.318	0.110	0.123	0.40	0.19	0.20
		Top side		0.571	0.243	0.398	0.123	0.81	0.97	0.69
		Bottom side	0.214				0.123	0.21	0.21	0.34
LTE Band 7 Ant 5	Part270 FR1 n77 Ant 2	Front	0.323	0.290	0.219	0.168	0.123	0.83	0.78	0.74
		Back	0.447	0.535	0.382	0.278	0.123	1.36	1.26	1.11
		Left side	0.206	0.017	0.014	0.020	0.123	0.24	0.24	0.35
		Right side	0.059	0.133	0.318	0.110	0.123	0.51	0.30	0.32
		Top side		0.553	0.243	0.398	0.123	0.80	0.95	0.68
		Bottom side	0.214				0.123	0.21	0.21	0.34
LTE Band 7 Ant 5	Part27Q FR1 n77 Ant 2	Front	0.190	0.373	0.219	0.168	0.123	0.78	0.73	0.69
		Back	0.544	0.566	0.382	0.278	0.123	1.49	1.39	1.23
		Left side	0.087	0.027	0.014	0.020	0.123	0.13	0.13	0.24
		Right side	0.001	0.073	0.318	0.110	0.123	0.39	0.18	0.20
		Top side	0.557	0.506	0.243	0.398	0.123	1.31	1.46	1.19
		Bottom side	0.214				0.123	0.21	0.21	0.34
LTE Band 41 Ant 1	Part270 FR1 n77 Ant 2	Front	0.190	0.290	0.219	0.168	0.123	0.70	0.65	0.60
		Back	0.544	0.535	0.382	0.278	0.123	1.46	1.36	1.20
		Left side	0.087	0.017	0.014	0.020	0.123	0.12	0.12	0.23
		Right side	0.001	0.133	0.318	0.110	0.123	0.45	0.24	0.26
		Top side	0.557	0.553	0.243	0.398	0.123	1.35	1.51	1.23
		Bottom side					0.123	0.00	0.00	0.12



LTE Band 41 Ant 1	Part27Q FR1 n77 Ant 2	Front	0.190	0.373	0.219	0.168	0.123	0.78	0.73	0.69
		Back	0.544	0.566	0.382	0.278	0.123	1.49	1.39	1.23
		Left side	0.087	0.027	0.014	0.020	0.123	0.13	0.13	0.24
		Right side	0.001	0.073	0.318	0.110	0.123	0.39	0.18	0.20
		Top side	0.557	0.506	0.243	0.398	0.123	1.31	1.46	1.19
		Bottom side					0.123	0.00	0.00	0.12

<Inter UL CA Mode>

WWAN Band	Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5	
		WWAN	WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)	
LTE Band 4 Ant 1	LTE Band 7 Ant 5	Front	0.226	0.323	0.219	0.168	0.123	0.77	0.72	0.67
		Back	0.537	0.447	0.382	0.278	0.123	1.37	1.26	1.11
		Left side	0.029	0.206	0.014	0.020	0.123	0.25	0.26	0.36
		Right side	0.016	0.059	0.318	0.110	0.123	0.39	0.19	0.20
		Top side	0.537		0.243	0.398	0.123	0.78	0.94	0.66
		Bottom side		0.214			0.123	0.21	0.21	0.34
LTE Band 2 Ant 0	LTE Band 4 Ant 1	Front	0.215	0.226	0.219	0.168	0.123	0.66	0.61	0.56
		Back	0.504	0.537	0.382	0.278	0.123	1.42	1.32	1.16
		Left side	0.007	0.029	0.014	0.020	0.123	0.05	0.06	0.16
		Right side	0.043	0.016	0.318	0.110	0.123	0.38	0.17	0.18
		Top side		0.537	0.243	0.398	0.123	0.78	0.94	0.66
		Bottom side	0.569				0.123	0.57	0.57	0.69
LTE Band 4 Ant 1	LTE Band 5 Ant 0	Front	0.226	0.258	0.219	0.168	0.123	0.70	0.65	0.61
		Back	0.537	0.569	0.382	0.278	0.123	1.49	1.38	1.23
		Left side	0.029	0.275	0.014	0.020	0.123	0.32	0.32	0.43
		Right side	0.016	0.414	0.318	0.110	0.123	0.75	0.54	0.55
		Top side	0.537		0.243	0.398	0.123	0.78	0.94	0.66
		Bottom side		0.484			0.123	0.48	0.48	0.61



<SRS Mode>

FR1 Band	Exposure Position	1	2	3	4	1+2	1+3	1+4
		FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)
Part27Q FR1 n78-HPUE Ant 3	Front	0.016	0.382	0.398	0.123	0.40	0.40	0.14
	Back	0.241	0.382	0.398	0.123	0.62	0.62	0.36
	Left side	0.096	0.382	0.398	0.123	0.48	0.48	0.22
	Right side	0.023	0.382	0.398	0.123	0.41	0.41	0.15
	Top side	0.027	0.382	0.398	0.123	0.41	0.41	0.15
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12
Part27O FR1 n78-HPUE Ant3	Front	0.065	0.382	0.398	0.123	0.45	0.45	0.19
	Back	0.524	0.382	0.398	0.123	0.91	0.91	0.65
	Left side	0.234	0.382	0.398	0.123	0.62	0.62	0.36
	Right side	0.019	0.382	0.398	0.123	0.40	0.40	0.14
	Top side	0.063	0.382	0.398	0.123	0.45	0.45	0.19
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12
Part27O FR1 n78-HPUE Ant6	Front	0.258	0.382	0.398	0.123	0.64	0.64	0.38
	Back	0.369	0.382	0.398	0.123	0.75	0.75	0.49
	Left side	0.375	0.382	0.398	0.123	0.76	0.76	0.50
	Right side	0.048	0.382	0.398	0.123	0.43	0.43	0.17
	Top side	0.292	0.382	0.398	0.123	0.67	0.67	0.42
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12
Part27Q FR1 n78-HPUE Ant6	Front	0.315	0.382	0.398	0.123	0.70	0.70	0.44
	Back	0.429	0.382	0.398	0.123	0.81	0.81	0.55
	Left side	0.320	0.382	0.398	0.123	0.70	0.70	0.44
	Right side	0.037	0.382	0.398	0.123	0.42	0.42	0.16
	Top side	0.251	0.382	0.398	0.123	0.63	0.63	0.37
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12
Part27O FR1 n78-HPUE Ant7	Front	0.061	0.382	0.398	0.123	0.44	0.44	0.18
	Back	1.136	0.382	0.398	0.123	1.52	1.52	1.26
	Left side	0.021	0.382	0.398	0.123	0.40	0.40	0.14
	Right side	0.242	0.382	0.398	0.123	0.62	0.62	0.37
	Top side	0.067	0.382	0.398	0.123	0.45	0.45	0.19
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12
Part27O FR1 n78-HPUE Ant7	Front	0.027	0.382	0.398	0.123	0.41	0.41	0.15
	Back	0.534	0.382	0.398	0.123	0.92	0.92	0.66
	Left side	0.015	0.382	0.398	0.123	0.40	0.40	0.14
	Right side	0.115	0.382	0.398	0.123	0.50	0.50	0.24
	Top side	0.041	0.382	0.398	0.123	0.42	0.42	0.16
	Bottom side	0.000	0.382	0.398	0.123	0.38	0.38	0.12



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2	1+3	1+4	Case No
		WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	
GSM850 Ant0	Front	0.735	0.382	0.387	0.123	1.12	1.12	0.86	
	Back	1.430	0.382	0.387	0.123	1.81	1.82	1.55	1&10
GSM1900 Ant0	Front	0.566	0.382	0.387	0.123	0.95	0.95	0.69	
	Back	1.398	0.382	0.387	0.123	1.78	1.79	1.52	3&11
WCDMA II Ant0	Front	0.858	0.382	0.387	0.123	1.24	1.25	0.98	
	Back	1.230	0.382	0.387	0.123	1.61	1.62	1.35	5&12
WCDMA IV Ant0	Front	0.525	0.382	0.387	0.123	0.91	0.91	0.65	
	Back	1.224	0.382	0.387	0.123	1.61	1.61	1.35	6&13
WCDMA V Ant0	Front	0.571	0.382	0.387	0.123	0.95	0.96	0.69	
	Back	1.125	0.382	0.387	0.123	1.51	1.51	1.25	
LTE Band 2 Ant0	Front	0.497	0.382	0.387	0.123	0.88	0.88	0.62	
	Back	1.163	0.382	0.387	0.123	1.55	1.55	1.29	
LTE Band 7 Ant5	Front	0.881	0.382	0.387	0.123	1.26	1.27	1.00	
	Back	1.178	0.382	0.387	0.123	1.56	1.57	1.30	
LTE Band 12 Ant0	Front	0.359	0.382	0.387	0.123	0.74	0.75	0.48	
	Back	0.927	0.382	0.387	0.123	1.31	1.31	1.05	
LTE Band 13 Ant0	Front	0.483	0.382	0.387	0.123	0.87	0.87	0.61	
	Back	1.030	0.382	0.387	0.123	1.41	1.42	1.15	
LTE Band 66 Ant0	Front	0.456	0.382	0.387	0.123	0.84	0.84	0.58	
	Back	1.197	0.382	0.387	0.123	1.58	1.58	1.32	
LTE Band 41 Ant5	Front	0.544	0.382	0.387	0.123	0.93	0.93	0.67	
	Back	1.217	0.382	0.387	0.123	1.60	1.60	1.34	7&14
LTE Band 42 Ant2	Front	0.688	0.382	0.387	0.123	1.07	1.08	0.81	
	Back	1.099	0.382	0.387	0.123	1.48	1.49	1.22	
FR1 n7 Ant5	Front	0.993	0.382	0.387	0.123	1.38	1.38	1.12	
	Back	1.367	0.382	0.387	0.123	1.75	1.75	1.49	8&15
Part27O FR1 n78-HPUE Ant2	Front	0.707	0.382	0.387	0.123	1.09	1.09	0.83	
	Back	1.182	0.382	0.387	0.123	1.56	1.57	1.31	
Part27Q FR1 n78-HPUE Ant2	Front	0.805	0.382	0.387	0.123	1.19	1.19	0.93	
	Back	1.141	0.382	0.387	0.123	1.52	1.53	1.26	



<5G NR EN-DC Mode>

WWAN Band		Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n7 Ant 1	Front	0.215	0.189	0.382	0.387	0.123	0.79	0.79	0.53
		Back	0.504	0.544	0.382	0.387	0.123	1.43	1.44	1.17
LTE Band 2 Ant 0	FR1 n66 Ant 1	Front	0.215	0.251	0.382	0.387	0.123	0.85	0.85	0.59
		Back	0.504	0.475	0.382	0.387	0.123	1.36	1.37	1.10
LTE Band 2 Ant 0	Par270 FR1 n77 Ant 2	Front	0.215	0.318	0.382	0.387	0.123	0.92	0.92	0.66
		Back	0.504	0.535	0.382	0.387	0.123	1.42	1.43	1.16
LTE Band 66 Ant 0	Par270 FR1 n77 Ant 2	Front	0.218	0.318	0.382	0.387	0.123	0.92	0.92	0.66
		Back	0.504	0.535	0.382	0.387	0.123	1.42	1.43	1.16
LTE Band 5 Ant 0	FR1 n7 Ant 1	Front	0.258	0.189	0.382	0.387	0.123	0.83	0.83	0.57
		Back	0.569	0.544	0.382	0.387	0.123	1.50	1.50	1.24
LTE Band 5 Ant 0	FR1 n66 Ant 1	Front	0.258	0.251	0.382	0.387	0.123	0.89	0.90	0.63
		Back	0.569	0.475	0.382	0.387	0.123	1.43	1.43	1.17
LTE Band 5 Ant 0	Par270 FR1 n77 Ant 2	Front	0.258	0.318	0.382	0.387	0.123	0.96	0.96	0.70
		Back	0.569	0.535	0.382	0.387	0.123	1.49	1.49	1.23
LTE Band 7 Ant 1	FR1 n5 Ant 0	Front	0.148	0.305	0.382	0.387	0.123	0.84	0.84	0.58
		Back	0.574	0.594	0.382	0.387	0.123	1.55	1.56	1.29
LTE Band 7 Ant 5	FR1 n66 Ant 1	Front	0.323	0.251	0.382	0.387	0.123	0.96	0.96	0.70
		Back	0.447	0.475	0.382	0.387	0.123	1.30	1.31	1.05
LTE Band 7 Ant 5	Par270 FR1 n77 Ant 2	Front	0.323	0.318	0.382	0.387	0.123	1.02	1.03	0.76
		Back	0.447	0.535	0.382	0.387	0.123	1.36	1.37	1.11
LTE Band 41 Ant 1	Par270 FR1 n77 Ant 2	Front	0.190	0.318	0.382	0.387	0.123	0.89	0.90	0.63
		Back	0.544	0.535	0.382	0.387	0.123	1.46	1.47	1.20
LTE Band 66 Ant 1	FR1 n2 Ant 0	Front	0.226	0.211	0.382	0.387	0.123	0.82	0.82	0.56
		Back	0.537	0.537	0.382	0.387	0.123	1.46	1.46	1.20
LTE Band 66 Ant 1	FR1 n5 Ant 0	Front	0.226	0.305	0.382	0.387	0.123	0.91	0.92	0.65
		Back	0.537	0.594	0.382	0.387	0.123	1.51	1.52	1.25
LTE Band 66 Ant 0	FR1 n7 Ant 1	Front	0.218	0.189	0.382	0.387	0.123	0.79	0.79	0.53
		Back	0.504	0.544	0.382	0.387	0.123	1.43	1.44	1.17
LTE Band 66 Ant 0	Par270 FR1 n77 Ant 2	Front	0.218	0.318	0.382	0.387	0.123	0.92	0.92	0.66
		Back	0.504	0.535	0.382	0.387	0.123	1.42	1.43	1.16



<Inter UL CA Mode>

WWAN Band		Exposure Position	1	2	3	4	5	1+2+3	1+2+4	1+2+5
			WWAN	WWAN	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)	1g SAR (W/kg)
LTE Band 4 Ant 1	LTE Band 7 Ant 5	Front	0.226	0.323	0.382	0.387	0.123	0.93	0.94	0.67
		Back	0.537	0.447	0.382	0.387	0.123	1.37	1.37	1.11
LTE Band 2 Ant 0	LTE Band 4 Ant 1	Front	0.215	0.226	0.382	0.387	0.123	0.82	0.83	0.56
		Back	0.504	0.537	0.382	0.387	0.123	1.42	1.43	1.16
LTE Band 4 Ant 1	LTE Band 5 Ant 0	Front	0.226	0.258	0.382	0.387	0.123	0.87	0.87	0.61
		Back	0.537	0.569	0.382	0.387	0.123	1.49	1.49	1.23

<SRS Mode>

FR1 Band	Exposure Position	1	2	3	9	1+2	1+3	1+9
		FR1	WLAN2.4GHz Ant 8	WLAN5GHz Ant 8	Bluetooth Ant 8	Summed	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)
Part27O FR1 n78-HPUE Ant3	Front	0.065	0.382	0.387	0.123	0.45	0.45	0.19
	Back	0.524	0.382	0.387	0.123	0.91	0.91	0.65
Part27Q FR1 n78-HPUE Ant3	Front	0.016	0.382	0.387	0.123	0.40	0.40	0.14
	Back	0.241	0.382	0.387	0.123	0.62	0.63	0.36
Part27O FR1 n78-HPUE Ant6	Front	0.258	0.382	0.387	0.123	0.64	0.65	0.38
	Back	0.369	0.382	0.387	0.123	0.75	0.76	0.49
Part27Q FR1 n78-HPUE Ant6	Front	0.315	0.382	0.387	0.123	0.70	0.70	0.44
	Back	0.429	0.382	0.387	0.123	0.81	0.82	0.55
Part27O FR1 n78-HPUE Ant7	Front	0.061	0.382	0.387	0.123	0.44	0.45	0.18
	Back	1.136	0.382	0.387	0.123	1.52	1.52	1.26
Part27Q FR1 n78-HPUE Ant7	Front	0.027	0.382	0.387	0.123	0.41	0.41	0.15
	Back	0.534	0.382	0.387	0.123	0.92	0.92	0.66



16.4 Product specific 10g SAR Exposure Conditions

WWAN Band	Exposure Position	1	2	1+2
		WWAN	WLAN5GHz Ant 8	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
GSM850 Ant0	Front		0.978	0.98
	Back	1.789	0.660	2.45
	Left side		0.098	0.10
	Right side	1.394	0.633	2.03
	Top side		0.978	0.98
	Bottom side	1.473		1.47
GSM1900 Ant0	Front	1.631	0.978	2.61
	Back	2.644	0.660	3.30
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	3.158		3.16
WCDMA II Ant0	Front	1.804	0.978	2.78
	Back	2.897	0.660	3.56
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	3.232		3.23
WCDMA IV Ant0	Front	2.351	0.978	3.33
	Back	3.316	0.660	3.98
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	3.591		3.59
LTE Band 2 Ant0	Front	1.736	0.978	2.71
	Back	2.907	0.660	3.57
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	3.262		3.26
LTE Band 7 Ant5	Front	1.149	0.978	2.13
	Back	1.424	0.660	2.08
	Left side	0.857	0.098	0.96
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	0.631		0.63
LTE Band 42 Ant2	Front	0.611	0.978	1.59
	Back	1.044	0.660	1.70
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side	0.847	0.978	1.83
	Bottom side			0.00
LTE Band 66 Ant0	Front	1.582	0.978	2.56
	Back	2.562	0.660	3.22
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side	2.925		2.93
LTE Band 41 Ant5	Front		0.978	0.98
	Back	1.153	0.660	1.81
	Left side		0.098	0.10



	Right side		0.633	0.63
	Top side		0.978	0.98
	Bottom side			0.00
LTE Band 42 Ant2	Front	0.611	0.978	1.59
	Back	1.044	0.660	1.70
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side	0.847	0.978	1.83
	Bottom side			0.00
	FR1 n7 Ant5	Front	1.535	0.978
Back		1.696	0.660	2.36
Left side		1.054	0.098	1.15
Right side			0.633	0.63
Top side			0.978	0.98
Bottom side		0.680		0.68
Part27O FR1 n78-HPUE Ant2	Front	1.199	0.978	2.18
	Back	1.499	0.660	2.16
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side	1.319	0.978	2.30
	Bottom side			0.00
Part27Q FR1 n78-HPUE Ant2	Front	1.282	0.978	2.26
	Back	1.525	0.660	2.19
	Left side		0.098	0.10
	Right side		0.633	0.63
	Top side	1.492	0.978	2.47
	Bottom side			0.00



<5G NR EN-DC Mode>

WWAN Band		Exposure Position	1	2	3	1+2	1+2+3
			WWAN	FR1	WLAN5GHz Ant 8	Summed	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band 2 Ant 0	FR1 n7 Ant 1	Front			0.978	0.00	0.98
		Back	1.375	0.512	0.660	1.38	2.55
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		0.405	0.978	0.00	1.38
		Bottom side	1.466			1.47	1.47
LTE Band 2 Ant 0	FR1 n66 Ant 1	Front			0.978	0.00	0.98
		Back	1.375	1.379	0.660	1.38	3.41
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		1.468	0.978	0.00	2.45
		Bottom side	1.466			1.47	1.47
LTE Band 2 Ant 0	Part27O FR1 n77 Ant 2	Front		0.490	0.978	0.00	1.47
		Back	1.375	0.661	0.660	1.38	2.70
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		0.658	0.978	0.00	1.64
		Bottom side	1.466			1.47	1.47
LTE Band 2 Ant 0	Part27Q FR1 n77 Ant 2	Front		0.421	0.978	0.00	1.40
		Back	1.375	0.663	0.660	1.38	2.70
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		0.570	0.978	0.00	1.55
		Bottom side	1.466			1.47	1.47
LTE Band 7 Ant 1	FR1 n7 Ant 1	Front			0.978	0.00	0.98
		Back	1.212	0.512	0.660	1.21	2.38
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	0.850	0.405	0.978	0.85	2.23
		Bottom side				0.00	0.00
LTE Band 7 Ant 5	FR1 n66 Ant 1	Front			0.978	0.00	0.98
		Back	1.424	1.379	0.660	1.42	3.46
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		1.468	0.978	0.00	2.45
		Bottom side	0.631			0.63	0.63
LTE Band 7 Ant 5	Part27O FR1 n77 Ant 2	Front		0.490	0.978	0.00	1.47
		Back	1.424	0.661	0.660	1.42	2.75
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		0.658	0.978	0.00	1.64
		Bottom side	0.631			0.63	0.63
LTE Band 7 Ant 1	Part27Q FR1 n77 Ant 2	Front		0.421	0.978	0.00	1.40
		Back	1.212	0.663	0.660	1.21	2.54
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	0.850	0.570	0.978	0.85	2.40
		Bottom side				0.00	0.00
LTE Band 66 Ant 0	FR1 n7 Ant 1	Front			0.978	0.00	0.98
		Back	1.153	0.512	0.660	1.15	2.33
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63



		Top side		0.405	0.978	0.00	1.38
		Bottom side	1.427			1.43	1.43
LTE Band 66 Ant 0	Part27O FR1 n77 Ant 2	Front		0.490	0.978	0.00	1.47
		Back	1.153	0.661	0.660	1.15	2.47
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side		0.658	0.978	0.00	1.64
		Bottom side	1.427			1.43	1.43
LTE Band 66 Ant 0	Part27Q FR1 n77 Ant 2	Front		0.421	0.978	0.00	1.40
		Back	0.539	0.663	0.660	0.54	1.86
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	0.517	0.570	0.978	0.52	2.07
		Bottom side	1.427			1.43	1.43
LTE Band 66 Ant 1	FR1 n2 Ant 0	Front			0.978	0.00	0.98
		Back	1.360	1.262	0.660	1.36	3.45
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	1.422		0.978	1.42	2.40
		Bottom side		1.466		0.00	1.66
LTE Band 66 Ant 1	FR1 n5 Ant 0	Front			0.978	0.00	0.98
		Back	1.360		0.660	1.36	2.02
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	1.422		0.978	1.42	2.40
		Bottom side				0.00	0.00
LTE Band 41 Ant 1	Part27O FR1 n77 Ant 2	Front		0.490	0.978	0.00	1.47
		Back	0.539	0.661	0.660	0.54	1.86
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	0.515	0.658	0.978	0.52	2.15
		Bottom side				0.00	0.00
LTE Band 41 Ant 1	Part27Q FR1 n77 Ant 2	Front		0.421	0.978	0.00	1.40
		Back	0.539	0.663	0.660	0.54	1.86
		Left side			0.098	0.00	0.10
		Right side			0.633	0.00	0.63
		Top side	0.515	0.570	0.978	0.52	2.06
		Bottom side				0.00	0.00



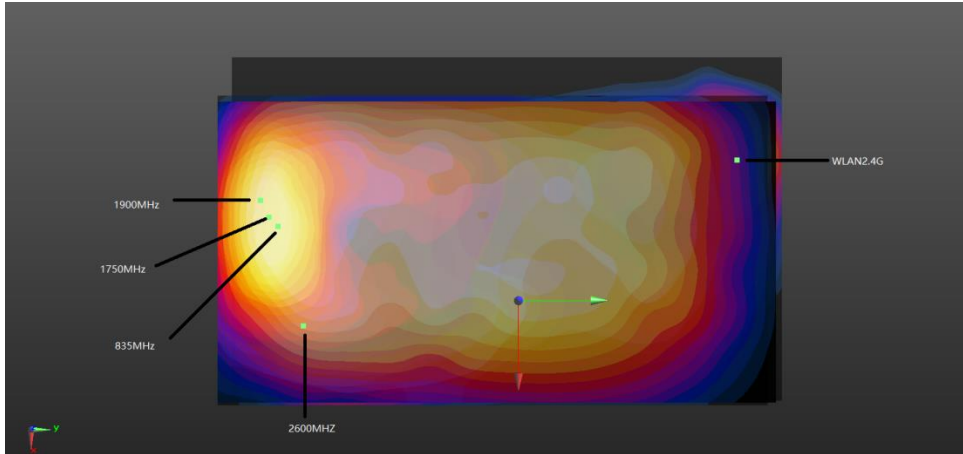
<Inter UL CA Mode>

WWAN Band		Exposure Position	1	2	3	1+2+3
			WWAN	WWAN	WLAN5GHz Ant 8	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band 4 Ant 1	LTE Band 7 Ant 5	Front			0.978	0.98
		Back	1.360	1.424	0.660	3.44
		Left side			0.098	0.10
		Right side			0.633	0.63
		Top side	1.422		0.978	2.40
		Bottom side		0.631		0.63
LTE Band 2 Ant 0	LTE Band 4 Ant 1	Front			0.978	0.98
		Back	1.375	1.360	0.660	3.40
		Left side			0.098	0.10
		Right side			0.633	0.63
		Top side		1.422	0.978	2.40
		Bottom side	1.466			1.47
LTE Band 4 Ant 1	LTE Band 5 Ant 0	Front			0.978	0.98
		Back	1.360		0.660	2.02
		Left side			0.098	0.10
		Right side			0.633	0.63
		Top side	1.422		0.978	2.40
		Bottom side				0.00

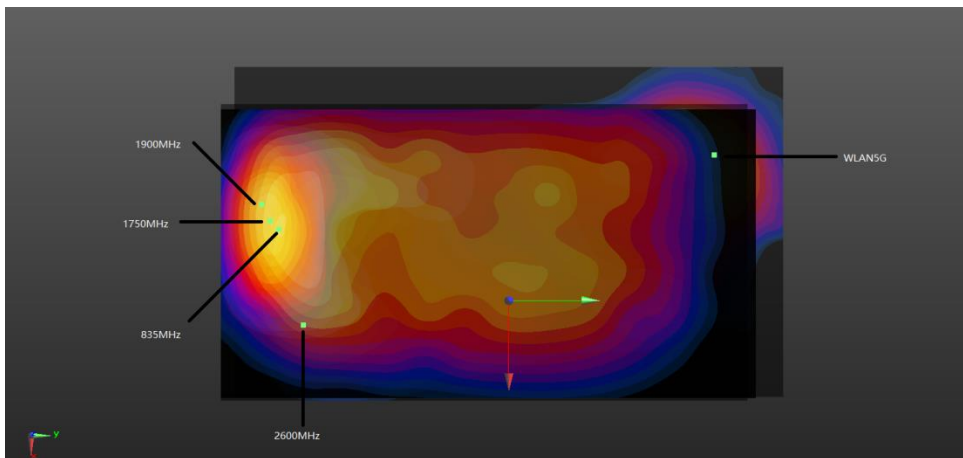
16.5 SPLSR Evaluation and Analysis

General Note:

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



WWAN+WLAN2.4GHz _ Back 5mm



WWAN+ WLAN5GHz _ Back 5mm



Case	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	GSM850 Ant 0	Back	1.342	5mm	-12.2	-80.8	0.67	158.8	1.72	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 2	GSM850 Ant 0	Back	1.342	5mm	-12.2	-80.8	0.67	155.9	1.62	0.01	Not required
	WLAN5GHz Ant 8		0.278	5mm	-28.8	74.2	0.57				
Case 3	GSM1900 Ant0	Back	1.398	5mm	-18	-86.8	0.78	164.4	1.78	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 4	GSM1900 Ant0	Back	1.398	5mm	-18	-86.8	0.78	161.4	1.68	0.01	Not required
	WLAN5GHz Ant 8		0.278	5mm	-28.8	74.2	0.57				
Case 5	WCDMA II Ant0	Back	1.23	5mm	-11.9	-86.8	0.73	164.8	1.61	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 6	WCDMA IV Ant0	Back	1.224	5mm	-12	-85.4	0.73	163.4	1.61	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 7	LTE Band 41 Ant5	Back	1.217	5mm	17.8	-77.6	0.79	161.1	1.60	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 8	FR1 n7 Ant5	Back	1.367	5mm	25.9	-74	0.84	160.0	1.75	0.01	Not required
	WLAN2.4GHz Ant 8		0.382	5mm	-26	77.4	0.5				
Case 9	FR1 n7 Ant5	Back	1.367	5mm	25.9	-74	0.84	158.0	1.75	0.01	Not required
	WLAN5GHz Ant 8		0.39	5mm	-28.8	74.2	0.57				
Case 10	GSM850 Ant 0	Back	1.342	5mm	-12.2	-80.8	0.67	155.9	1.73	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				
Case 11	GSM1900 Ant0	Back	1.398	5mm	-18	-86.8	0.78	161.4	1.79	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				
Case 12	WCDMA II Ant0	Back	1.23	5mm	-11.9	-86.8	0.73	161.9	1.62	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				
Case 13	WCDMA IV Ant0	Back	1.224	5mm	-12	-85.4	0.73	160.5	1.61	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				



Case 14	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 41 Ant5	Back	1.217	5mm	17.8	-77.6	0.79	158.8	1.60	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				
Case 15	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	FR1 n7 Ant5	Back	1.367	5mm	25.9	-74	0.84	158.0	1.75	0.01	Not required
	WLAN5GHz Ant 8		0.387	5mm	-28.8	74.2	0.57				

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_835 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.9 \text{ S/m}$; $\epsilon_r = 41.21$; $\rho = 1000 \text{ kg/m}^3$

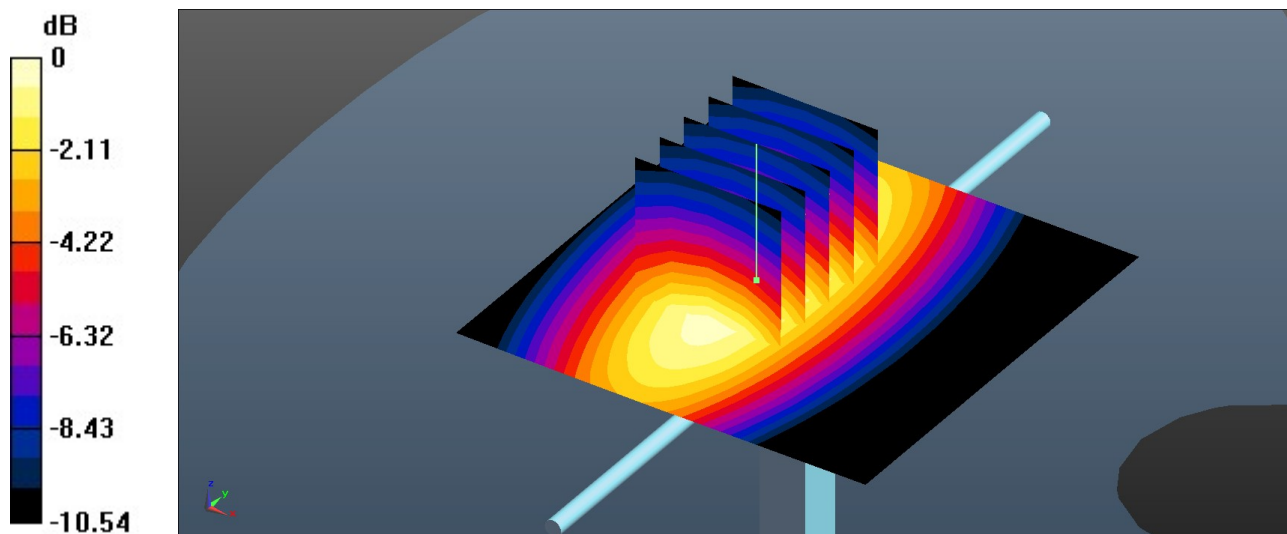
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(6.48, 6.48, 6.48); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.509 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 22.33 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.653 W/kg
SAR(1 g) = 0.442 W/kg; SAR(10 g) = 0.290 W/kg
Maximum value of SAR (measured) = 0.516 W/kg



0 dB = 0.516 W/kg = -2.87 dBW/kg

System Check_Head_835MHz

DUT: D835V2 - SN:4d258

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

Medium: HSL_835 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.933 \text{ S/m}$; $\epsilon_r = 41.482$; $\rho = 1000 \text{ kg/m}^3$

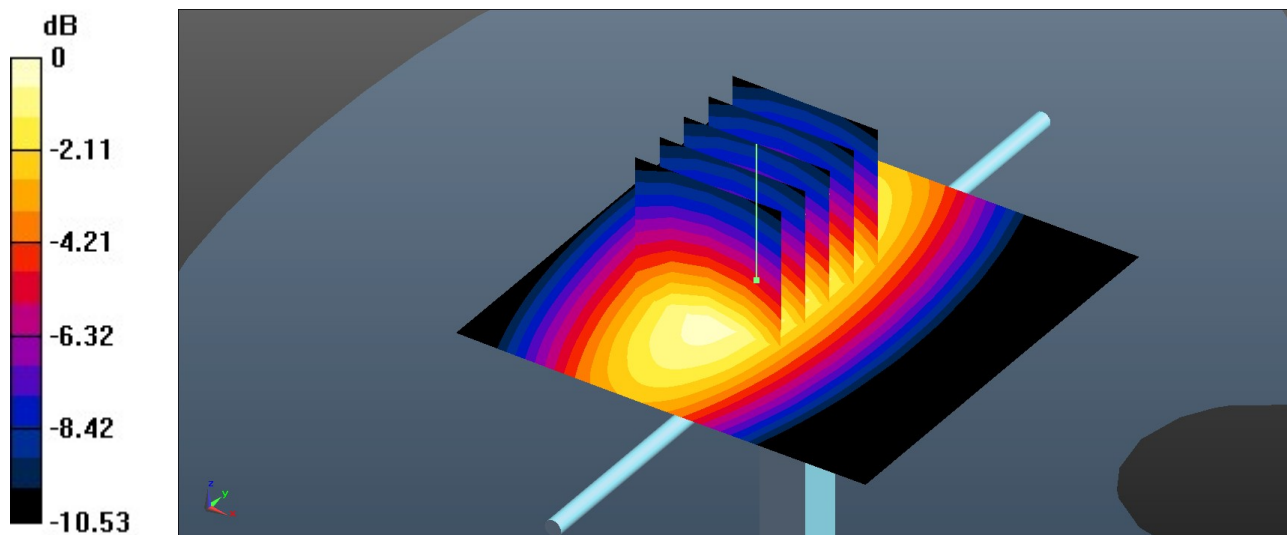
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(6.23, 6.23, 6.23); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.547 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 22.77 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.699 W/kg
SAR(1 g) = 0.475 W/kg; SAR(10 g) = 0.312 W/kg
Maximum value of SAR (measured) = 0.555 W/kg



0 dB = 0.555 W/kg = -2.56 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; $\sigma = 1.41$ S/m; $\epsilon_r = 40.674$; $\rho = 1000$ kg/m³

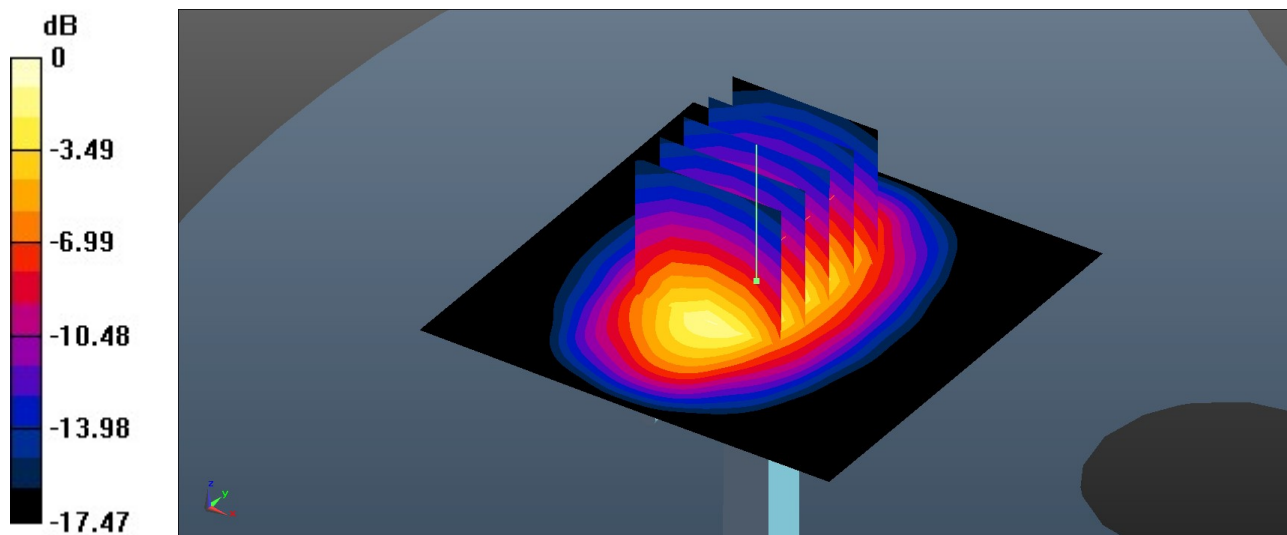
Ambient Temperature : 23.1 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(5.52, 5.52, 5.52); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.32 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.13 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 1.83 W/kg; SAR(10 g) = 0.966 W/kg
Maximum value of SAR (measured) = 2.30 W/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; $\sigma = 1.466$ S/m; $\epsilon_r = 41.036$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(5.28, 5.28, 5.28); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.59 W/kg

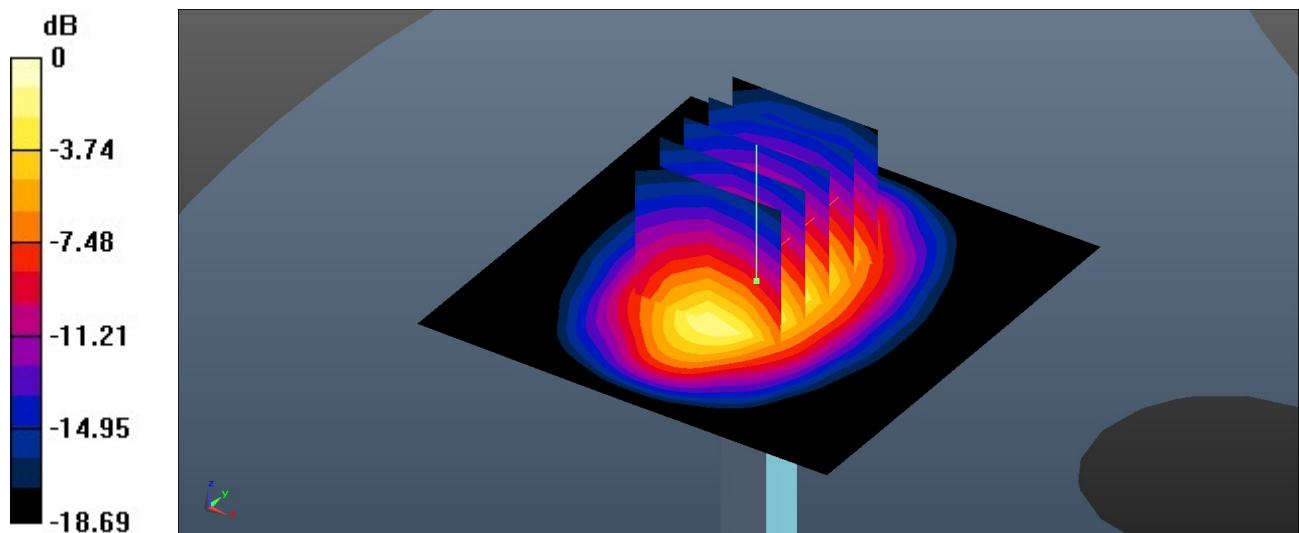
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 43.39 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 1.97 W/kg; SAR(10 g) = 0.995 W/kg

Maximum value of SAR (measured) = 2.52 W/kg



0 dB = 2.52 W/kg = 4.01 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; $\sigma = 1.922$ S/m; $\epsilon_r = 38.213$; $\rho = 1000$ kg/m³

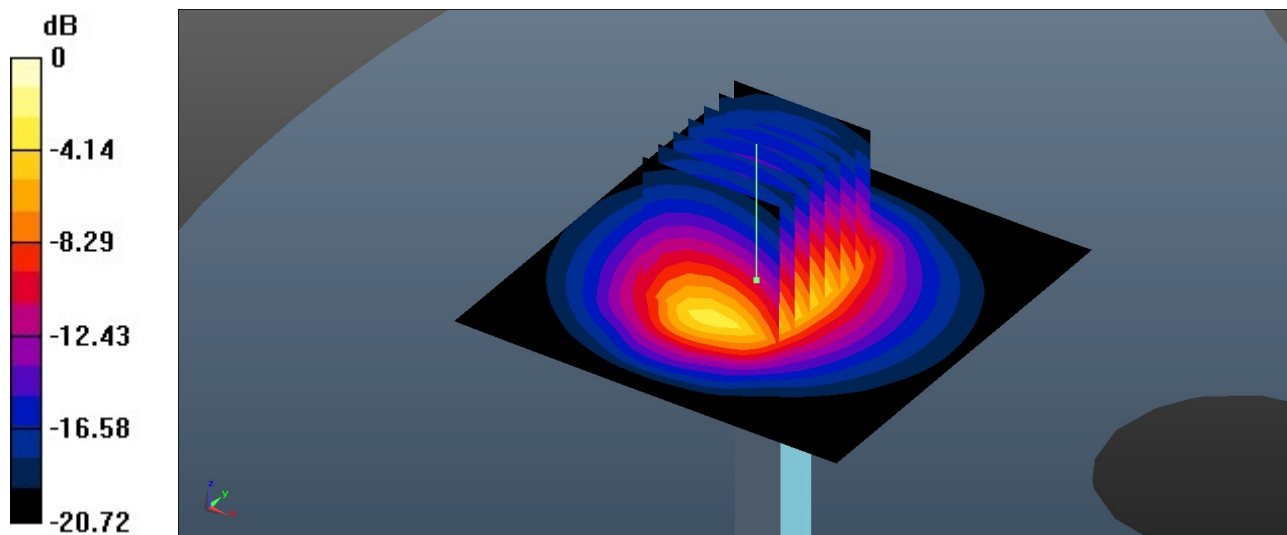
Ambient Temperature : 23.2 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(4.47, 4.47, 4.47); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- 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) = 3.79 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 43.61 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 5.59 W/kg
SAR(1 g) = 2.72 W/kg; SAR(10 g) = 1.24 W/kg
Maximum value of SAR (measured) = 3.61 W/kg



System Check_Head_750MHz

DUT: D750V3 - SN:1087

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

Medium: HSL_750 Medium parameters used: $f = 750$ MHz; $\sigma = 0.917$ S/m; $\epsilon_r = 42.769$; $\rho = 1000$ kg/m³

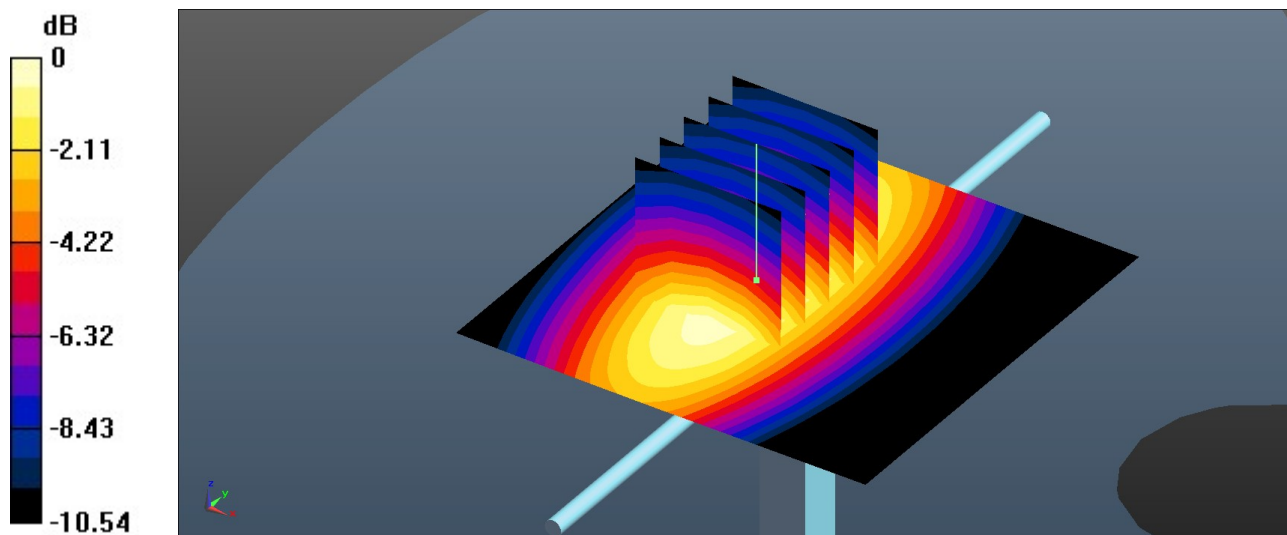
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(6.48, 6.48, 6.48); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- 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) = 0.518 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.33 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.296 W/kg
Maximum value of SAR (measured) = 0.526 W/kg



0 dB = 0.526 W/kg = -2.79 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; $\sigma = 0.943$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

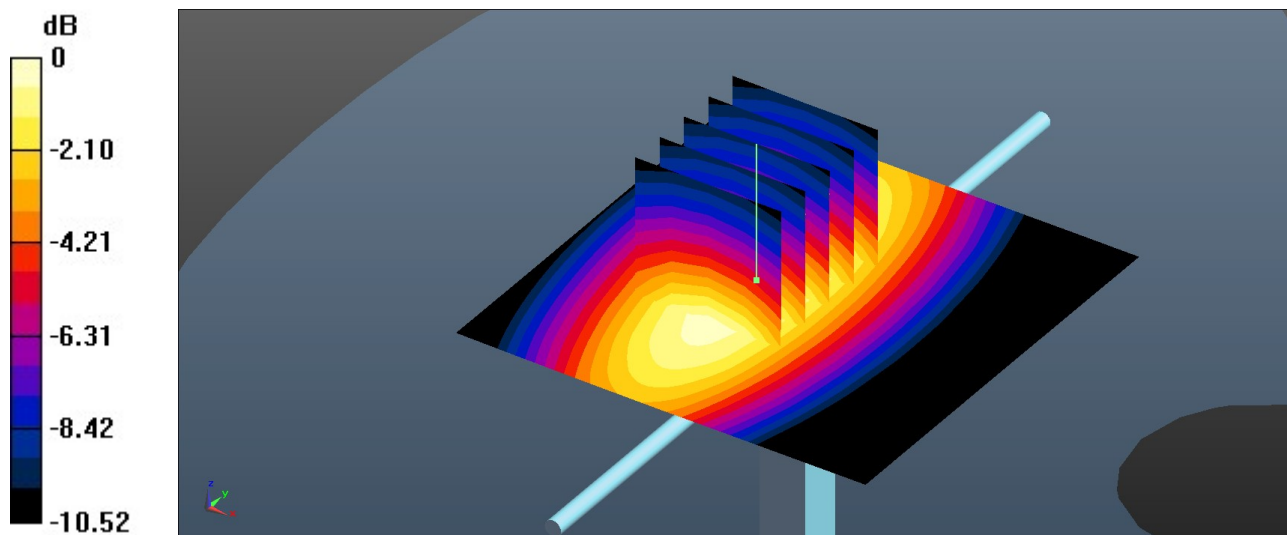
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(6.23, 6.23, 6.23); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- 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) = 0.552 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.77 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.706 W/kg
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.316 W/kg
Maximum value of SAR (measured) = 0.560 W/kg



0 dB = 0.560 W/kg = -2.52 dBW/kg

System Check_Head_1750MHz

DUT: D1750V2 - SN:1090

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.344$ S/m; $\epsilon_r = 39.018$; $\rho = 1000$ kg/m³

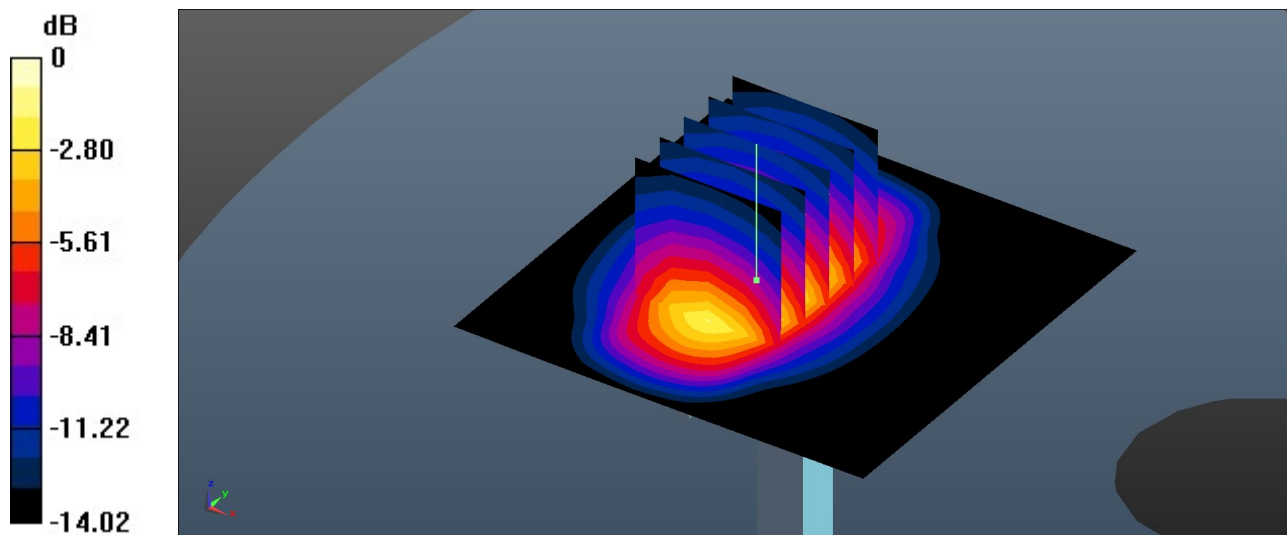
Ambient Temperature : 23.3 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(5.52, 5.52, 5.52); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.40 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.04 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.22 W/kg
SAR(1 g) = 1.81 W/kg; SAR(10 g) = 0.984 W/kg
Maximum value of SAR (measured) = 2.28 W/kg



0 dB = 2.28 W/kg = 3.58 dBW/kg

System Check_Head_1900MHz

DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL_1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.428$ S/m; $\epsilon_r = 38.741$; $\rho = 1000$ kg/m³

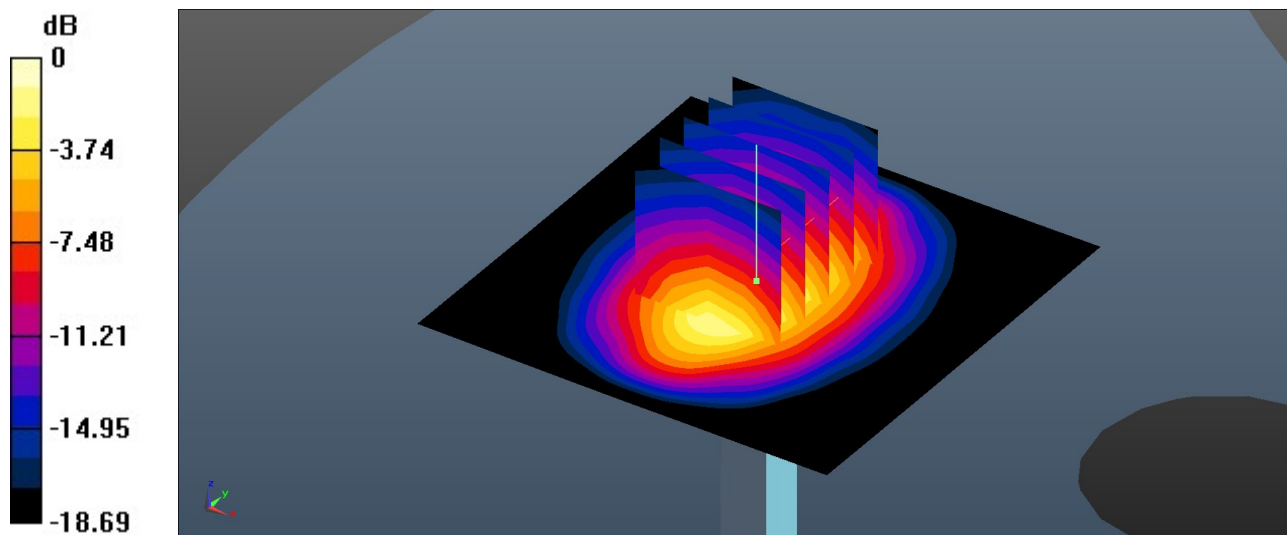
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(5.28, 5.28, 5.28); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.52 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.39 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.57 W/kg
SAR(1 g) = 1.91 W/kg; SAR(10 g) = 0.969 W/kg
Maximum value of SAR (measured) = 2.45 W/kg



0 dB = 2.45 W/kg = 3.89 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; $\sigma = 1.928$ S/m; $\epsilon_r = 38.986$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3279; ConvF(4.47, 4.47, 4.47); Calibrated: 2021.8.24
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2021.12.1
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-1842
- 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) = 3.81 W/kg

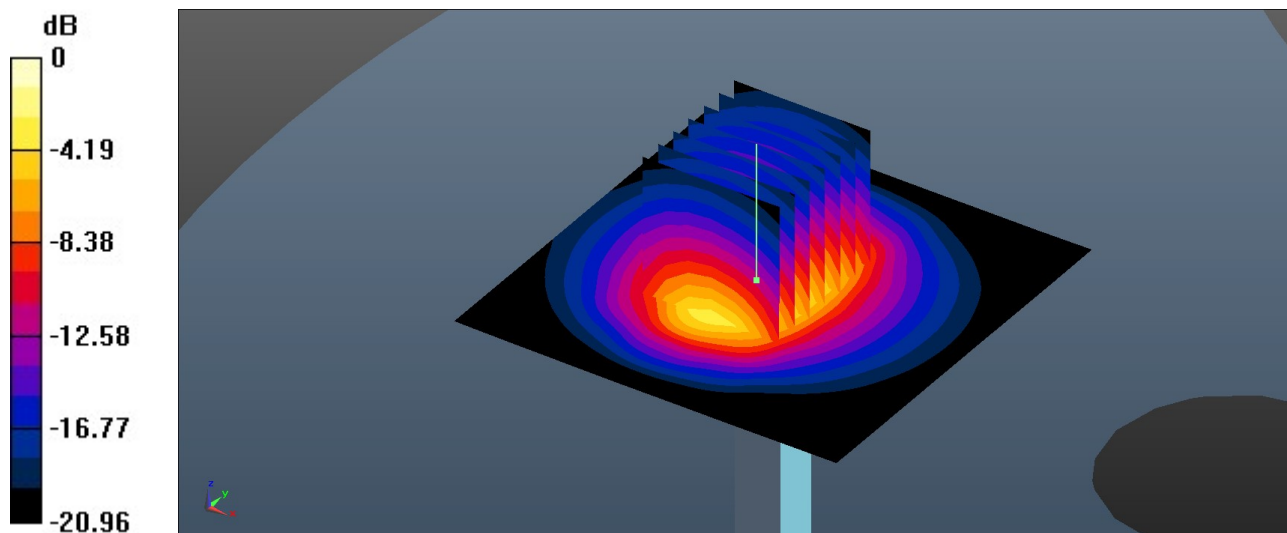
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 42.81 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 5.63 W/kg

SAR(1 g) = 2.73 W/kg; SAR(10 g) = 1.25 W/kg

Maximum value of SAR (measured) = 3.64 W/kg



0 dB = 3.64 W/kg = 5.61 dBW/kg

System Check_Head_2450MHz

DUT: D2450V2-SN:908

Communication System: ; Frequency: 2450.0

Medium: MSL. Medium parameters used: $f= 2450.0$ MHz; $\sigma= 1.77$ S/m; $\epsilon_r = 39.4$

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

DASY6 Configuration:

- Probe: EX3DV4 - SN7592; ConvF(7.53, 7.53, 7.53); Calibrated: 2021-06-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4 Sn1691; Calibrated: 2021-10-04
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2074; Section: Flat
- Measurement Software: cDASY6 V6.6.0.13926

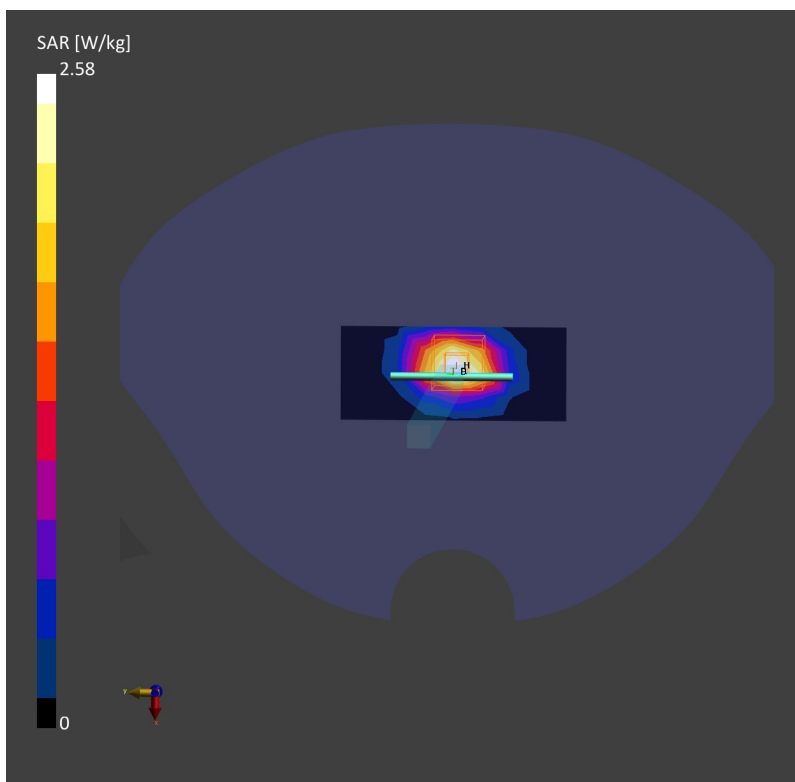
Area Scan (40.0 mm x 96.0 mm): Measurement Grid: 12.0 mm x 12.0 mm

SAR (1g) = 2.47 W/kg; SAR (10g) = 1.19 W/kg;

Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 5.0 mm x 5.0 mm x 5.0 mm

Power Drift = 0.01 dB

SAR (1g) = 2.58 W/kg; SAR (10g) = 1.26 W/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; $\sigma = 2.809$ S/m; $\epsilon_r = 39.002$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.7 °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) = 6.05 W/kg

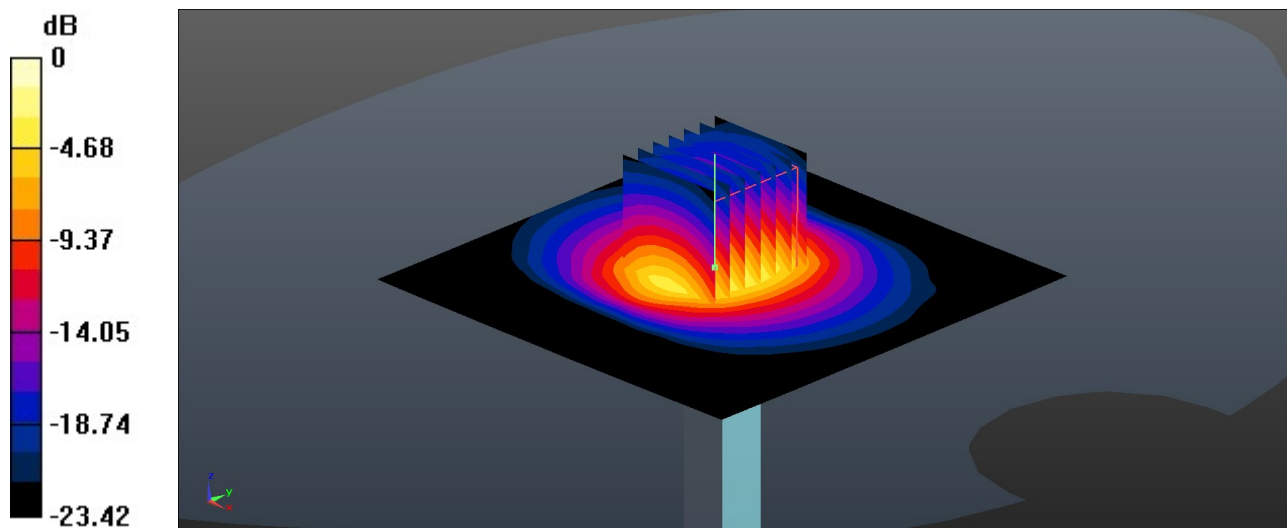
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 41.58 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 7.97 W/kg

SAR(1 g) = 3.18 W/kg; SAR(10 g) = 1.18 W/kg

Maximum value of SAR (measured) = 5.95 W/kg



0 dB = 5.95 W/kg = 7.75 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; $\sigma = 2.995$ S/m; $\epsilon_r = 38.682$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.6 °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) = 5.40 W/kg

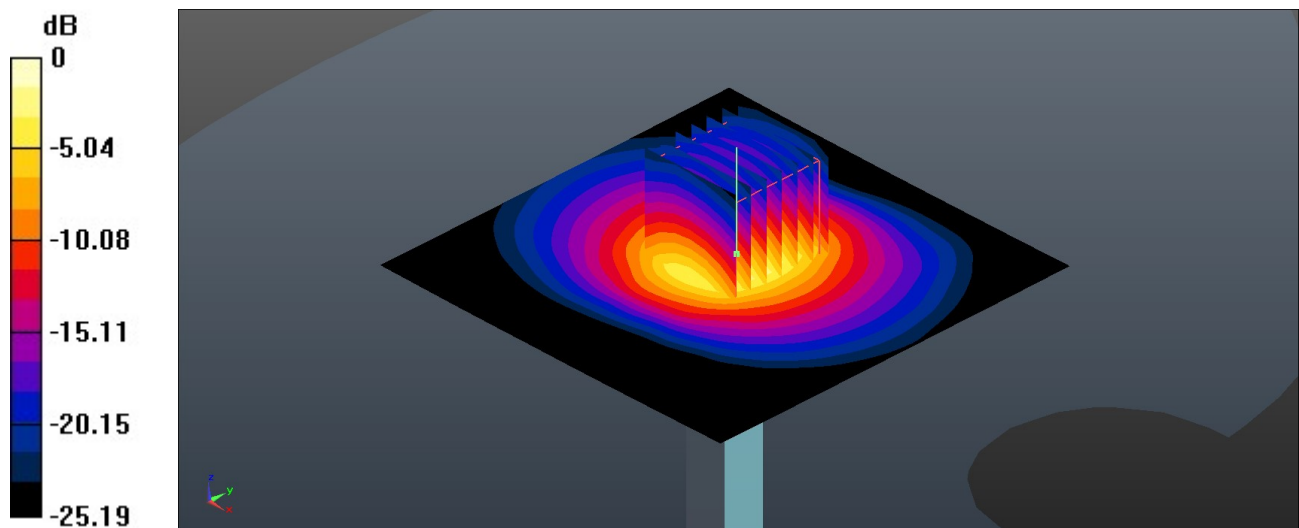
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 41.67 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 7.55 W/kg

SAR(1 g) = 3.46 W/kg; SAR(10 g) = 1.24 W/kg

Maximum value of SAR (measured) = 5.46 W/kg



0 dB = 5.46 W/kg = 7.37 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; $\sigma = 3.195$ S/m; $\epsilon_r = 38.391$; $\rho = 1000$ kg/m³

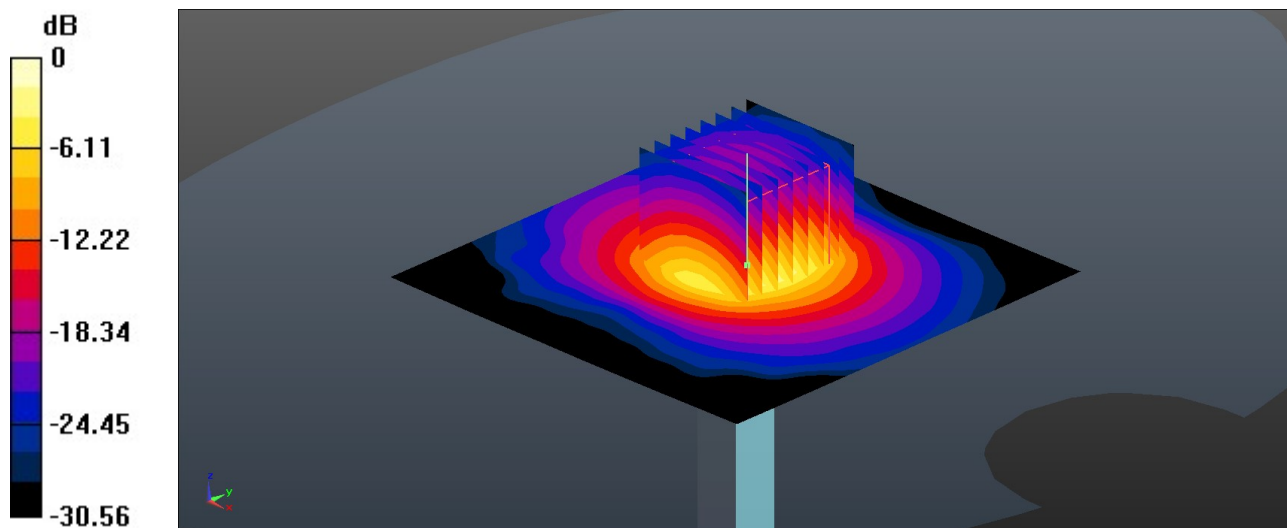
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.8 °C

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) = 6.24 W/kg

Pin=50mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 42.86 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 8.55 W/kg
SAR(1 g) = 3.37 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 6.40 W/kg



0 dB = 6.40 W/kg = 8.06 dBW/kg

System Check_Head_5250MHz

DUT: D5GHzV2-SN:1113

Communication System: ; Frequency: 5250.0

Medium: MSL. Medium parameters used: $f= 5250.0$ MHz; $\sigma= 4.60$ S/m; $\epsilon_r = 35.9$

Ambient Temperature: 23.2°C; Liquid Temperature: 22.9°C

DASY6 Configuration:

- Probe: EX3DV4 - SN7592; ConvF(5.38, 5.38, 5.38); Calibrated: 2021-06-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4 Sn1691; Calibrated: 2021-10-04
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2074; Section: Flat
- Measurement Software: cDASY6 V6.6.0.13926

Area Scan (40.0 mm x 80.0 mm): Measurement Grid: 10.0 mm x 10.0 mm

SAR (1g) = 3.81 W/kg; SAR (10g) = 1.04 W/kg;

Zoom Scan (24.0 mm x 24.0 mm x 22.0 mm): Measurement Grid: 4.0 mm x 4.0 mm x 1.4 mm

Power Drift = -0.06 dB

SAR (1g) = 3.88 W/kg; SAR (10g) = 1.11 W/kg;

