

FCC SAR Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2551-7
FCC ID : IHDT56AU1
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 given in 47 CFR Part 2.1093 and FCC KDB 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.



Approved by: Si Zhang



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**

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Revision History

[illegible]

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2551-7**, are as follows.

Highest 1g SAR Summary					
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)
			1g SAR (W/kg)		
Licensed	GSM	GSM850	0.26	0.66	0.64
		GSM1900	1.27	1.23	1.13
	WCDMA	WCDMA II	1.18	1.22	1.25
		WCDMA IV	1.12	1.03	1.08
		WCDMA V	0.26	0.88	0.80
	LTE	LTE Band 12/17	0.23	0.85	0.77
		LTE Band 13	0.15	0.73	0.57
		LTE Band 14	0.26	0.87	0.76
		LTE Band 71	0.29	1.15	0.71
		LTE Band 26/5	0.22	0.81	0.84
		LTE Band 66/4	1.25	1.26	1.28
		LTE Band 25/2	1.26	1.20	1.26
		LTE Band 30	1.08	1.27	0.89
		LTE Band 7	0.92	0.84	0.56
		LTE Band 41/38	1.22	1.21	1.22
		LTE Band 42	1.25	1.27	1.22
		LTE Band 48/43	1.26	1.19	1.28
	5G NR	FR1 n12	0.16	0.69	0.42
		FR1 n14	0.15	0.56	0.49
		FR1 n71	0.17	0.56	0.43
		FR1 n26/n5	0.17	0.63	0.63
		FR1 n66	1.26	1.25	1.28
		FR1 n70	1.27	1.26	1.27
		FR1 n25/n2	1.23	1.25	1.26
		FR1 n30	0.95	1.21	1.24
		FR1 n7	1.14	1.13	1.13
		FR1 n41/n38	1.27	1.24	1.14
		FR1 n48	1.26	1.22	1.26
		FR1 n77/n78	1.22	1.28	1.25
DTS	WLAN	2.4GHz WLAN	1.35	1.36	1.35
NII		5GHz WLAN	1.13	0.97	1.04
DSS	Bluetooth	2.4GHz Bluetooth	1.28	1.11	0.77

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	GSM1900	2.09	3.95
	WCDMA	WCDMA II	2.33	
		WCDMA IV	2.22	
	LTE	LTE Band 66/4	3.13	
		LTE Band 25/2	2.95	
		LTE Band 30	3.12	
		LTE Band 7	0.78	
		LTE Band 41/38	3.13	
		LTE Band 42	3.09	
		LTE Band 48/43	3.11	
	5G NR	FR1 n66	2.96	
		FR1 n70	2.58	
		FR1 n25/n2	2.79	
		FR1 n30	3.09	
		FR1 n7	2.50	
		FR1 n41/n38	2.78	
		FR1 n48	2.95	
		FR1 n77/n78	2.99	
DTS	WLAN	2.4GHz WLAN	3.04	3.95
NII		5GHz WLAN	2.54	3.95
DSS	Bluetooth	2.4GHz Bluetooth	1.67	3.95
Date of Testing:			2025/7/4 ~ 2025/7/14	

Remark:

1. This device supports LTE B2 / B4 / B5 / B17 / B38/ B42(3550MHz~3600 MHz)/B43 and B25 / B66 / B26 / B12 / B41/ B48. Since the supported frequency span for LTE B2 /B4 / B5 / B17 / B38/B42(3550MHz~3600 MHz)/ B43 falls completely within the supports frequency span for LTE B25 / B66 / B26 / B12 / B41/ B48, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25 / B66 / B26 / B12 / B41/ B48.
2. This device supports 5GNR n38/n5/n78/n2 and n41/n26/n77/n25. Since the supported frequency span for 5GNR n38/n5/n78/n2 falls completely within the supports frequency span for n41/n26/n77/n25, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for n41/n26/n77/n25.
3. This is a variant report for XT2551-7. The different between them refer to the XT2551-7_Operational Description of Product Equality Declaration which is exhibit separately. According to the difference, only the worst cases from original test report (Sporton Report Number FA4N2802) were verified for the differences.

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		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR02-KS SAR04-KS SAR05-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	XT2551-7
FCC ID	IHDT56AU1
IMEI Code	350200470003635/350200470003643, 350200470003593/350200470003601, 350200470003791/350200470003809
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz 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 WLAN 6GHz U-NII 5: 5925 MHz ~ 6425 MHz WLAN 6GHz U-NII 6: 6425 MHz ~ 6525 MHz WLAN 6GHz U-NII 7: 6525 MHz ~ 6875 MHz WLAN 6GHz U-NII 8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz

	WPT: 115 KHz ~ 145 KHz UWB: 6489.6MHz & 7987.2MHz
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: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 2.4GHz 802.11be EHT20/EHT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 WLAN 5GHz 802.11be EHT20/EHT40/EHT80/EHT160 WLAN 6GHz 802.11a/ax HE20/HE40/HE80/HE160 WLAN 6GHz 802.11be EHT20/EHT40/EHT80/EHT160/EHT320 Bluetooth BR/EDR/LE NFC: ASK WPT: ASK UWB: BPM-BPSK
HW Version	PVT
SW Version	V2VL35.42-126
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: 1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5G NR (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). WLAN 6GHz has no hotspot function. 4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12. 5. The 2.4GHz/5GHz/6GHz WLAN can transmit in SISO/MIMO antenna mode. 6. This device supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). 7. The device implements the power management, Hall sensor and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at original report. 8. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the GSM, WCDMA, LTE and 5G NR modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner and supplemental data for additional information can be referred to original report. 9. This device supports HPUE mode for LTE Band41 and 5G NR n41/n77/n78 with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verify the worst case of power class 3 SAR. 10. For 5G NR n41/n77/n78 HPUE, 5G NR n41/n77/n78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands, using FTM to perform SAR with default 100% transmission. 11. 5G NR n2/n25/n41/n48/ n66/n77/n78 supports UL MIMO mode. 12. The device supports HPUE (power class 2) under SISO mode and HPUE (power class 1.5) under UL MIMO mode for 5G NR n41/n77. 13. The UWB output power is -7.5 dBm and it is less than 1mW and exempt from power density testing. 14. This device has NFC function and the NFC SAR report will be separately submitted. 15. SAR and Power density test report for WLAN 6GHz U-NII-5/6/7/8 will be separately submitted. About co-located	

- SAR with WWAN/Bluetooth always chose higher SAR of WLAN5GHz U-NII-1/2A/2C/3 and WLAN 6GHz U-NII-5/6/7/8.
16. The Part 0 and TAS Part2 report for XT2551-7 are referenced from the approved reference model XT2551-1, XT2551-2, XT2551-6. No Plimit and target changes have been made. No additional Part 0 and Part 2 testing was required since the changes do not impact the essential test cases evaluated in the original evaluation. Plimit and Targets for all other bands/exposure conditions can be found in the original filing. Therefore, the Part 0 and TAS Part2 report from the reference model are considered fully representative of the XT2551-7 variant.
17. This device supports 5GNR 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, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n12	FDD	15	5, 10, 15
	n25	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n26	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n71	FDD	15	5, 10, 15, 20, 25, 30, 35
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	n48	TDD	30	10, 15, 20, 30, 40
	n77	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
SA	n78	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
	n2	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 50
	n12	FDD	15	5, 10, 15
	n14	FDD	15	5, 10
	n25	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 45
	n26	FDD	15	5, 10, 15, 20
	n30	FDD	15	5, 10
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 45
	n70	FDD	15	5, 10, 15
	n71	FDD	15	5, 10, 15, 20, 25, 30, 35
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	n48	TDD	30	10, 15, 20, 30, 40
	n77	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 25, 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	IHDT56AU1																																																																						
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 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 43: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz																																																																						
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM																																																																						
LTE Voice / Data requirements	Voice and Data																																																																						
LTE Release Version	R17																																																																						
CA Support	Supported, Uplink and Downlink																																																																						
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table>	Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																																
256 QAM	≥ 1						≤ 5																																																																
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																																						
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																						
Power reduction applied to satisfy SAR compliance	Yes, 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 original report.																																																																						
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to original report.																																																																						



LTE Carrier Aggregation Additional

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 2 carriers in the uplink.

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829	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					
	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					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Channel #		Channel #		Freq.(MHz)		Channel #		Freq.(MHz)	
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)		Channel #		Freq. (MHz)	
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

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

LTE Band 38									
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	2580
M	38000	2595	38000	2595	38000	2595	38000	2595	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	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)	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680	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	3460
M	42590	3500	42590	3500	42590	3500	42590	3500	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540	3540

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	43115	3552.5	43140	3555	43165	3557.5	43190	3560	3560
M	43340	3575	43340	3575	43340	3575	43340	3575	3575
H	43565	3597.5	43540	3595	43515	3592.5	43490	3590	3590

LTE Band 43									
	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	43615	3602.5	43640	3605	43665	3607.5	43690	3610	3610
M	44090	3650	44090	3650	44090	3650	44090	3650	3650
H	44565	3697.5	44540	3695	44515	3692.5	44490	3690	3690

LTE Band 48									
	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	55265	3552.5	55290	3555	55315	3557.5	55340	3560	3560
LM	55810	3607	55815	3607.5	55820	3608	55830	3609	3609
MH	56170	3643	56165	3642.5	56160	3642	56150	3641	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690	3690

LTE Band 71								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133147	665.5	133172	668	133197	670.5	133222	673
M	133247	675.5	133272	678	133297	680.5	133322	683
H	133447	695.5	133422	693	133397	690.5	133372	688

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 n12 : 699 MHz ~ 716 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77 : 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78 : 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz
Channel Bandwidth	The detail please refers to section 4.1 5GNR FR1 bands table.
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 B4/5/7/12/13/14/30/66/48/71
LTE Anchor Bands for n5	LTE B2/4/30/66/48/7
LTE Anchor Bands for n7	LTE B2/4/5/12/66
LTE Anchor Bands for n12	LTE B2/66
LTE Anchor Bands for n25	LTE B7/12/26/66
LTE Anchor Bands for n26	LTE B7
LTE Anchor Bands for n66	LTE B2/5/7/12/13/14/30/48/71
LTE Anchor Bands for n71	LTE B2/7/48/66
LTE Anchor Bands for n38	LTE B2/4/5/12/66/71
LTE Anchor Bands for n41	LTE B2/4/5/12/25/26/66/71
LTE Anchor Bands for n48	LTE B71
LTE Anchor Bands for n77	LTE B2/5/7/12/13/14/25/30/41/66/71
LTE Anchor Bands for n78	LTE B2/4/5/7/12/13/25/26/38/66/41/71

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band																	
NR Band 2																	
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		
	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	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870	
M	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895	378500	1892.5	378000	1890	
NR Band 5																	
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		
	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	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 35MHz		Bandwidth 40MHz		
	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	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	503500	2517.5	504000	2520	505000
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510500	2552.5	510000	2550	509000

NR Band 12						
Bandwidth 5MHz			Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	140300	701.5	140800	704	141300	706.5
M	141500	707.5	141500	707.5	141500	707.5
H	142700	713.5	142200	711	141700	708.5

NR Band 14				
Bandwidth 5MHz			Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	158100	790.5	158600	793
M	158600	793		
H	159100	795.5		

NR Band 25																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz	
	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	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870	374500	1872.5
M	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5
H	382500	1912.5	382000	1910	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895	378500	1892.5

NR Band 26								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	163300	816.5	163800	819	164300	821.5	164800	824
M	166300	831.5	166300	831.5	166300	831.5	166300	831.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 30				
Bandwidth 5MHz			Bandwidth 10MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	461500	2307.5	462000	2310
M	462000	2310		
H	462500	2312.5		

NR Band 66																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz	
	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	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	345500	1727.5	346000	1730	346500	1732.5
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353500	1767.5	353000	1765	352500	1762.5	352000	1760	351500	1757.5

NR Band 71														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	133100	665.5	133600	668	134100	670.5	134600	673	135100	675.5	135600	678		
M	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5	136100	680.5
H	139100	695.5	138600	693	138100	690.5	137600	688	137100	685.5	136600	683		

NR Band 70					
Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #
L	339500	1697.5	340000	1700	340500
M	340500	1702.5	340500	1702.5	
H	341500	1707.5	341000	1705	

NR Band 38												
	Bandwidth10MHz		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)
L	515004	2575.02	515502	2577.51	516000	2580	516504	2582.52	517002	2585.01	518004	2590.02
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98



NR Band 41																												
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	500202	2501.01	500700	2503.5	501204	2506.02	501702	2508.51	502200	2511	502704	2513.52	503202	2516.01	503700	2518.5	504204	2521.02	505200	2526	500202	2501.01	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	537000	2685	536496	2682.48	535998	2679.99	535500	2677.5	534996	2674.98	534498	2672.49	534000	2670	533496	2667.48	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

NR Band 77 SCS30KHz																									
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz			
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	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	3840.00	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	
H	665000	3975	664832	3972.48	664666	3969.99	664500	3967.50	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930	

NR Band 78 SCS30KHz																									
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz			
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	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	3750.00	650000	3750.00	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	
H	653000	3795	652834	3792.51	652668	3790.02	652500	3787.5	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01			

NR Band 48											
Bandwidth 10MHz				Bandwidth 15MHz				Bandwidth 20MHz			
Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)	
L		637000		3555		637168		3557.52		637334	
M		641666		3624.99		641666		3624.99		641666	
H		646332		3694.98		646166		3692.49		646000	

NR Band 77 SCS30KHz																								
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	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	633334	3500.01	633334	3500.01	633334	3500.01
H	636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

NR Band 78 SCS30KHz																									
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz			
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	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	633334	3500.01	633334	3500.01	633334	3500.01	
H	636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02			

5. RF Exposure Limits

5.1 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.

5.2 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.

6. Specific Absorption Rate (SAR)

6.1 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.

6.2 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:

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

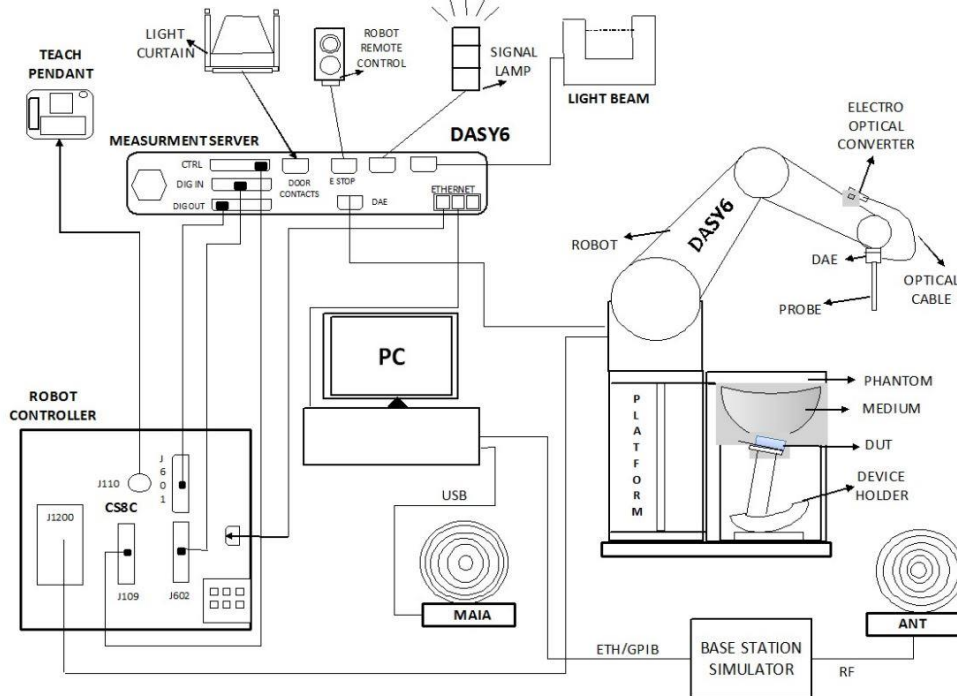
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 or Win10 and the DASY5 or 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.

7.1 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	4 MHz – 10 GHz Linearity: ± 0.2 dB (30 MHz – 10 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

7.2 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

7.3 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 or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

7.4 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

8. 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

8.1 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

8.2 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.

8.3 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 dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

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

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

8.4 Zoom Scan

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

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

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

8.5 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.

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2025/3/12	2026/3/11
SPEAG	835MHz System Validation Kit	D835V2	4d298	2024/1/26	2026/1/24
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2025/3/12	2026/3/11
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2024/12/16	2025/12/15
SPEAG	2300MHz System Validation Kit	D2300V2	1055	2023/8/21	2025/8/19
SPEAG	2450MHz System Validation Kit	D2450V2	1095	2024/2/8	2026/2/6
SPEAG	2600MHz System Validation Kit	D2600V2	1112	2023/12/18	2025/12/16
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2023/11/20	2025/11/18
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2023/11/20	2025/11/18
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2023/3/9	2026/3/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2022/9/23	2025/9/21
SPEAG	Data Acquisition Electronics	DAE4	1338	2025/3/18	2026/3/17
SPEAG	Data Acquisition Electronics	DAE4	1279	2024/8/20	2025/8/19
SPEAG	Dosimetric E-Field Probe	EX3DV4	7630	2024/8/22	2025/8/21
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2025/2/19	2026/2/18
SPEAG	Dosimetric E-Field Probe	EX3DV4	7764	2024/9/2	2025/9/1
SPEAG	SAM Twin Phantom	SAM Twin	TP-1842	NCR	NCR
Beichuang	Thermo-Hygrometer	HTC-1	1959630	2025/5/27	2026/5/26
Beichuang	Thermo-Hygrometer	HTC-1	1949251	2025/1/11	2026/1/10
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8820C	6201563900	2025/7/2	2026/7/1
Agilent	ENA Series Network Analyzer	E5071C	MY46112129	2025/7/2	2026/7/1
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2024/8/20	2025/8/19
Anritsu	Vector Signal Generator	MG3710A	6201682672	2025/1/3	2026/1/2
Rohde & Schwarz	Power Meter	NRVD	102081	2025/7/2	2026/7/1
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2025/7/2	2026/7/1
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2025/7/2	2026/7/1
R&S	BLUETOOTH TESTER	CBT	101246	2025/7/3	2026/7/2
Rohde & Schwarz	Spectrum Analyzer	FSV7	101631	2024/10/11	2025/10/10
TES	DIGITAC THERMOMETER	TYPE-K	220305411	2025/1/2	2026/1/1
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	
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	

Note:

- 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
- 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.
- 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.

10. System Verification

10.1 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.

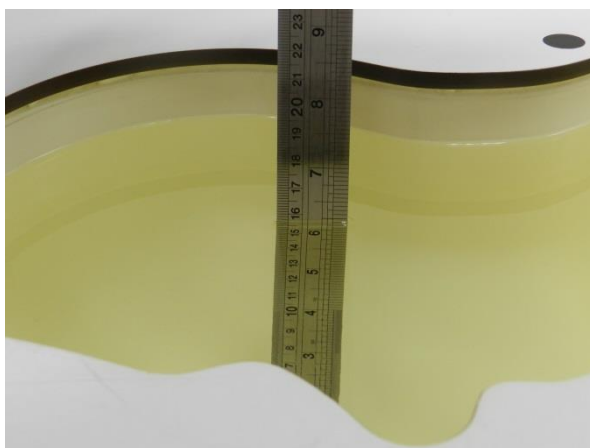


Fig 11.1 Photo of Liquid Height for Head SAR



Fig 11.2 Photo of Liquid Height for Body SAR

10.2 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)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	Head	22.7	0.885	43.0	0.89	41.90	-0.56	2.63	±5	2025/7/6
750	Head	22.7	0.891	42.91	0.89	41.90	0.11	2.41	±5	2025/7/4
750	Head	22.8	0.889	43.009	0.89	41.90	-0.11	2.65	±5	2025/7/7
835	Head	22.6	0.923	42.5	0.90	41.50	2.56	2.41	±5	2025/7/6
835	Head	22.7	0.919	42.533	0.90	41.50	2.11	2.49	±5	2025/7/4
835	Head	22.6	0.914	42.563	0.90	41.50	1.56	2.56	±5	2025/7/7
1750	Head	22.7	1.38	40.3	1.37	40.10	0.73	0.50	±5	2025/7/7
1750	Head	22.8	1.377	40.685	1.37	40.10	0.51	1.46	±5	2025/7/5
1750	Head	22.8	1.375	40.69	1.37	40.10	0.36	1.47	±5	2025/7/8
1900	Head	22.9	1.45	39.1	1.40	40.00	3.57	-2.25	±5	2025/7/7
1900	Head	22.6	1.443	39.178	1.40	40.00	3.07	-2.06	±5	2025/7/5
1900	Head	22.7	1.441	39.218	1.40	40.00	2.93	-1.95	±5	2025/7/8
2300	Head	22.8	1.61	39.6	1.67	39.50	-3.59	0.25	±5	2025/7/8
2300	Head	22.8	1.608	39.633	1.67	39.50	-3.71	0.34	±5	2025/7/6
2300	Head	22.8	1.616	39.58	1.67	39.50	-3.23	-2.33	±5	2025/7/9
2450	Head	22.7	1.76	39.2	1.80	39.20	-2.22	0.00	±5	2025/7/11
2600	Head	22.9	1.90	38.8	1.96	39.00	-3.06	-0.51	±5	2025/7/8
2600	Head	22.7	1.915	38.857	1.96	39.00	-2.30	-0.37	±5	2025/7/6
2600	Head	22.7	1.904	38.824	1.96	39.00	-2.86	-0.45	±5	2025/7/9
3500	Head	22.6	2.98	37.8	2.91	37.90	2.41	-0.26	±5	2025/7/9
3700	Head	22.7	3.19	37.4	3.12	37.70	2.24	-0.80	±5	2025/7/9
3900	Head	22.6	3.38	37.4	3.33	37.51	1.50	-0.29	±5	2025/7/10
5250	Head	22.7	4.70	36.2	4.71	35.95	-0.21	0.70	±5	2025/7/12
5600	Head	22.6	5.03	35.8	5.07	35.50	-0.79	0.85	±5	2025/7/13
5750	Head	22.8	5.21	35.7	5.22	35.35	-0.19	0.99	±5	2025/7/14

10.3 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.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2025/7/6	750	Head	50	1087	7630	1338	0.401	8.680	8.02	-7.60	0.265	5.610	5.3	-5.53
2025/7/4	750	Head	50	1087	3857	1279	0.421	8.680	8.42	-3.00	0.280	5.610	5.6	-0.18
2025/7/7	750	Head	50	1087	3857	1279	0.425	8.680	8.5	-2.07	0.287	5.610	5.74	2.32
2025/7/6	835	Head	50	4d298	7630	1338	0.532	9.890	10.64	7.58	0.354	6.450	7.08	9.77
2025/7/4	835	Head	50	4d298	3857	1279	0.536	9.890	10.72	8.39	0.351	6.450	7.02	8.84
2025/7/7	835	Head	50	4d298	3857	1279	0.487	9.890	9.74	-1.52	0.326	6.450	6.52	1.09
2025/7/7	1750	Head	50	1090	7630	1338	1.970	36.600	39.4	7.65	1.010	19.500	20.2	3.59
2025/7/5	1750	Head	50	1090	3857	1279	1.810	36.600	36.2	-1.09	0.965	19.500	19.3	-1.03
2025/7/8	1750	Head	50	1090	3857	1279	1.890	36.600	37.8	3.28	1.030	19.500	20.6	5.64
2025/7/7	1900	Head	50	5d182	7630	1338	2.110	39.800	42.2	6.03	1.110	21.000	22.2	5.71
2025/7/5	1900	Head	50	5d182	3857	1279	1.940	39.800	38.8	-2.51	1.050	21.000	21	0.00
2025/7/8	1900	Head	50	5d182	3857	1279	1.950	39.800	38.8	-2.51	1.010	21.000	21	0.00
2025/7/8	2300	Head	50	1055	7630	1338	2.410	48.400	48.2	-0.41	1.180	23.700	23.6	-0.42
2025/7/6	2300	Head	50	1055	3857	1279	2.370	48.400	47.4	-2.07	1.130	23.700	22.6	-4.64
2025/7/9	2300	Head	50	1055	3857	1279	2.370	48.400	47.4	-2.07	1.150	23.700	23	-2.95
2025/7/11	2450	Head	50	1095	7630	1338	2.730	52.600	54.6	3.80	1.300	24.700	26	5.26
2025/7/8	2600	Head	50	1112	7630	1338	2.660	55.100	53.2	-3.45	1.230	24.800	24.6	-0.81
2025/7/6	2600	Head	50	1112	3857	1279	2.800	55.100	56	1.63	1.260	24.800	25.2	1.61
2025/7/9	2600	Head	50	1112	3857	1279	2.770	55.100	55.4	0.54	1.260	24.800	25.2	1.61
2025/7/9	3500	Head	50	1037	7630	1338	3.530	65.400	70.6	7.95	1.320	24.700	26.4	6.88
2025/7/9	3700	Head	50	1008	7630	1338	3.670	67.200	73.4	9.23	1.310	24.400	26.2	7.38
2025/7/10	3900	Head	50	1048	7764	1338	3.460	69.100	69.2	0.14	1.270	24.100	25.4	5.39
2025/7/12	5250	Head	50	1113	7630	1338	3.960	81.500	79.2	-2.82	1.160	23.300	23.2	-0.43
2025/7/13	5600	Head	50	1113	7630	1338	4.150	82.600	83	0.48	1.180	23.700	23.6	-0.42
2025/7/14	5750	Head	50	1113	7630	1338	3.800	80.800	76	-5.94	1.090	23.000	21.8	-5.22

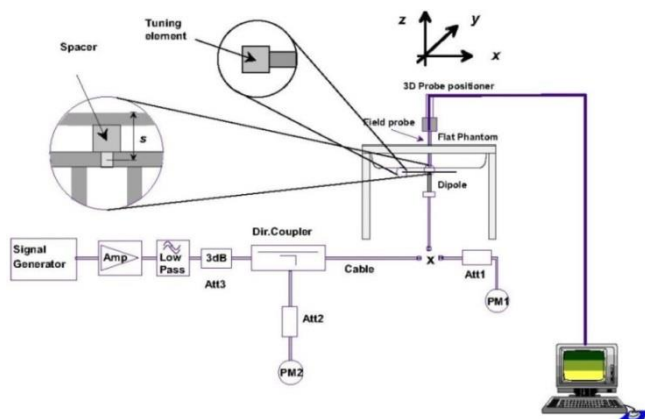


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

11. RF Exposure Positions

11.1 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.

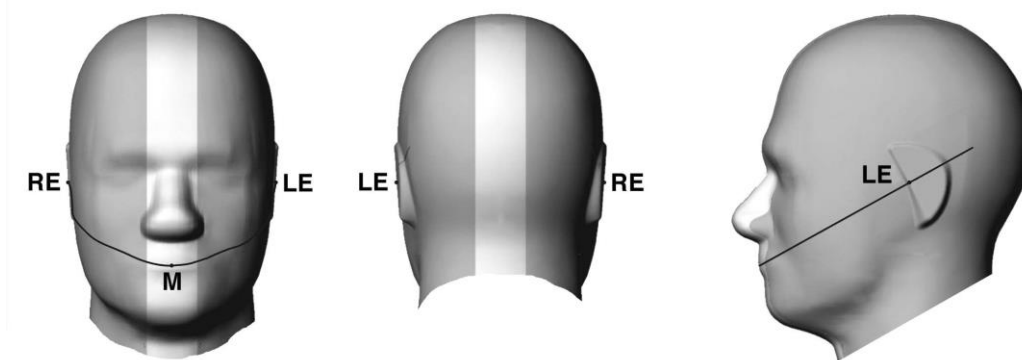


Fig 12.1.1 Front, back, and side views of SAM twin phantom

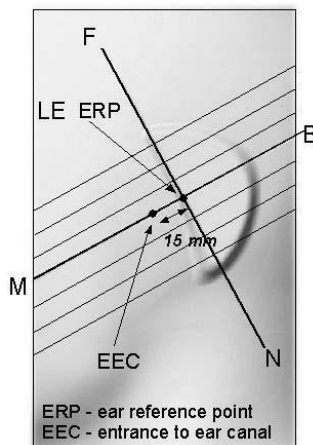


Fig 12.1.2 Close-up side view of phantom showing the ear region.

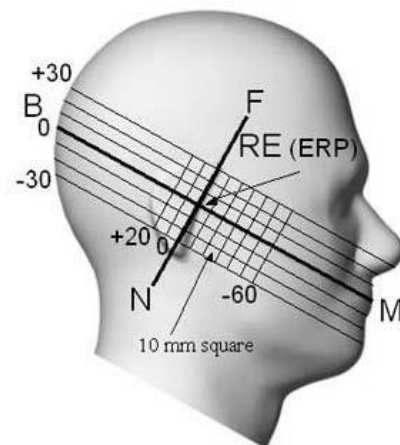


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

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

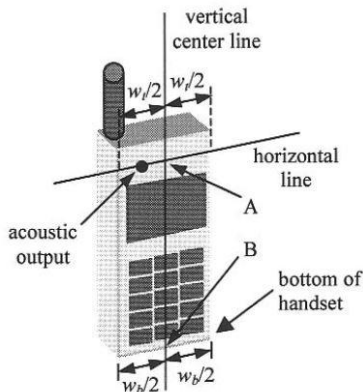


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case"

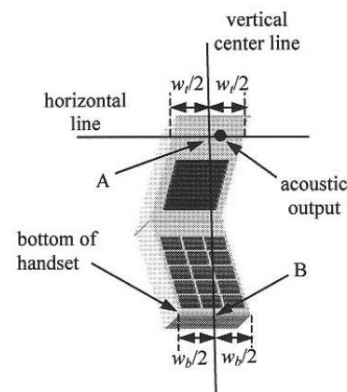


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

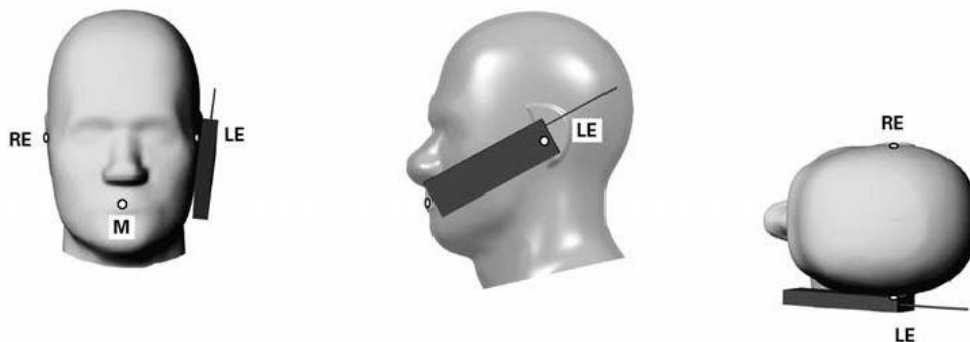


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 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

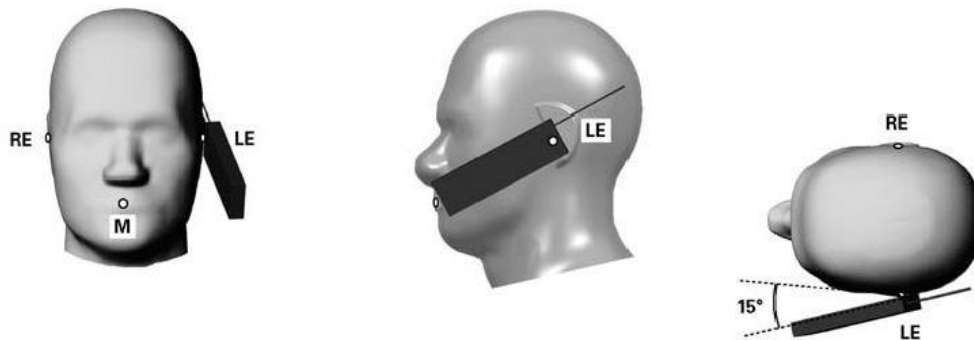


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 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 11.4). 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 handset attached to the handset.

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

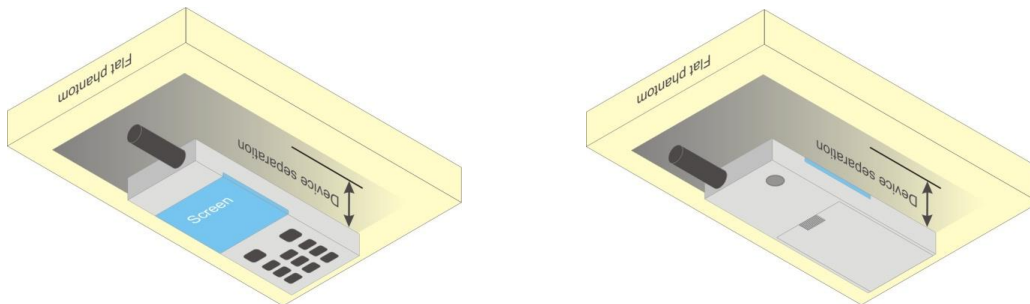


Fig 12.4 Body Worn Position

11.5 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 can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and 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.

11.6 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.



12. SAR Test Results

12.1 Head SAR

<Flip Open>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
01	LTE Band 71	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	133322	683	22.65	24.00	1.365	-	-	0.03	0.118	0.161
	LTE Band 71	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	133322	683	22.61	24.00	1.377	-	-	-0.08	0.212	0.292
02	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	23095	707.5	22.96	24.00	1.271	-	-	0.03	0.183	0.233
	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	23095	707.5	22.92	24.00	1.282	-	-	-0.03	0.132	0.169
03	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	23230	782	22.07	23.00	1.239	-	-	-0.02	0.121	0.150
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	23230	782	22.28	23.00	1.180	-	-	0.08	0.094	0.111
04	LTE Band 14	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	23330	793	22.50	24.00	1.413	-	-	-0.06	0.181	0.256
	LTE Band 14	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	23330	793	22.33	23.00	1.167	-	-	-0.03	0.133	0.155
05	FR1 n71_Other Path	35M	QPSK	90	45	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	136100	680.5	23.06	24.00	1.242	-	-	-0.01	0.098	0.122
	FR1 n71	35M	QPSK	90	45	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	136100	680.5	22.81	24.00	1.315	-	-	-0.08	0.130	0.171
06	FR1 n12	15M	QPSK	36	22	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	141500	707.5	23.60	24.50	1.230	-	-	0.05	0.098	0.121
	FR1 n12	15M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	141500	707.5	23.47	24.00	1.130	-	-	-0.05	0.141	0.159
07	FR1 n14	10M	QPSK	25	14	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	158600	793	23.61	24.50	1.227	-	-	0.01	0.124	0.152
	FR1 n14	10M	QPSK	25	14	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	158600	793	23.30	24.00	1.175	-	-	-0.04	0.107	0.126
835MHz																				
08	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI 2	189	836.4	28.07	29.00	1.239	-	-	-0.02	0.138	0.171
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 1	DSI 2	189	836.4	27.48	29.00	1.419	-	-	0.05	0.183	0.260
09	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 2	4182	836.4	23.26	24.00	1.186	-	-	0.04	0.156	0.185
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSI 2	4182	836.4	23.66	24.00	1.081	-	-	-0.09	0.241	0.261
10	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	26865	831.5	22.85	24.00	1.303	-	-	0.01	0.168	0.219
	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	26865	831.5	22.46	24.00	1.426	-	-	0.01	0.146	0.208
11	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	166300	831.5	23.60	24.00	1.096	-	-	0.08	0.122	0.134
	FR1 n26	20M	QPSK	50	28	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	166300	831.5	23.10	24.00	1.230	-	-	-0.02	0.135	0.166
1750MHz																				
12	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSI 2	1513	1752.6	17.72	18.90	1.312	-	-	0.07	0.851	1.117
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI 2	1413	1732.6	23.12	24.00	1.225	-	-	-0.03	0.080	0.098
13	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 2	132322	1745	18.18	19.20	1.265	-	-	-0.05	0.986	1.247
	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 2	132572	1770	18.69	20.10	1.384	-	-	0.07	0.666	0.921
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI 2	132322	1745	22.31	24.00	1.476	-	-	-0.11	0.062	0.091
	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	132322	1745	22.08	23.00	1.236	-	-	0.05	0.041	0.051
14	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI 2	349000	1745	17.53	18.60	1.279	-	-	-0.02	0.844	1.080
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Right Tilted	0mm	Ant 3	DSI 2	349000	1745	18.98	20.00	1.265	-	-	0.14	0.994	1.257
	FR1 n66_Other Path	45M	QPSK	120	60	DFT-SCS-15KHz	Left Cheek	0mm	Ant 0	DSI 2	349000	1745	23.19	24.00	1.205	-	-	0.13	0.074	0.089
	FR1 n66	45M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	349000	1745	22.28	23.00	1.180	-	-	-0.06	0.025	0.030
15	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI 2	340500	1702.5	18.48	19.50	1.265	-	-	-0.17	0.894	1.131
	FR1 n70_code2	15M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 3	DSI 2	340500	1702.5	20.48	21.70	1.324	-	-	0.02	0.961	1.273
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 3	DSI 2	340500	1702.5	22.71	24.00	1.346	-	-	0.01	0.054	0.073
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	340500	1702.5	22.60	24.00	1.380	-	-	0.12	0.021	0.029
1900MHz																				
16	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 2	DSI 2	512	1850.2	21.14	22.20	1.276	-	-	-0.1	0.995	1.270
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSI 2	661	1880	25.33	26.50	1.309	-	-	0.09	0.037	0.048
17	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSI 2	9400	1880	18.18	19.10	1.236	-	-	-0.13	0.954	1.179
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSI 2	9400	1880	22.81	24.00	1.315	-	-	0.12	0.095	0.125
18	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 2	26590	1905	18.08	19.10	1.265	-	-	-0.04	0.998	1.262
	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI 2	26140	1860	18.34	19.40	1.276	-	-	0.08	0.986	1.259
	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	26340	1880	22.15	23.00	1.216	-	-	-0.14	0.076	0.092



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	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI 2	26340	1880	22.41	23.00	1.146	-	-	0.03	0.081	0.093
19	FR1 n2_Other Path	40M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI 2	376000	1880	18.55	19.60	1.274	-	-	0.09	0.880	1.121
20	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 3	DSI 2	376500	1882.5	19.44	20.40	1.247	-	-	0.01	0.986	1.230
	FR1 n25	45M	QPSK	120	60	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	376500	1882.5	22.67	24.00	1.358	-	-	0.02	0.074	0.101
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 1	DSI 2	376500	1882.5	22.83	24.00	1.309	-	-	0.06	0.071	0.093
2300MHz																				
21	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI 2	27710	2310	18.45	19.40	1.245	-	-	0.17	0.864	1.075
	LTE Band 30	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	27710	2310	22.58	24.00	1.387	-	-	0.04	0.162	0.225
22	FR1 n30	10M	QPSK	1	1	DFT-SCS-15KHz	Right Cheek	0mm	Ant 2	DSI 2	462000	2310	18.11	19.10	1.256	-	-	0.05	0.752	0.945
	FR1 n30	10M	QPSK	25	14	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	462000	2310	22.31	24.00	1.476	-	-	0.04	0.123	0.182
2600MHz																				
23	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 2	21350	2560	17.98	19.30	1.355	-	-	0.08	0.676	0.916
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	21100	2535	22.25	23.00	1.189	-	-	-0.06	0.166	0.197
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI 2	41490	2680	19.84	21.10	1.337	62.9	1.006	-0.09	0.893	1.201
24	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 2	41490	2680	16.97	18.40	1.390	62.9	1.006	0.01	0.869	1.215
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI 2	40620	2593	25.50	27.00	1.413	42.9	1.009	-0.08	0.175	0.249
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSI 2	40620	2593	26.02	27.00	1.253	42.9	1.009	-0.04	0.127	0.161
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Cheek	0mm	Ant 2	DSI 2	507000	2535	18.98	19.80	1.208	-	-	-0.01	0.830	1.002
25	FR1 n7_code2	50M	QPSK	135	68	DFT-SCS-15KHz	Right Tilted	0mm	Ant 3	DSI 2	507000	2535	17.86	18.90	1.271	-	-	0.01	0.898	1.141
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Right Cheek	0mm	Ant 0	DSI 2	507000	2535	22.87	24.00	1.297	-	-	-0.03	0.098	0.127
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Cheek	0mm	Ant 1	DSI 2	507000	2535	23.12	24.00	1.225	-	-	-0.01	0.220	0.269
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 2	DSI 2	518598	2592.99	19.08	19.90	1.208	-	-	0.16	0.774	0.935
26	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	518598	2592.99	21.15	22.30	1.303	50	1.000	0.03	0.975	1.271
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSI 2	518598	2592.99	23.49	24.00	1.125	-	-	-0.08	0.176	0.198
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSI 2	518598	2592.99	23.39	24.00	1.151	-	-	-0.06	0.175	0.201
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 2	42990	3540	20.86	21.90	1.271	62.9	1.006	-0.02	0.859	1.098
27	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 8	DSI 2	42990	3540	20.11	21.20	1.285	62.9	1.006	-0.06	0.968	1.252
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 2	42190	3460	18.87	19.90	1.268	62.9	1.006	0.01	0.922	1.176
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 2	42990	3540	19.68	20.70	1.265	62.9	1.006	0.09	0.469	0.597
28	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI 2	56640	3690	19.69	20.70	1.262	62.9	1.006	-0.04	0.996	1.264
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 8	DSI 2	56150	3641	17.57	18.50	1.239	62.9	1.006	0.09	0.844	1.052
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI 2	55340	3560	19.89	21.00	1.291	62.9	1.006	0.08	0.801	1.040
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSI 2	55340	3560	19.69	20.90	1.321	62.9	1.006	-0.14	0.549	0.730
	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DSI 2	641666	3624.99	16.98	18.20	1.324	-	-	-0.05	0.801	1.061
29	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI 2	641666	3624.99	18.46	19.50	1.271	-	-	0.02	0.989	1.257
	FR1 n48_code3	40M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	641666	3624.99	18.66	20.00	1.361	-	-	0.01	0.844	1.149
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	641666	3624.99	19.09	20.10	1.262	-	-	0.09	0.656	0.828
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DSI 2	656000	3840	16.08	17.10	1.265	-	-	0.09	0.949	1.200
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DSI 2	633334	3500.01	16.12	17.10	1.253	-	-	0.01	0.651	0.816
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI 2	656000	3840	18.65	19.30	1.161	-	-	-0.08	0.882	1.024
30	FR1 n77 Part 27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI 2	633334	3500.01	21.55	22.30	1.189	50	1.000	-0.05	1.030	1.224
	FR1 n77 Part 27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DSI 2	656000	3840	21.05	21.80	1.189	50	1.000	-0.09	0.472	0.561
	FR1 n77 Part 27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DSI 2	633334	3500.01	21.05	21.80	1.189	50	1.000	0.02	0.943	1.121
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	656000	3840	15.28	16.30	1.265	-	-	0.01	0.556	0.703
	FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DSI 2	633334	3500.01	15.25	16.30	1.274	-	-	-0.15	0.611	0.778



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
31	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 7+6(7)	Standalone	11	2462	13.61	15.00	1.377	97.06	1.030	0.08	0.951	1.349
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 6	Standalone	39	2441	18.30	18.50	1.047	77.07	1.081	-0.04	0.689	0.780
32	Bluetooth	1Mbps	Left Cheek	0mm	Ant 7	Standalone	39	2441	13.95	15.00	1.274	77.07	1.081	0.07	0.926	1.275
5000MHz																
33	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	58	5290	16.77	18.00	1.327	99.63	1.004	-0.06	0.846	1.127
34	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	114	5570	15.81	17.00	1.315	100	1.000	-0.07	0.765	1.006
35	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	155	5775	16.44	17.50	1.276	99.63	1.004	-0.06	0.881	1.129

12.2 Hotspot SAR

<Flip Open>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 71	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	133322	683	22.65	24.00	1.36	-	-	0.11	0.621	0.847
36	LTE Band 71	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 7	133322	683	22.61	24.00	1.38	-	-	0.03	0.834	1.149
37	LTE Band 12	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	23095	707.5	22.96	24.00	1.27	-	-	0.02	0.672	0.854
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 7	23095	707.5	22.92	24.00	1.28	-	-	-0.03	0.643	0.825
38	LTE Band 13	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	23230	782	22.07	23.00	1.24	-	-	0.18	0.587	0.727
	LTE Band 13	10M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 7	23230	782	22.28	23.00	1.18	-	-	0.01	0.510	0.602
39	LTE Band 14	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	23330	793	22.50	24.00	1.41	-	-	0.17	0.615	0.869
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 7	23330	793	22.33	23.00	1.17	-	-	0.03	0.512	0.597
40	FR1 n71	35M	QPSK	90	45	DFT-SCS-15KHz	Right Side	5mm	Ant 0	DSI 7	136100	680.5	23.26	24.00	1.19	-	-	0.01	0.473	0.561
	FR1 n71	35M	QPSK	90	45	DFT-SCS-15KHz	Left Side	5mm	Ant 1	DSI 7	136100	680.5	22.81	24.00	1.32	-	-	0.09	0.417	0.548
41	FR1 n12	15M	QPSK	36	22	DFT-SCS-15KHz	Right Side	5mm	Ant 0	DSI 7	141500	707.5	23.60	24.50	1.23	-	-	-0.01	0.562	0.691
	FR1 n12	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 7	141500	707.5	23.47	24.00	1.13	-	-	-0.02	0.311	0.351
	FR1 n14_Other Path	10M	QPSK	25	14	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 7	158600	793	23.33	24.00	1.17	-	-	0.03	0.433	0.505
42	FR1 n14_Other Path	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 7	158600	793	23.13	24.00	1.22	-	-	-0.02	0.458	0.560
835MHz																				
43	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 7	189	836.4	28.07	29.00	1.24	-	-	-0.01	0.529	0.655
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 1	DSI 7	189	836.4	27.48	29.00	1.42	-	-	0.03	0.429	0.609
44	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI 7	4132	826.4	23.23	24.00	1.19	-	-	0.08	0.734	0.876
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	4233	846.6	23.61	24.00	1.09	-	-	0.03	0.753	0.824
65	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 7	26865	831.5	22.85	24.00	1.30	-	-	-0.05	0.620	0.808
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 7	26865	831.5	22.46	24.00	1.43	-	-	0.03	0.513	0.731
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 7	166300	831.5	23.33	24.00	1.17	-	-	0.04	0.501	0.585
45	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 7	166300	831.5	23.20	24.00	1.20	-	-	0.01	0.526	0.632
1750MHz																				
46	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	DSI 7	1413	1732.6	16.83	18.10	1.34	-	-	-0.09	0.772	1.034
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI 7	1312	1712.4	21.75	22.60	1.22	-	-	0.06	0.657	0.799
47	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 7	132572	1770	18.32	19.20	1.22	-	-	0.01	1.030	1.261
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI 7	132572	1770	19.06	20.10	1.27	-	-	0.1	0.986	1.253
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI 7	132572	1770	21.19	22.40	1.32	-	-	0.03	0.436	0.576
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 7	132572	1770	19.56	20.30	1.19	-	-	-0.08	0.621	0.736
	FR1 n66_Other Path	45M	QPSK	120	60	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 7	349000	1745	17.45	18.70	1.33	-	-	-0.04	0.768	1.024
48	FR1 n66_Other Path	45M	QPSK	120	60	DFT-SCS-15KHz	Top Side	5mm	Ant 3	DSI 7	349000	1745	18.83	20.10	1.34	-	-	-0.03	0.929	1.245
	FR1 n66	45M	QPSK	120	60	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	DSI 7	349000	1745	22.05	23.00	1.24	-	-	0.01	0.832	1.035
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 1	DSI 7	349000	1745	18.76	19.80	1.27	-	-	-0.18	0.811	1.030
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 7	340500	1702.5	19.05	19.90	1.22	-	-	0.01	0.790	0.961
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Top Side	5mm	Ant 3	DSI 7	340500	1702.5	21.03	21.80	1.19	-	-	0.03	0.942	1.125



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49	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant 0	DSI 7	340500	1702.5	21.64	23.00	1.37	-	-	-0.03	0.921	1.260
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 1	DSI 7	340500	1702.5	19.06	20.20	1.30	-	-	-0.17	0.702	0.913
1900MHz																				
50	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 2	DSI 7	810	1909.8	20.66	21.90	1.33	-	-	0.06	0.923	1.228
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI 7	661	1880	25.33	26.50	1.31	-	-	0.01	0.713	0.933
51	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	DSI 7	9400	1880	17.61	18.40	1.20	-	-	0.03	1.020	1.223
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI 7	9262	1852.4	21.57	22.90	1.36	-	-	0.09	0.793	1.077
52	LTE Band 25	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 7	26590	1905	18.75	19.50	1.19	-	-	-0.14	1.010	1.200
	LTE Band 25	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI 7	26340	1880	18.61	19.60	1.26	-	-	0.02	0.926	1.163
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI 7	26340	1880	22.15	23.00	1.22	-	-	-0.01	0.984	1.197
	LTE Band 25	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 7	26340	1880	20.88	22.20	1.36	-	-	-0.02	0.790	1.071
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 7	376500	1882.5	17.88	18.90	1.26	-	-	-0.03	0.799	1.011
53	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Top Side	5mm	Ant 3	DSI 7	376500	1882.5	18.45	19.60	1.30	-	-	-0.09	0.960	1.251
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 0	DSI 7	376500	1882.5	20.78	22.10	1.36	-	-	0.03	0.796	1.079
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 1	DSI 7	376500	1882.5	20.86	22.10	1.33	-	-	0.02	0.861	1.146
2300MHz																				
54	LTE Band 30	10M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 7	27710	2310	18.41	19.40	1.26	-	-	0.05	1.010	1.269
	LTE Band 30	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	27710	2310	22.15	23.10	1.24	-	-	0.02	0.663	0.825
	FR1 n30	10M	QPSK	25	14	-	Left Side	5mm	Ant 2	DSI 7	462000	2310	17.96	19.10	1.30	-	-	-0.02	0.891	1.158
55	FR1 n30	10M	QPSK	25	14	-	Right Side	5mm	Ant 0	DSI 7	462000	2310	21.78	22.70	1.24	-	-	-0.08	0.976	1.206
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 7	21350	2560	17.38	18.40	1.26	-	-	-0.02	0.661	0.836
66	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	21350	2560	19.24	19.90	1.16	-	-	0.08	0.719	0.837
56	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 7	40185	2549.5	19.06	19.90	1.21	62.9	1.006	0.07	0.987	1.205
	LTE Band 41	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI 7	41490	2680	16.65	17.80	1.30	62.9	1.006	0.01	0.522	0.684
	LTE Band 41	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 7	41055	2636.5	19.85	20.90	1.27	62.9	1.006	0.02	0.519	0.665
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 7	41490	2680	22.91	23.90	1.26	62.9	1.006	0.05	0.867	1.096
57	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 7	507000	2535	18.37	19.30	1.24	-	-	0.03	0.911	1.129
	FR1 n7_Code 2	50M	QPSK	135	68	DFT-SCS-15KHz	Top Side	5mm	Ant 3	DSI 7	507000	2535	17.76	18.90	1.30	-	-	-0.1	0.819	1.065
	FR1 n7	50M	QPSK	1	1	DFT-SCS-15KHz	Right Side	5mm	Ant 0	DSI 7	507000	2535	21.35	22.20	1.22	-	-	-0.05	0.812	0.988
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Side	5mm	Ant 1	DSI 7	507000	2535	20.57	21.60	1.27	-	-	0.07	0.439	0.556
58	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 2	DSI 7	518598	2592.99	18.12	19.30	1.31	-	-	0.01	0.942	1.236
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 3	DSI 7	518598	2592.99	18.14	19.00	1.22	-	-	0.01	0.744	0.907
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	5mm	Ant 0	DSI 7	518598	2592.99	18.28	19.30	1.26	-	-	0.09	0.582	0.736
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 1	DSI 7	518598	2592.99	21.32	22.10	1.20	-	-	-0.02	0.510	0.610
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	DSI 7	42190	3460	18.50	19.40	1.23	62.9	1.006	0.09	0.581	0.719
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Right Side	5mm	Ant 8	DSI 7	42990	3540	19.51	20.40	1.23	62.9	1.006	0.01	0.546	0.674
59	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI 7	42190	3460	18.93	19.90	1.25	62.9	1.006	-0.08	1.010	1.270
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Top Side	5mm	Ant 5	DSI 7	42990	3540	18.47	19.50	1.27	62.9	1.006	0.05	0.413	0.527
60	LTE Band 48	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	DSI 7	56640	3690	18.61	19.40	1.20	62.9	1.006	0.03	0.989	1.193
	LTE Band 48	20M	QPSK	1	0	-	Right Side	5mm	Ant 8	DSI 7	56640	3690	18.59	19.40	1.21	62.9	1.006	0.05	0.981	1.189
	LTE Band 48	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI 7	55340	3560	20.62	21.60	1.25	62.9	1.006	-0.05	0.920	1.160
	LTE Band 48	20M	QPSK	1	0	-	Top Side	5mm	Ant 5	DSI 7	55340	3560	18.09	19.30	1.32	62.9	1.006	0.14	0.393	0.522
67	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 4	DSI 7	641666	3624.99	15.57	16.30	1.18	-	-	-0.04	1.030	1.219
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 7	641666	3624.99	17.03	17.80	1.19	-	-	-0.05	1.000	1.194
	FR1 n48_Code 3	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 3	DSI 7	641666	3624.99	17.16	18.40	1.33	-	-	-0.07	0.609	0.810
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 5	DSI 7	641666	3624.99	18.16	19.20	1.27	-	-	-0.05	0.541	0.687
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 4	DSI 7	656000	3840	16.08	17.30	1.32	-	-	0.03	0.829	1.098
61	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 4	DSI 7	633334	3500.01	16.05	17.30	1.33	-	-	0.03	0.956	1.275
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 7	656000	3840	18.14	19.10	1.25	-	-	0.02	0.872	1.088
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 7	633334	3500.01	18.08	19.10	1.26	-	-	0.02	0.884	1.118
	FR1 n77 Part 27O_Code3	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 3	DSI 7	656000	3840	17.55	18.60	1.27	-	-	0.01	0.469	0.597
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 3	DSI 7	633334	3500.01	17.49	18.60	1.29	-	-	-0.11	0.718	0.927
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 5	DSI 7	656000	3840	15.73	16.60	1.22	-	-	0.05	1.020	1.246



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FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	5mm	Ant 5	DSI 7	633334	3500.01	15.76	16.60	1.21	-	-	-0.03	0.458	0.556
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Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
62	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 7+6(7)	Hotspot	11	2462	13.61	15.00	1.38	97.06	1.030	0.05	0.959	1.360
	Bluetooth	1Mbps	Top Side	5mm	Ant 6	Full power	39	2441	18.30	18.50	1.05	77.07	1.081	-0.05	0.511	0.578
63	Bluetooth	1Mbps	Right Side	5mm	Ant 7	Hotspot	78	2480	13.41	14.50	1.29	77.07	1.081	-0.17	0.801	1.113
5000MHz																
68	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 7+5(7)	Hotspot	42	5210	16.96	18.00	1.27	99.63	1.004	0.01	0.715	0.912
64	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 7+5(5)	Hotspot	155	5775	16.44	17.50	1.28	99.63	1.004	-0.04	0.756	0.969

<Flip Close>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 11	133322	683	22.65	24.00	1.365	-	-	0.17	0.387	0.528
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 11	133322	683	22.65	24.00	1.365	-	-	-0.05	0.395	0.539
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 11	23095	707.5	22.96	24.00	1.271	-	-	0.01	0.397	0.504
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 11	23095	707.5	22.92	24.00	1.282	-	-	0.1	0.391	0.501
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 11	23230	782	22.07	23.00	1.239	-	-	-0.17	0.471	0.583
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 11	23230	782	22.28	23.00	1.180	-	-	0.04	0.326	0.385
	LTE Band 14	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 11	23330	793	22.50	24.00	1.413	-	-	-0.08	0.525	0.742
	LTE Band 14	10M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 11	23330	793	22.33	23.00	1.167	-	-	0.13	0.435	0.508
	FR1 n71	35M	QPSK	90	45	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 11	136100	680.5	23.26	24.00	1.186	-	-	0.12	0.343	0.407
	FR1 n71	35M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 11	136100	680.5	22.99	24.00	1.262	-	-	0.03	0.267	0.337
	FR1 n12	15M	QPSK	36	22	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 11	141500	707.5	23.60	24.50	1.230	-	-	0.18	0.372	0.458
	FR1 n12_Other Path	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 11	141500	707.5	23.52	24.00	1.117	-	-	0.16	0.386	0.431
	FR1 n14	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 11	158600	793	23.70	24.50	1.202	-	-	-0.1	0.376	0.452
	FR1 n14_Other Path	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 11	158600	793	23.13	24.00	1.222	-	-	0.07	0.379	0.463
835MHz																				
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 11	189	836.4	28.07	29.00	1.239	-	-	0.02	0.519	0.643
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 1	DSI 11	189	836.4	27.48	29.00	1.419	-	-	0.18	0.408	0.579
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	DSI 11	4233	846.6	23.25	24.00	1.189	-	-	-0.1	0.726	0.863
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI 11	4233	846.6	23.61	24.00	1.094	-	-	0.01	0.789	0.863
	LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 11	26865	831.5	22.85	24.00	1.303	-	-	-0.15	0.606	0.790
	LTE Band 26	15M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 11	26865	831.5	22.46	24.00	1.426	-	-	0.19	0.526	0.750
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 11	166300	831.5	23.60	24.00	1.096	-	-	0.07	0.412	0.452
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 11	166300	831.5	23.20	24.00	1.202	-	-	-0.18	0.513	0.617
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	DSI 11	1513	1752.6	19.34	20.30	1.247	-	-	0.03	0.823	1.027
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 11	1312	1712.4	23.08	24.00	1.236	-	-	-0.15	0.355	0.439
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 11	132572	1770	18.32	19.40	1.282	-	-	-0.15	0.965	1.237
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 3	DSI 11	132322	1745	21.53	22.50	1.250	-	-	0.11	0.974	1.218
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI 11	132072	1720	22.25	24.00	1.496	-	-	-0.08	0.473	0.708
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 11	132322	1745	21.67	22.90	1.327	-	-	-0.17	0.171	0.227
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 11	349000	1745	18.05	19.00	1.245	-	-	-0.08	0.699	0.870
	FR1 n66	45M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 3	DSI 11	349000	1745	19.79	20.90	1.291	-	-	-0.04	0.955	1.233
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 11	340500	1702.5	20.48	21.30	1.208	-	-	-0.08	1.010	1.220
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 3	DSI 11	340500	1702.5	21.45	22.40	1.245	-	-	0.17	0.930	1.157
1900MHz																				



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	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 2	DSI 11	810	1909.8	20.66	21.80	1.300	-	-	0.18	0.926	1.204
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	5mm	Ant 0	DSI 11	661	1880	25.33	26.50	1.309	-	-	-0.04	0.478	0.626
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 2	DSI 11	9400	1880	17.51	18.50	1.256	-	-	-0.08	0.834	1.048
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	DSI 11	9400	1880	22.81	24.00	1.315	-	-	-0.13	0.708	0.931
	LTE Band 25	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 11	26340	1880	18.23	19.10	1.222	-	-	-0.13	0.961	1.174
	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 11	26590	1905	21.88	23.10	1.324	-	-	0.06	0.834	1.105
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI 11	26590	1905	22.08	23.00	1.236	-	-	-0.03	0.706	0.873
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 11	26340	1880	22.41	23.00	1.146	-	-	-0.03	0.531	0.608
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 11	376500	1882.5	18.38	19.30	1.236	-	-	0.08	0.689	0.852
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 3	DSI 11	376500	1882.5	19.95	21.30	1.365	-	-	-0.07	0.787	1.074
2300MHz																				
	LTE Band 30	10M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 11	27710	2310	18.07	19.40	1.358	-	-	0.05	0.786	1.068
	LTE Band 30	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 11	27710	2310	22.58	23.70	1.294	-	-	-0.11	0.718	0.929
	FR1 n30	10M	QPSK	1	1	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 11	462000	2310	18.58	19.50	1.236	-	-	-0.12	0.918	1.135
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 11	20850	2510	18.44	19.80	1.368	-	-	0.03	0.606	0.829
	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 11	21350	2560	20.85	22.20	1.365	-	-	-0.16	0.505	0.689
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 2	DSI 11	41055	2636.5	19.25	20.60	1.365	62.9	1.006	-0.02	0.809	1.111
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 3	DSI 11	41490	2680	18.55	19.50	1.245	62.9	1.006	0.15	0.946	1.184
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	DSI 11	41490	2680	25.36	26.40	1.271	42.9	1.009	-0.09	0.787	1.009
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI 11	40620	2593	26.02	27.00	1.253	42.9	1.009	0.11	0.631	0.798
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Side	5mm	Ant 2	DSI 11	507000	2535	19.51	20.50	1.256	-	-	-0.05	0.800	1.005
	FR1 n7	50M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	5mm	Ant 3	DSI 11	507000	2535	19.55	20.90	1.365	-	-	-0.08	0.625	0.853
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant 2	DSI 11	518598	2592.99	22.25	23.30	1.274	50	1.000	0.16	0.933	1.188
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI 11	518598	2592.99	22.68	23.60	1.236	50	1.000	0.05	0.931	1.151
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 0	DSI 11	518598	2592.99	22.55	23.80	1.334	-	-	0.05	0.653	0.871
	FR1 n41 HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	5mm	Ant 1	DSI 11	518598	2592.99	26.25	27.00	1.189	50	1.000	-0.03	0.623	0.740
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	DSI 11	42190	3460	20.40	21.70	1.349	62.9	1.006	-0.15	0.510	0.692
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Right Side	5mm	Ant 8	DSI 11	42590	3500	22.53	23.50	1.250	62.9	1.006	0.02	0.978	1.230
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 3	DSI 11	42190	3460	19.94	20.90	1.247	62.9	1.006	0.07	0.450	0.565
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 5	DSI 11	42590	3500	19.78	21.10	1.355	62.9	1.006	0.16	0.640	0.873
	LTE Band 48	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	DSI 11	56150	3641	19.15	20.50	1.365	62.9	1.006	0.13	0.856	1.175
	LTE Band 48	20M	QPSK	1	0	-	Right Side	5mm	Ant 8	DSI 11	56640	3690	19.19	20.10	1.233	62.9	1.006	-0.18	0.858	1.064
	LTE Band 48	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 3	DSI 11	55340	3560	21.90	22.90	1.259	62.9	1.006	0.02	0.830	1.051
	LTE Band 48	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 5	DSI 11	55830	3609	21.24	22.30	1.276	62.9	1.006	0.16	0.710	0.912
	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Left Side	5mm	Ant 4	DSI 11	641666	3624.99	18.01	19.10	1.285	-	-	-0.03	0.918	1.180
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 11	641666	3624.99	19.95	20.80	1.216	-	-	0.07	0.976	1.187
	FR1 n48_Code 3	40M	QPSK	50	28	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI 11	641666	3624.99	19.66	20.50	1.213	-	-	0	0.745	0.904
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 5	DSI 11	641666	3624.99	19.09	19.90	1.205	-	-	0.01	0.558	0.672
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 4	DSI 11	656000	3840	17.59	19.00	1.384	-	-	-0.01	0.744	1.029
	FR1 n77 Part 27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	5mm	Ant 4	DSI 11	633334	3500.01	20.75	22.00	1.334	50	1.000	-0.06	0.911	1.215
	FR1 n77 Part 27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 11	656000	3840	22.69	23.80	1.291	50	1.000	-0.04	0.944	1.219
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Right Side	5mm	Ant 8	DSI 11	633334	3500.01	19.63	20.80	1.309	-	-	-0.09	0.815	1.067
	FR1 n77 Part 27O HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI 11	656000	3840	22.52	23.20	1.169	50	1.000	-0.17	0.474	0.554
	FR1 n77 Part 27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant 3	DSI 11	633334	3500.01	22.42	23.20	1.197	50	1.000	-0.1	0.985	1.179
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	5mm	Ant 5	DSI 11	656000	3840	18.30	19.60	1.349	-	-	0.18	0.810	1.093
	FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	5mm	Ant 5	DSI 11	633334	3500.01	18.33	19.60	1.340	-	-	-0.17	0.931	1.247



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 7+6(7)	Hotspot	11	2462	14.11	15.00	1.227	97.06	1.030	-0.09	0.974	1.231
	Bluetooth	1Mbps	Front	5mm	Ant 6	Hotspot	39	2441	18.30	18.50	1.047	77.07	1.081	0.06	0.211	0.239
	Bluetooth	1Mbps	Right Side	5mm	Ant 7	Hotspot	39	2441	15.45	17.00	1.429	77.07	1.081	0.05	0.674	1.041
5000MHz																
	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	5mm	Ant 7+5(5)	Hotspot	46	5230	16.10	17.00	1.230	100	1.000	-0.08	0.732	0.901
	WLAN5.8GHz	802.11n-HT40 MCS0	Right Side	5mm	Ant 7+5(7)	Hotspot	159	5795	18.53	19.50	1.250	100	1.000	-0.01	0.772	0.965

12.3 Body Worn Accessory SAR

<Flip Open>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
69	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	133322	683	22.65	24.00	1.365	-	-	-0.03	0.521	0.711
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	133322	683	22.61	24.00	1.377	-	-	0.06	0.512	0.705
70	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	23095	707.5	22.96	24.00	1.271	-	-	0.04	0.605	0.769
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	23095	707.5	22.92	24.00	1.282	-	-	0.02	0.585	0.750
71	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	23230	782	22.07	23.00	1.239	-	-	0.06	0.462	0.572
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	23230	782	22.28	23.00	1.180	-	-	0.06	0.441	0.521
72	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	23330	793	22.50	24.00	1.413	-	-	0.11	0.537	0.759
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	23330	793	22.33	23.00	1.167	-	-	0.04	0.433	0.505
	FR1 n71_Other Path	35M	QPSK	90	45	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	136100	680.5	23.06	24.00	1.242	-	-	-0.03	0.341	0.423
	FR1 n71	35M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	136100	680.5	22.99	24.00	1.262	-	-	-0.07	0.335	0.423
	FR1 n12	15M	QPSK	36	22	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	141500	707.5	23.60	24.50	1.230	-	-	-0.19	0.331	0.407
	FR1 n12	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	141500	707.5	23.47	24.00	1.130	-	-	0.09	0.326	0.368
	FR1 n14	10M	QPSK	25	14	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	158600	793	23.61	24.50	1.227	-	-	0.07	0.395	0.485
	FR1 n14_Other Path	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	158600	793	23.13	24.00	1.222	-	-	-0.12	0.401	0.490
835MHz																				
74	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 3	189	836.4	28.07	29.00	1.239	-	-	-0.02	0.519	0.643
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 1	DSI 3	189	836.4	27.48	29.00	1.419	-	-	-0.04	0.426	0.605
75	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 3	4182	836.4	23.26	24.00	1.186	-	-	0.02	0.673	0.798
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 3	4233	846.6	23.61	24.00	1.094	-	-	0.02	0.666	0.729
76	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	26865	831.5	22.85	24.00	1.303	-	-	0.15	0.645	0.841
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	26865	831.5	22.46	24.00	1.426	-	-	-0.09	0.585	0.834
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	166300	831.5	23.60	24.00	1.096	-	-	-0.03	0.509	0.558
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	166300	831.5	23.20	24.00	1.202	-	-	0.04	0.518	0.623
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI 3	1513	1752.6	18.85	20.20	1.365	-	-	-0.04	0.782	1.067
77	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 3	1312	1712.4	23.08	24.00	1.236	-	-	0.05	0.872	1.078
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI 3	132572	1770	20.85	21.90	1.274	-	-	0.08	0.953	1.214
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI 3	132322	1745	21.03	22.30	1.340	-	-	-0.12	0.758	1.015
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	132072	1720	22.25	23.60	1.365	-	-	-0.02	0.921	1.257
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	132072	1720	21.99	22.90	1.233	-	-	-0.09	0.869	1.072
78	FR1 n66	45M	QPSK	120	60	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 3	349000	1745	20.65	21.90	1.334	-	-	0.03	0.956	1.275
	FR1 n66	45M	QPSK	120	60	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 3	349000	1745	21.71	22.70	1.256	-	-	0.1	0.926	1.163
	FR1 n66	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	349000	1745	23.18	24.00	1.208	-	-	-0.04	0.934	1.128
	FR1 n66	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	349000	1745	21.73	22.90	1.309	-	-	-0.03	0.665	0.871
79	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 2	DSI 3	340500	1702.5	21.56	22.80	1.330	-	-	-0.07	0.953	1.268
	FR1 n70	15M	QPSK	36	22	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 3	340500	1702.5	23.20	24.00	1.202	-	-	0.1	0.857	1.030



FCC SAR Test Report

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	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	340500	1702.5	22.71	23.70	1.256	-	-	-0.14	0.894	1.123
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	340500	1702.5	22.60	23.50	1.230	-	-	-0.05	0.459	0.565
1900MHz																				
80	GSM1900	-	-	-	-	GPRS (2 Tx slots)	Front	5mm	Ant 2	DSI 3	512	1850.2	27.69	28.50	1.205	-	-	0.09	0.938	1.130
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 3	661	1880	25.33	26.50	1.309	-	-	0.12	0.326	0.427
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 2	DSI 3	9400	1880	19.58	21.00	1.387	-	-	-0.05	0.865	1.200
94	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 3	9400	1880	22.81	24.00	1.315	-	-	0.09	0.952	1.252
81	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI 3	26590	1905	20.72	21.80	1.282	-	-	0.04	0.985	1.263
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI 3	26140	1860	20.54	21.90	1.368	-	-	0.05	0.914	1.250
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	26140	1860	22.11	23.00	1.227	-	-	0.07	0.911	1.118
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 3	26140	1860	22.34	23.00	1.164	-	-	0.01	0.875	1.019
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 3	376500	1882.5	21.22	22.30	1.282	-	-	-0.03	0.901	1.155
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 3	DSI 3	376500	1882.5	20.35	21.40	1.274	-	-	0.01	0.826	1.052
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 3	376500	1882.5	22.70	24.00	1.349	-	-	-0.08	0.755	1.018
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 3	376500	1882.5	22.83	24.00	1.309	-	-	-0.04	0.875	1.146
2300MHz																				
82	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 2	DSI 3	27710	2310	20.32	21.20	1.225	-	-	-0.04	0.729	0.893
	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 3	27710	2310	22.58	24.00	1.387	-	-	-0.05	0.618	0.857
83	FR1 n30	10M	QPSK	1	1	-	Front	5mm	Ant 2	DSI 3	462000	2310	21.05	22.00	1.245	-	-	0.02	0.994	1.237
	FR1 n30	10M	QPSK	1	1	-	Back	5mm	Ant 0	DSI 3	462000	2310	22.39	24.00	1.449	-	-	-0.06	0.689	0.998
2600MHz																				
84	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 3	21350	2560	20.43	21.80	1.371	-	-	0.06	0.410	0.562
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	DSI 3	21350	2560	22.16	23.00	1.213	-	-	-0.07	0.452	0.548
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI 3	40620	2593	22.51	23.50	1.256	62.9	1.006	0.04	0.822	1.039
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI 3	41490	2680	21.18	22.30	1.294	62.9	1.006	-0.01	0.869	1.131
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	DSI 3	41490	2680	21.88	23.10	1.324	62.9	1.006	-0.05	0.906	1.207
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Front	5mm	Ant 1	DSI 3	41490	2680	25.93	27.00	1.279	42.9	1.009	0.04	0.653	0.843
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 3	507000	2535	21.36	22.50	1.300	-	-	-0.09	0.819	1.065
	FR1 n7_code 2	50M	QPSK	135	68	DFT-SCS-15KHz	Back	5mm	Ant 3	DSI 3	507000	2535	20.89	21.80	1.233	-	-	0.01	0.751	0.926
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Front	5mm	Ant 0	DSI 3	507000	2535	22.87	24.00	1.297	-	-	0.02	0.854	1.108
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Front	5mm	Ant 1	DSI 3	507000	2535	23.12	24.00	1.225	-	-	-0.07	0.811	0.993
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 2	DSI 3	518598	2592.99	21.61	22.50	1.227	-	-	-0.06	0.826	1.014
98	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 3	DSI 3	518598	2592.99	21.09	21.90	1.205	-	-	-0.01	0.945	1.139
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 0	DSI 3	518598	2592.99	20.68	21.90	1.324	-	-	-0.07	0.855	1.132
	FR1 n41	100M	QPSK	270	0	DFT-SCS-30KHz	Back	5mm	Ant 1	DSI 3	518598	2592.99	22.23	23.00	1.194	-	-	-0.05	0.912	1.089
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI 3	42190	3460	22.49	23.90	1.384	62.9	1.006	0.08	0.802	1.116
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Back	5mm	Ant 8	DSI 3	42990	3540	20.95	22.30	1.365	62.9	1.006	-0.17	0.808	1.109
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 3	42190	3460	21.89	23.00	1.291	62.9	1.006	0.03	0.869	1.129
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Back	5mm	Ant 5	DSI 3	42990	3540	22.05	23.00	1.245	62.9	1.006	0.07	0.898	1.124
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI 3	56640	3690	21.07	22.40	1.358	62.9	1.006	0.01	0.921	1.259
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 8	DSI 3	56640	3690	20.06	21.30	1.330	62.9	1.006	0.05	0.910	1.218
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI 3	55340	3560	23.49	24.00	1.125	62.9	1.006	-0.06	0.985	1.114
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	DSI 3	55340	3560	22.57	23.40	1.211	62.9	1.006	0.04	0.869	1.058
	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Front	5mm	Ant 4	DSI 3	641666	3624.99	20.82	21.80	1.253	-	-	0.01	0.911	1.142
85	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Back	5mm	Ant 8	DSI 3	641666	3624.99	18.76	20.00	1.330	-	-	-0.01	0.946	1.259
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 3	DSI 3	641666	3624.99	21.64	22.50	1.219	-	-	-0.06	0.923	1.125
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 5	DSI 3	641666	3624.99	22.45	23.70	1.334	-	-	0.02	0.912	1.216
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 4	DSI 3	656000	3840	19.48	20.20	1.180	-	-	0.08	0.965	1.139
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 4	DSI 3	633334	3500.01	19.51	20.20	1.172	-	-	0.06	0.789	0.925
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 8	DSI 3	656000	3840	19.62	20.70	1.282	-	-	0.04	0.958	1.228
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 8	DSI 3	633334	3500.01	19.55	20.70	1.303	-	-	0.03	0.812	1.058
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 3	DSI 3	656000	3840	22.02	22.80	1.197	-	-	-0.04	0.915	1.095
	FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 3	DSI 3	633334	3500.01	21.95	22.80	1.216	-	-	0.08	0.869	1.057
86	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 5	DSI 3	656000	3840	21.73	22.80	1.279	-	-	0.01	0.975	1.247



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FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 5	DSI 3	633334	3500.01	21.78	22.80	1.265	-	-	0.06	0.925	1.170
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Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 7+6(6)	Standalone	6	2437	18.79	20.00	1.321	97.06	1.030	0.04	0.912	1.241
	Bluetooth	1Mbps	Back	5mm	Ant 6	Full power	39	2441	18.30	18.50	1.047	77.07	1.081	0.03	0.326	0.369
	Bluetooth	1Mbps	Back	5mm	Ant 7	Standalone	39	2441	17.45	18.00	1.135	77.07	1.081	0.08	0.611	0.750
5000MHz																
87	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 7+5(5)	Standalone	54	5270	17.52	18.50	1.253	100	1.000	0.06	0.831	1.041
88	WLAN5.5GHz	802.11ac-VHT160 MCS0	Back	5mm	Ant 7+5(5)	Standalone	114	5570	16.31	17.50	1.315	100	1.000	-0.08	0.762	1.002
89	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 7+5(7)	Standalone	155	5775	16.93	18.00	1.279	99.63	1.004	-0.06	0.667	0.857

<Flip Close>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	133322	683	22.65	24.00	1.365	-	-	-0.05	0.207	0.282
	LTE Band 71	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	133322	683	22.61	24.00	1.377	-	-	-0.01	0.301	0.415
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	23095	707.5	22.96	24.00	1.271	-	-	0.02	0.560	0.712
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	23095	707.5	22.92	24.00	1.282	-	-	0.01	0.550	0.705
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	23230	782	22.07	23.00	1.239	-	-	0.02	0.448	0.555
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	23230	782	22.28	23.00	1.180	-	-	0.02	0.271	0.320
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	23330	793	22.50	24.00	1.413	-	-	0.04	0.436	0.616
	LTE Band 14	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	23330	793	22.33	23.00	1.167	-	-	-0.03	0.359	0.419
90	FR1 n71	35M	QPSK	90	45	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 10	136100	680.5	23.26	24.00	1.186	-	-	0.18	0.362	0.429
	FR1 n71	35M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 10	136100	680.5	22.99	24.00	1.262	-	-	0.04	0.282	0.356
	FR1 n12	15M	QPSK	36	22	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 10	141500	707.5	23.60	24.50	1.230	-	-	0.12	0.335	0.412
73	FR1 n12_Other Path	15M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 10	141500	707.5	23.52	24.00	1.117	-	-	0.08	0.375	0.419
91	FR1 n14	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 10	158600	793	23.70	24.50	1.202	-	-	-0.02	0.408	0.491
	FR1 n14_Other Path	10M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 10	158600	793	23.13	24.00	1.222	-	-	-0.06	0.365	0.446
835MHz																				
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 10	189	836.4	28.07	29.00	1.239	-	-	0.02	0.505	0.626
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 1	DSI 10	189	836.4	27.48	29.00	1.419	-	-	-0.04	0.411	0.583
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 10	4182	836.4	23.26	24.00	1.186	-	-	0.02	0.629	0.746
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 10	4182	836.4	23.66	24.00	1.081	-	-	0.06	0.586	0.634
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	26865	831.5	22.85	24.00	1.303	-	-	0.03	0.490	0.639
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	26865	831.5	22.46	24.00	1.426	-	-	0.01	0.365	0.520
	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 0	DSI 10	166300	831.5	23.60	24.00	1.096	-	-	0.05	0.426	0.467
92	FR1 n26	20M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 1	DSI 10	166300	831.5	23.20	24.00	1.202	-	-	-0.01	0.524	0.630
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI 10	1413	1732.6	23.32	24.00	1.169	-	-	-0.07	0.913	1.068
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 10	1312	1712.4	23.08	24.00	1.236	-	-	-0.01	0.865	1.069
93	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 10	132322	1745	21.97	23.20	1.327	-	-	-0.02	0.965	1.281
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 10	132572	1770	22.60	23.80	1.318	-	-	0.06	0.923	1.217
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	132072	1720	22.25	24.00	1.496	-	-	-0.05	0.752	1.125
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	132322	1745	22.08	23.00	1.236	-	-	0.04	0.869	1.074
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Back	5mm	Ant 2	DSI 10	349000	1745	21.01	22.00	1.256	-	-	-0.06	0.866	1.088
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 10	349000	1745	22.40	23.40	1.259	-	-	-0.03	0.814	1.025
	FR1 n70	15M	QPSK	36	22	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 10	340500	1702.5	23.31	24.00	1.172	-	-	-0.01	0.962	1.128
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 10	340500	1702.5	23.43	24.00	1.140	-	-	-0.04	0.725	0.827
1900MHz																				
	GSM1900	-	-	-	-	GPRS (2 Tx slots)	Front	5mm	Ant 2	DSI 10	810	1909.8	27.72	28.50	1.197	-	-	-0.13	0.871	1.042
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	5mm	Ant 0	DSI 10	661	1880	25.33	26.50	1.309	-	-	0.05	0.265	0.347



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	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI 10	9400	1880	20.68	22.10	1.387	-	-	-0.19	0.901	1.249
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI 10	9400	1880	22.81	24.00	1.315	-	-	0.09	0.502	0.660
	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 10	26340	1880	21.31	22.60	1.346	-	-	-0.01	0.895	1.205
	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 10	26590	1905	21.88	23.10	1.324	-	-	0.01	0.912	1.208
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	26340	1880	22.15	23.00	1.216	-	-	0.04	0.621	0.755
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	26340	1880	22.41	23.00	1.146	-	-	0.05	0.522	0.598
95	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 10	376500	1882.5	21.89	22.90	1.262	-	-	-0.06	0.998	1.259
	FR1 n25	45M	QPSK	120	60	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 10	376500	1882.5	21.72	22.90	1.312	-	-	-0.04	0.922	1.210
2300MHz																				
	LTE Band 30	10M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 10	27710	2310	21.03	22.20	1.309	-	-	0.04	0.622	0.814
	LTE Band 30	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	27710	2310	22.58	24.00	1.387	-	-	0.03	0.521	0.722
	FR1 n30	10M	QPSK	1	1	-	Front	5mm	Ant 2	DSI 10	462000	2310	21.62	22.70	1.282	-	-	0.06	0.956	1.226
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 10	21350	2560	21.58	22.70	1.294	-	-	0.05	0.319	0.413
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	21100	2535	22.25	23.00	1.189	-	-	-0.04	0.411	0.488
96	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI 10	41055	2636.5	22.92	24.10	1.312	62.9	1.006	-0.08	0.923	1.218
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 10	41490	2680	21.45	22.80	1.365	62.9	1.006	0.03	0.875	1.201
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI 10	40620	2593	25.50	27.00	1.413	42.9	1.009	0.04	0.211	0.301
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI 10	40620	2593	26.02	27.00	1.253	42.9	1.009	-0.08	0.526	0.665
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Front	5mm	Ant 2	DSI 10	507000	2535	21.48	22.70	1.324	-	-	-0.12	0.826	1.094
97	FR1 n7_code 2	50M	QPSK	135	68	DFT-SCS-15KHz	Front	5mm	Ant 3	DSI 10	507000	2535	23.33	24.00	1.167	-	-	-0.06	0.966	1.127
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 2	DSI 10	518598	2592.99	25.38	26.70	1.355	50	1.000	0.06	0.831	1.126
	FR1 n41 HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 3	DSI 10	518598	2592.99	25.66	26.40	1.186	50	1.000	0.01	0.945	1.121
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Back	5mm	Ant 0	DSI 10	518598	2592.99	23.25	24.00	1.189	-	-	-0.01	0.421	0.500
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Back	5mm	Ant 1	DSI 10	518598	2592.99	23.39	24.00	1.151	-	-	-0.05	0.646	0.743
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI 10	42990	3540	22.92	24.00	1.282	62.9	1.006	-0.14	0.911	1.175
99	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 8	DSI 10	42990	3540	22.91	24.00	1.285	62.9	1.006	-0.07	0.943	1.219
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 10	42190	3460	21.89	22.80	1.233	62.9	1.006	0.05	0.896	1.111
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Front	5mm	Ant 5	DSI 10	42990	3540	22.05	23.00	1.245	62.9	1.006	0.09	0.769	0.963
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI 10	56150	3641	23.09	24.10	1.262	62.9	1.006	0.07	0.898	1.140
100	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 8	DSI 10	56150	3641	20.57	22.00	1.390	62.9	1.006	-0.05	0.918	1.284
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI 10	55340	3560	23.49	24.00	1.125	62.9	1.006	0.02	0.715	0.809
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 5	DSI 10	55340	3560	22.57	24.00	1.390	62.9	1.006	0.04	0.756	1.057
	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Front	5mm	Ant 4	DSI 10	641666	3624.99	21.50	22.70	1.318	-	-	0.03	0.912	1.202
	FR1 n48	40M	QPSK	50	28	DFT-SCS-30KHz	Front	5mm	Ant 8	DSI 10	641666	3624.99	20.38	21.60	1.324	-	-	-0.09	0.932	1.234
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 3	DSI 10	641666	3624.99	23.70	24.50	1.202	-	-	0.07	0.898	1.080
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 5	DSI 10	641666	3624.99	23.63	24.00	1.089	-	-	-0.05	0.942	1.026
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 4	DSI 10	656000	3840	22.06	23.10	1.271	-	-	-0.02	0.956	1.215
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 4	DSI 10	633334	3500.01	22.12	23.10	1.253	-	-	0.04	0.914	1.145
	FR1 n77 Part 27O	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 8	DSI 10	656000	3840	21.49	22.40	1.233	-	-	-0.06	0.911	1.123
	FR1 n77 Part 27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 8	DSI 10	633334	3500.01	24.49	25.40	1.233	50	1.000	0.01	0.852	1.051
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 3	DSI 10	656000	3840	22.60	23.50	1.230	-	-	-0.03	0.723	0.889
	FR1 n77 Part 27Q HPUE	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 3	DSI 10	633334	3500.01	25.55	26.50	1.245	50	1.000	0.07	0.896	1.115
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Front	5mm	Ant 5	DSI 10	656000	3840	22.79	23.60	1.205	-	-	-0.08	0.745	0.898
	FR1 n77 Part 27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Front	5mm	Ant 5	DSI 10	633334	3500.01	25.52	26.60	1.282	50	1.000	0.09	0.925	1.186



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2450MHz																
101	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 7+6(6)	Standalone	11	2462	18.63	20.00	1.371	97.06	1.030	-0.07	0.957	1.351
	Bluetooth	1Mbps	Front	5mm	Ant 6	Full power	39	2441	18.30	18.50	1.047	77.07	1.081	0.04	0.243	0.275
102	Bluetooth	1Mbps	Front	5mm	Ant 7	Standalone	39	2441	18.48	19.00	1.127	77.07	1.081	0.01	0.634	0.773
5000MHz																
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5mm	Ant 7+5(5)	Standalone	54	5270	17.99	19.00	1.262	100	1.000	0.09	0.618	0.780
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 7+5(5)	Standalone	138	5690	17.93	19.00	1.279	99.63	1.004	-0.07	0.726	0.933
	WLAN5.8GHz	802.11n-HT40 MCS0	Front	5mm	Ant 7+5(7)	Standalone	151	5755	18.39	19.50	1.291	100	1.000	0.03	0.635	0.820

12.4 Product specific 10g SAR

<Flip Open>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
1750MHz																				
103	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 2	DSI 6	1413	1732.6	21.87	22.80	1.239	-	-	0.06	1.790	2.217
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	DSI 6	1413	1732.6	23.12	24.00	1.225	-	-	0.03	1.530	1.874
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 2	DSI 6	132572	1770	22.75	24.00	1.334	-	-	0.08	2.250	3.000
104	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 3	DSI 6	132572	1770	22.58	23.70	1.294	-	-	0.07	2.420	3.132
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 0	DSI 6	132322	1745	22.31	24.00	1.476	-	-	0.01	0.799	1.179
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI 6	132572	1770	22.02	23.00	1.253	-	-	-0.08	0.871	1.091
	FR1 n66_Other Path	45M	QPSK	120	60	DFT-SCS-15KHz	Left Side	0mm	Ant 2	DSI 6	349000	1745	21.86	23.00	1.300	-	-	0.08	1.970	2.561
105	FR1 n66_Other Path	45M	QPSK	120	60	DFT-SCS-15KHz	Top Side	0mm	Ant 3	DSI 6	349000	1745	21.78	22.90	1.294	-	-	-0.01	2.290	2.964
	FR1 n66	45M	QPSK	120	60	DFT-SCS-15KHz	Bottom Side	0mm	Ant 0	DSI 6	349000	1745	23.08	24.00	1.236	-	-	0.02	1.530	1.891
	FR1 n66_Other Path	45M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	349000	1745	22.87	24.00	1.297	-	-	0.1	1.620	2.101
106	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Left Side	0mm	Ant 2	DSI 6	340500	1702.5	23.51	24.00	1.119	-	-	0.02	2.300	2.575
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Top Side	0mm	Ant 3	DSI 6	340500	1702.5	22.53	23.00	1.114	-	-	0.12	1.890	2.106
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 0	DSI 6	340500	1702.5	22.71	24.00	1.346	-	-	0.08	1.100	1.480
	FR1 n70	15M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	340500	1702.5	22.60	24.00	1.380	-	-	0.14	0.793	1.095
1900MHz																				
107	GSM1900	-	-	-	-	GPRS (2 Tx slots)	Left Side	0mm	Ant 2	DSI 6	810	1909.8	27.72	28.50	1.197	-	-	0.08	1.750	2.094
108	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	0mm	Ant 2	DSI 6	9262	1852.4	22.03	23.20	1.309	-	-	0.01	1.780	2.330
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	DSI 6	9262	1852.4	22.79	24.00	1.321	-	-	-0.04	1.560	2.061
	LTE Band 25	20M	QPSK	1	0	-	Back	0mm	Ant 2	DSI 6	26340	1880	22.74	23.90	1.306	-	-	0.01	2.120	2.769
109	LTE Band 25	20M	QPSK	1	0	-	Front	0mm	Ant 3	DSI 6	26140	1860	23.01	23.90	1.227	-	-	-0.03	2.400	2.946
	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	DSI 6	26340	1880	22.15	23.00	1.216	-	-	0.01	1.560	1.897
	LTE Band 25	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI 6	26340	1880	22.41	23.00	1.146	-	-	0.11	1.100	1.260
110	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 2	DSI 6	376500	1882.5	23.36	24.00	1.159	-	-	-0.07	2.410	2.793
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 3	DSI 6	376500	1882.5	22.99	24.00	1.262	-	-	0.01	2.160	2.726
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Bottom Side	0mm	Ant 0	DSI 6	376500	1882.5	22.70	24.00	1.349	-	-	0.07	1.390	1.875
	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Back	0mm	Ant 1	DSI 6	376500	1882.5	22.83	24.00	1.309	-	-	-0.01	1.620	2.121
2300MHz																				
111	LTE Band 30	10M	QPSK	1	0	-	Left Side	0mm	Ant 2	DSI 6	27710	2310	22.37	23.30	1.239	-	-	0.05	2.520	3.122
	LTE Band 30	10M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	DSI 6	27710	2310	22.58	24.00	1.387	-	-	0.01	1.470	2.039
112	FR1 n30	10M	QPSK	25	14	-	Left Side	0mm	Ant 2	DSI 6	462000	2310	22.94	24.00	1.276	-	-	0.05	2.420	3.089
	FR1 n30	10M	QPSK	1	1	-	Right Side	0mm	Ant 0	DSI 4	462000	2310	22.39	24.00	1.449	-	-	-0.02	1.230	1.782
2600MHz																				
113	LTE Band 7	20M	QPSK	1	0	-	Left Side	0mm	Ant 2	DSI 6	20850	2510	21.89	23.20	1.352	-	-	-0.04	0.576	0.779
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	DSI 6	21350	2560	22.16	23.00	1.213	-	-	-0.01	0.568	0.689
114	LTE Band 41	20M	QPSK	1	0	-	Left Side	0mm	Ant 2	DSI 6	40185	2549.5	23.47	24.40	1.239	62.9	1.006	0.02	2.510	3.128



FCC SAR Test Report

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	LTE Band 41	20M	QPSK	1	0	-	Top Side	0mm	Ant 3	DSI 6	41490	2680	21.18	22.30	1.294	62.9	1.006	-0.03	1.580	2.057
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Right Side	0mm	Ant 0	DSI 4	40620	2593	25.50	27.00	1.413	42.9	1.009	-0.07	1.180	1.682
	LTE Band 41 HPUE	20M	QPSK	1	0	-	Left Side	0mm	Ant 1	DSI 6	40620	2593	26.02	27.00	1.253	42.9	1.009	0.01	1.090	1.378
115	FR1 n7	50M	QPSK	1	1	DFT-SCS-15KHz	Left Side	0mm	Ant 2	DSI 6	507000	2535	23.49	24.00	1.125	-	-	-0.03	2.220	2.497
	FR1 n7_Code 2	50M	QPSK	135	68	DFT-SCS-15KHz	Top Side	0mm	Ant 3	DSI 6	507000	2535	19.86	20.90	1.271	-	-	0.01	1.460	1.855
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Bottom Side	0mm	Ant 0	DSI 6	507000	2535	22.87	24.00	1.297	-	-	0.04	1.350	1.751
	FR1 n7	50M	QPSK	135	68	DFT-SCS-15KHz	Left Side	0mm	Ant 1	DSI 6	507000	2535	23.12	24.00	1.225	-	-	0.08	1.200	1.470
116	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 2	DSI 6	518598	2592.99	22.61	23.80	1.315	-	-	-0.15	2.110	2.775
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 3	DSI 6	518598	2592.99	20.59	21.70	1.291	-	-	0.03	2.080	2.686
	FR1 n41	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	0mm	Ant 0	DSI 6	518598	2592.99	23.25	24.00	1.189	-	-	0.01	1.070	1.272
	FR1 n41	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 1	DSI 6	518598	2592.99	23.39	24.00	1.151	-	-	-0.09	1.220	1.404
3500-3900MHz																				
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Left Side	0mm	Ant 4	DSI 6	42190	3460	22.44	23.50	1.276	62.9	1.006	-0.02	1.080	1.387
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Right Side	0mm	Ant 8	DSI 6	42990	3540	21.51	22.70	1.315	62.9	1.006	0.06	1.140	1.508
117	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Top Side	0mm	Ant 3	DSI 6	42190	3460	21.89	22.80	1.233	62.9	1.006	0.02	2.490	3.089
	LTE Band 42 Part 27Q	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	DSI 4	42190	3460	22.08	23.00	1.236	62.9	1.006	0.09	2.190	2.723
118	LTE Band 48	20M	QPSK	1	0	-	Left Side	0mm	Ant 4	DSI 6	56640	3690	22.61	23.50	1.227	62.9	1.006	-0.06	2.520	3.112
	LTE Band 48	20M	QPSK	1	0	-	Right Side	0mm	Ant 8	DSI 6	56150	3641	21.51	22.40	1.227	62.9	1.006	-0.02	2.510	3.099
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 3	DSI 6	55830	3609	23.51	24.00	1.119	62.9	1.006	0.18	2.120	2.387
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	DSI 4	55340	3560	22.57	24.00	1.390	62.9	1.006	-0.17	1.480	2.069
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 4	DSI 6	641666	3624.99	21.05	22.30	1.334	-	-	-0.02	1.930	2.574
119	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Right Side	0mm	Ant 8	DSI 6	641666	3624.99	20.42	21.40	1.253	-	-	-0.03	2.350	2.945
	FR1 n48_Code 3	40M	QPSK	50	28	DFT-SCS-30KHz	Top Side	0mm	Ant 3	DSI 6	641666	3624.99	20.09	21.20	1.291	-	-	-0.05	1.980	2.557
	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 4	641666	3624.99	21.15	22.30	1.303	-	-	-0.02	1.650	2.150
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 4	DSI 6	656000	3840	19.09	20.00	1.233	-	-	0.01	1.680	2.072
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Left Side	0mm	Ant 4	DSI 6	633334	3500.01	19.08	20.00	1.236	-	-	-0.16	1.820	2.249
	FR1 n77 Part 27O	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	0mm	Ant 8	DSI 6	656000	3840	21.01	22.10	1.285	-	-	-0.02	2.310	2.969
120	FR1 n77 Part 27Q	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	0mm	Ant 8	DSI 6	633334	3500.01	21.03	22.10	1.279	-	-	-0.07	2.340	2.994
	FR1 n77 Part 27O_Code3	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant 3	DSI 6	656000	3840	21.06	22.00	1.242	-	-	-0.03	1.290	1.602
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 3	DSI 6	633334	3500.01	20.97	22.00	1.268	-	-	0.01	2.320	2.941
	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 4	656000	3840	19.32	20.40	1.282	-	-	0.01	1.250	1.603
	FR1 n77 Part 27Q	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	0mm	Ant 5	DSI 4	633334	3500.01	19.37	20.40	1.268	-	-	0.09	1.900	2.409

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
2450MHz																
121	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 7+6(6)	Sensor off	6	2437	18.79	20.00	1.321	97.06	1.030	-0.12	2.230	3.035
122	Bluetooth	1Mbps	Front	0mm	Ant 7	Full power	39	2441	19.40	19.50	1.023	77.07	1.081	-0.03	1.510	1.670
5000MHz																
123	WLAN5.2GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 7+5(5)	Full power	46	5230	19.05	20.50	1.396	100	1.000	0.05	0.973	1.359
124	WLAN5.3GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 7+5(5)	Full power	54	5270	18.96	20.50	1.426	100	1.000	-0.03	1.550	2.210
125	WLAN5.5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 7+5(5)	Full power	110	5550	18.88	20.50	1.452	100	1.000	-0.04	1.740	2.527
126	WLAN5.8GHz	802.11a 6Mbps	Right Side	0mm	Ant 7+5(7)	Standalone	165	5825	19.32	21.00	1.472	99.06	1.009	-0.01	1.710	2.540



12.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	FR1 n77 Part 27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI 2	633334	3500.01	21.55	22.30	1.189	1.030	1	1.224
2nd	FR1 n77 Part 27Q HPUE	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 8	DSI 2	633334	3500.01	21.55	22.30	1.189	0.963	1.070	1.145
1st	WLAN5GHz					802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	155	5775	16.44	17.50	1.276	0.881	1	1.129
2nd	WLAN5GHz					802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	155	5775	16.44	17.50	1.276	0.825	1.068	1.057
1st	LTE Band 71	20M	QPSK	1	0		Left Side	5mm	Ant 1	DSI 7	133322	683	22.61	24.00	1.38	0.834	1	1.149
2nd	LTE Band 71	20M	QPSK	1	0		Left Side	5mm	Ant 1	DSI 7	133322	683	22.61	24.00	1.38	0.820	1.017	1.129
1st	LTE Band 66	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	132572	1770	18.32	19.20	1.22	1.030	1	1.261
2nd	LTE Band 66	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	132572	1770	18.32	19.20	1.22	0.981	1.050	1.201
1st	LTE Band 25	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	26590	1905	18.75	19.50	1.19	1.010	1	1.200
2nd	LTE Band 25	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	26590	1905	18.75	19.50	1.19	0.936	1.079	1.112
1st	LTE Band 30	10M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	27710	2310	18.41	19.40	1.26	1.010	1	1.269
2nd	LTE Band 30	10M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	27710	2310	18.41	19.40	1.26	0.911	1.109	1.144
1st	LTE Band 41	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	40185	2549.5	19.06	19.90	1.21	0.987	1	1.205
2nd	LTE Band 41	20M	QPSK	1	0		Left Side	5mm	Ant 2	DSI 7	40185	2549.5	19.06	19.90	1.21	0.925	1.067	1.129
1st	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 4	DSI 7	641666	3624.99	15.57	16.30	1.18	1.030	1	1.219
2nd	FR1 n48	40M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 4	DSI 7	641666	3624.99	15.57	16.30	1.18	0.936	1.100	1.107
1st	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 5	DSI 7	656000	3840	15.73	16.60	1.22	1.020	1	1.246
2nd	FR1 n77 Part 27O	100M	QPSK	1	1	DFT-SCS-30KHz	Top Side	5mm	Ant 5	DSI 7	656000	3840	15.73	16.60	1.22	0.935	1.091	1.142
1st	WLAN2.4GHz					802.11b 1Mbps	Right Side	5mm	Ant 7+6(7)	Hotspot	11	2462	14.11	15.00	1.227	0.974	1	1.231
2nd	WLAN2.4GHz					802.11b 1Mbps	Right Side	5mm	Ant 7+6(7)	Hotspot	11	2462	14.11	15.00	1.227	0.891	1.093	1.126
1st	WLAN5GHz					802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	58	5290	16.77	18.00	1.327	0.846	1	1.127
2nd	WLAN5GHz					802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 7+5(5)	Standalone	58	5290	16.77	18.00	1.327	0.812	1.042	1.082

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	LTE Band 66	20M	QPSK	1	0		Top Side	0mm	Ant 3	DSI 6	132572	1770	22.58	23.70	1.294	2.420	1	3.132
2nd	LTE Band 66	20M	QPSK	1	0		Top Side	0mm	Ant 3	DSI 6	132572	1770	22.58	23.70	1.294	2.120	1.142	2.744
1st	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 2	DSI 6	376500	1882.5	23.36	24.00	1.159	2.410	1	2.793
2nd	FR1 n25	45M	QPSK	1	1	DFT-SCS-15KHz	Front	0mm	Ant 2	DSI 6	376500	1882.5	23.36	24.00	1.159	2.300	1.048	2.665
1st	LTE Band 30	10M	QPSK	1	0		Left Side	0mm	Ant 2	DSI 6	27710	2310	22.37	23.30	1.239	2.520	1	3.122
2nd	LTE Band 30	10M	QPSK	1	0		Left Side	0mm	Ant 2	DSI 6	27710	2310	22.37	23.30	1.239	2.410	1.046	2.985
1st	LTE Band 41	20M	QPSK	1	0		Left Side	0mm	Ant 2	DSI 6	40185	2549.5	23.47	24.40	1.239	2.510	1	3.128
2nd	LTE Band 41	20M	QPSK	1	0		Left Side	0mm	Ant 2	DSI 6	40185	2549.5	23.47	24.40	1.239	2.390	1.050	2.978
1st	LTE Band 48	20M	QPSK	1	0		Left Side	0mm	Ant 4	DSI 6	56640	3690	22.61	23.50	1.227	2.520	1	3.112
2nd	LTE Band 48	20M	QPSK	1	0		Left Side	0mm	Ant 4	DSI 6	56640	3690	22.61	23.50	1.227	2.410	1.046	2.976
1st	FR1 n77 Part 27O	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	0mm	Ant 8	DSI 6	656000	3840	21.01	22.10	1.285	2.310	1	2.969
2nd	FR1 n77 Part 27O	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	0mm	Ant 8	DSI 6	656000	3840	21.01	22.10	1.285	2.110	1.095	2.712
1st	LTE Band 42 Part 27Q	20M	QPSK	1	0		Top Side	0mm	Ant 3	DSI 6	42190	3460	21.89	22.80	1.233	2.490	1	3.089
2nd	LTE Band 42 Part 27Q	20M	QPSK	1	0		Top Side	0mm	Ant 3	DSI 6	42190	3460	21.89	22.80	1.233	2.120	1.175	2.630
1st	WLAN2.4GHz					802.11b 1Mbps	Top Side	0mm	Ant 7+6(6)	Sensor off	6	2437	18.79	20.00	1.321	2.230	1	3.035
2nd	WLAN2.4GHz					802.11b 1Mbps	Top Side	0mm	Ant 7+6(6)	Sensor off	6	2437	18.79	20.00	1.321	2.110	1.057	2.872

General Note:

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

13. 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 + WLAN6GHz	Yes	Yes		Yes
4.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
5.	WLAN5GHz + Bluetooth	Yes	Yes	Yes	Yes
6.	WLAN6GHz + Bluetooth	Yes	Yes		Yes
7.	WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
8.	WLAN2.4GHz + WLAN6GHz	Yes	Yes		Yes
9.	WWAN + WLAN5GHz + Bluetooth	Yes	Yes	Yes	Yes
10.	WWAN + WLAN6GHz + Bluetooth	Yes	Yes		Yes
11.	WWAN + WLAN2.4GHz + WLAN5GHz	Yes	Yes	Yes	Yes
12.	WWAN + WLAN2.4GHz + WLAN6GHz	Yes	Yes		Yes
13.	WWAN + WLAN2.4GHz + NFC				Yes
14.	WWAN + WLAN5GHz/6GHz + NFC				Yes
15.	WWAN + Bluetooth + NFC				Yes
16.	WLAN5GHz/6GHz + Bluetooth + NFC				Yes
17.	WLAN2.4GHz + WLAN5GHz/6GHz + NFC				Yes
18.	WWAN + WLAN5GHz/6GHz + Bluetooth + NFC				Yes
19.	WWAN + WLAN2.4GHz + WLAN5GHz/6GHz + NFC				Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 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). WLAN6GHz has no hotspot function.
- WLAN2.4GHz/WLAN5GHz/WLAN6GHz MIMO SAR can represent SISO SAR to do co-located SAR analysis.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- According to the EUT characteristic, WLAN 5GHz/6GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 6GHz can't transmit simultaneously.
- According to the EUT characteristic, WLAN 2.4GHz and Bluetooth can't transmit simultaneously.
- According to the EUT characteristic, Bluetooth antennas can transmit simultaneously.
- NFC can transmit simultaneously with other Radios in extremity exposure condition.
- For Headset SAR and non-Headset SAR always chose higher SAR to do co-located analysis.
- For distance SAR and non-distance SAR at extremity exposure conditions always chose higher SAR to do co-located analysis.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed SAR exposure limit. Therefore, simultaneous transmission compliance between 4G+5G (PCC+SCC) operations within an antenna group is demonstrated in the Part 2 Report during algorithm validation.
- The equipment under test (EUT) contains the Qualcomm modems supporting 2G/3G/4G/5G technologies and WLAN/BT technologies. these modems are always enabled with Qualcomm Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure follows the FCC requirement.
 - For opened state, Smart Transmit algorithm controls the total RF exposure from all WWAN/WLAN/BT to not

- exceed FCC limit and each antenna group has controlled the total RF exposure from all transmitter to not exceed FCC limit. Therefore, in Part.1 report, it is evaluated whether the sum of the groups of each antenna does not exceed FCC limit or spatial separation is applied. In addition, each antenna needs to satisfy simultaneous transmission analysis with External radios (NFC) in this report at extremity exposure condition.
- 2) For closed state, Smart Transmit algorithm controls the total RF exposure from all WWAN/WLAN/BT to not exceed FCC limit. Simultaneous SAR for WWAN/WLAN/BT in a DSI is the worst-case reported SAR of WWAN/WLAN/BT.
 19. For standalone WWAN, always choose the highest SAR among all WWAN bands within the selected antenna for each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each band.
 20. The maximum SAR summation is calculated based on the same configuration and test position.
 21. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - ii) SPLSR = $(SAR1 + SAR2)^{1.5} / (\min. \text{separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
 - v) The SPLSR calculated results please refer to section 13.5.
 22. The simultaneous transmission analysis, considering UWB power is very smaller and no risk, the contribution of UWB to the total TER can be neglected.

13.1 5G NR + LTE + External radio (e.g: NFC) Sim-Tx analysis

In 5G NR + LTE + external radio (e.g: NFC) simultaneous transmission, 5G NR and LTE transmission are managed and controlled by Qualcomm® Smart Transmit, while the RF exposure from external radios (e.g: NFC) is managed using legacy approach, i.e., through a fixed power back-off if needed.

Since external radios (e.g: NFC) do not employ time-averaging, 1gSAR and 10gSAR measurement for external radios (e.g: NFC) need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values.

Smart Transmit current implementation assumes hotspots from 5G NR and LTE are collocated. Therefore, for a total of 100% exposure margin, if LTE uses x%, then the exposure margin left for 5G NR is capped to (100-x)%. Thus, the compliance equation for LTE + 5G NR is

$$x\% * A + (100-x)\% * B \leq 1.0,$$

Where, A is normalized reported time-averaged SAR exposure ratio from LTE, and $A \leq 1.0$; B is normalized reported time-averaged exposure ratio from 5G NR (i.e. SAR exposure for 5G FR1), and $B \leq 1.0$.

Let C = normalized reported SAR exposure ratio from external radios (e.g: NFC), then for compliance,

$$x\% * A + (100-x)\% * B + C \leq 1.0 \quad (1)$$

$$x\% * A + (100-x)\% * B \leq x\% * \max(A, B) + (100-x)\% * \max(A, B) \leq \max(A, B)$$

$$x\% * A + (100-x)\% * B + C \leq \max(A, B) + C \leq 1.0 \quad (2)$$

If $A + C \leq 1.0$ and $B + C \leq 1.0$ can be proven, then " $x\% * A + (100-x)\% * B + C \leq 1.0$ ". Therefore simultaneous transmission analysis for 5G NR + LTE + external radios (e.g: NFC) can be performed in two steps

Step 1: Prove total exposure ratio (TER) of LTE + external radios (e.g: NFC) < 1

Step 2: Prove total exposure ratio (TER) of 5G NR + external radios (e.g: NFC) < 1

Else, if $A + C > 1.0$ and/or $B + C > 1.0$, then the followings need to hold true for compliance:

i. A and C are decoupled based on the SPLSR criteria, and

ii. $(100-x)\% * B + C \leq 1.0$, and

iii. $x\% * A + (100-x)\% * B \leq 1.0$

Note iii. is covered in Part 2 report; i. and ii. should be addressed in Part 1 report.

Above analysis is also apply to LTE/NR inter-band uplink CA, LTE(NR)1 + LTE(NR)2 + external radios (e.g: NFC) simultaneous transmission, so inter-band uplink CA no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of LTE/NR + external radios (e.g: NFC) < 1.

13.2 Sub6 Antenna Groups

Qualcomm® Smart Transmit™ 5.0 of Smart Transmit (GEN2) Feature operates based on pre-defined sub6 antenna groups (AG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating below conditions for all exposure positions under each DSI for a given exposure category.

- 1) Case 1: Demonstrate that Sum of maximum reported SAR from each of the sub6 AGs and the reported normalized SAR values from radios outside Smart Transmit should be less than regulatory limits for each supported DSI. This condition must be demonstrated for all antenna combinations of sub6 AGs.
 - i. For a given DSI, obtain the highest *reported* SAR for each antenna out of all supported technologies and frequency bands. Obtain the maximum *reported* SAR for each AG by taking the maximum out of *reported* SAR for all antennas belonging to each AG.
 - ii. Demonstrate that the sum of maximum reported SAR (normalized to regulatory limit) from each of the sub6 AGs and the sum of reported SAR (normalized to regulatory limit) from all supported radios outside of Smart Transmit should be less than 1.0
- 2) Case 2: If the Case 1 is NOT met, then for a given antenna grouping scheme plus external radios/antennas (ERs) (referred to as 'configuration'), demonstrate all AG pairs, all ER pairs and all (AG, ER) pairs in the configuration meet SPLSR criteria (Section 4.3.2 (c) in FCC KDB 447498 D01 v06) for each exposure position under each supported DSI. For a given exposure position under a given DSI, prove all AG pairs, all ER pairs and all (AG, ER) pairs (if there are external radios outside Smart Transmit) in the configuration meet SPLSR.

This device supports two sub6 AG: AG0 and AG1, the detailed please refer to the below table:

Antenna Group 0 (AG0)	ANT2 & ANT3 & ANT4 & ANT5 & ANT6 & ANT7 & ANT8
Antenna Group 1 (AG1)	ANT0 & ANT1

- 3) This model's multi_Tx_factor is 1.0.

The conditions are verified through the following criterias:

- i) (SAR1 + SAR2 criteria): If SPLSR criteria is not used, then the highest reported SAR at *Plimit* for each antenna should be obtained out of all supported technologies and frequency bands for each DSI. Demonstrate that the sum of reported SAR of one antenna from each of the sub6 AGs and the sum of RF exposure from all supported radios outside of Smart Transmit should be less than the regulatory limit as given below for each DSI.
 1. Obtain the worst-case reported SAR for each antenna group (i.e., maximum *reported* SAR at *Plimit* out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure for each external radio, and demonstrate that the sum of these RF exposures meets: $\{ [\text{max.SAR.AG0} + \text{max.SAR.AG1}] + \text{each external radio worst-case reported SAR (ex: WIFI/BT/NFC)} \} \leq 1.6$ (for 1g, or 4.0 for 10g). (each external radio worst-case reported SAR is the worst SAR in all combinations of each external radio simultaneous transmission)
- ii) (SPLSR criteria): For each antenna, obtain the highest reported SAR value at *Plimit* out of all supported technologies for each frequency band. Using these values, demonstrate for a given DSI that every antenna from one sub6 AG meets SPLSR criteria with every antenna in another sub6 AG for all frequency bands. This criteria must be demonstrated for all antenna pair combinations irrespective of supported simultaneous transmission scenarios as given below for each DSI:
 - a. SPLSR criteria should be met for all antenna pair combinations of AG0 and AG1. As it can be seen, these include all combinations of antenna groups, antennas, and frequency bands.
 - b. Obtain combined SAR per AG: Obtain the worst-case conservative combined SAR and its peak location for each AG.
 - c. Use the 'closest' peak location out of all antennas of AGj to evaluate SPLSR with other AGs in the configuration. Note, by 'closest', select the peak location out of all antennas (ϵ AGj) that is closest to the peak location of other AG where SPLSR is evaluated.
- iii) (combination of SPLSR & SAR1+SAR2 criteria): If SPLSR criteria for all the combinations of sub6 antenna groups in (i) is demonstrated to show that each AG is mutually exclusive from other AGs, and if the WIFI/BT antennas supported outside of Smart Transmit do not meet SPLSR criteria, then the condition in (ii) reduces to: $\{\text{max.SAR.AG0} + \text{worst-case reported SAR}\} \leq 1.6$ and $\{\text{max.SAR.AG1} + \text{worst-case reported SAR}\} \leq 1.6$ for compliance demonstration (for 1g, or 4.0 for 10g). In this report, WIFI/BT antennas supported Smart Transmit, then each antenna group has controlled the total RF exposure from all transmitter to not exceed FCC limit.

For summed SAR results and SPLSR detailed analysis, please refer to section 13.4 / 13.5 / 13.6 of this report. All of the combinations of sub6 antenna groups are sufficient to show that AG0 is mutually exclusive from AG1 and that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

13.3 1g SAR Exposure Conditions

Conclusion:

1. The verified maximum SAR from chapter 12.1 to 12.3 are less than original report, so the standalone reported SAR in the original filing was used to determine simultaneous transmission compliance as it is more conservative. Please see the original filing for complete evaluation of simultaneous transmission analysis.

13.4 Product specific 10g SAR Exposure Conditions

Remark:

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

<Flip Open>

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT+NFC:

<AG0 maximum reported SAR>:

Test Position	Ant2	Ant3	Ant4	Ant5	Ant8	WLAN2.4GHz Ant6+7	WLAN5GHz Ant5+7	WLAN6GHz Ant5+7	BT Ant7	MAX
Front	3.091	3.192	2.732	1.981	2.385	1.298	1.655	0.170	2.024	3.192
Back	3.161	2.284	2.435	1.433	1.617	0.891	1.786	0.141	1.361	3.161
Left Side	3.194	1.224	3.186				0.083	0.015		3.194
Right Side						1.470	3.164	0.184	1.903	3.164
Top Side		3.203	1.977	3.194	3.198	3.144	1.873	0.392	1.030	3.203
Bottom Side										0.000

<AG1 maximum reported SAR>:

Test Position	Ant0	Ant1	MAX
Front	2.361	2.096	2.361
Back	2.494	3.033	3.033
Left Side		2.589	2.589
Right Side	2.413		2.413
Top Side			0.000
Bottom Side	2.852	2.646	2.852

<Simultaneous Transmission analysis of AG0 + AG1 Worse-case+NFC>:

Test Position	AG0	AG1	NFC	AG0+AG1 + NFC
Front	3.192	2.096	0.001	5.29
Back	3.161	3.033	0.028	6.22
Left Side	3.194	2.589	0.001	5.78
Right Side	3.164	0.000	0.001	3.17
Top Side	3.203	0.000	0.001	3.20
Bottom Side	0.000	2.646	0.001	2.65

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Front 0mm					
Ant combination	AG0	AG1	NFC	AG0+AG1 + NFC	SPLSR
	SAR	SAR	SAR		
Ant2+Ant1	3.091	2.096	0.001	5.19	Case 1
Ant3+Ant1	3.192	2.096	0.001	5.29	Case 2
Ant4+Ant1	2.732	2.096	0.001	4.83	Case 3
Ant5+Ant1	1.981	2.096	0.001	4.08	Case 4
Ant8+Ant1	2.385	2.096	0.001	4.48	Case 5
WLAN2.4GHz Ant6+7+Ant1	1.298	2.096	0.001	3.40	-
WLAN5GHz Ant5+7+Ant1	1.655	2.096	0.001	3.75	-
WLAN6GHz Ant5+7+Ant1	0.170	2.096	0.001	2.27	-
BT Ant7+Ant1	2.024	2.096	0.001	4.12	Case 6
Ant2+Ant0	3.091	2.361	0.001	5.45	Case 7
Ant3+Ant0	3.192	2.361	0.001	5.55	Case 8

Ant4+Ant0	2.732	2.361	0.001	5.09	Case 9
Ant5+Ant0	1.981	2.361	0.001	4.34	Case 10
Ant8+Ant0	2.385	2.361	0.001	4.75	Case 11
WLAN2.4GHz Ant6+7+Ant0	1.298	2.361	0.001	3.66	-
WLAN5GHz Ant5+7+Ant0	1.655	2.361	0.001	4.02	Case 12
WLAN6GHz Ant5+7+Ant0	0.170	2.361	0.001	2.53	-
BT Ant7+Ant0	2.024	2.361	0.001	4.39	Case 13

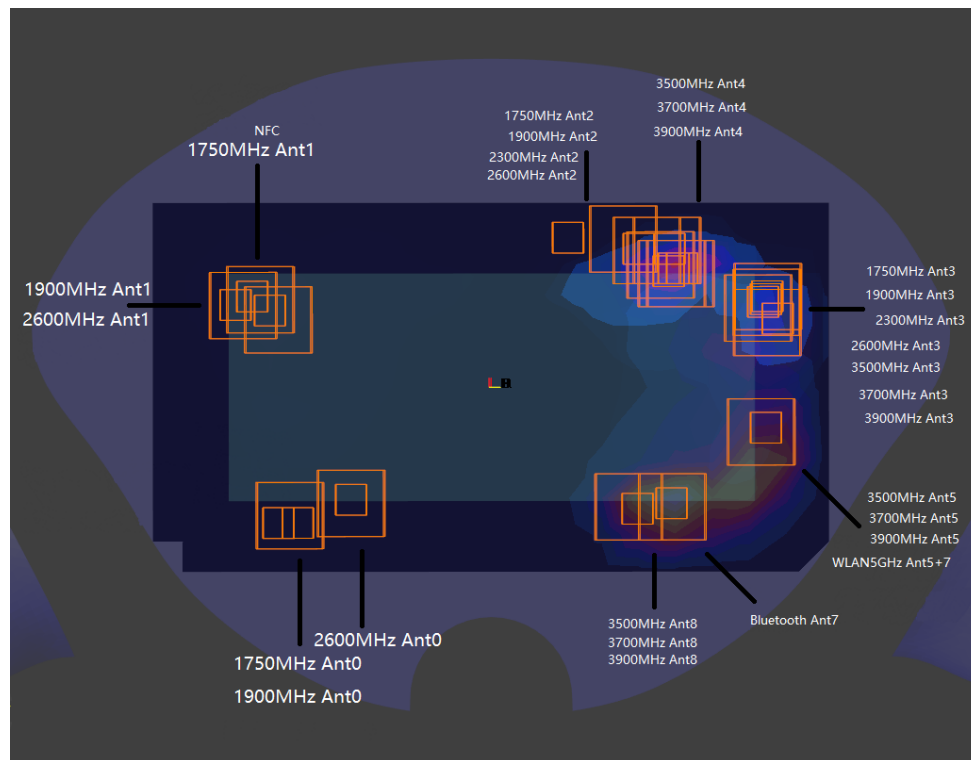
Back 0mm					
Ant combination	AG0	AG1	NFC	AG0+AG1 + NFC	SPLSR
	SAR	SAR	SAR		
Ant2+Ant1	3.161	3.033	0.028	6.22	Case 1
Ant3+Ant1	2.284	3.033	0.028	5.35	Case 2
Ant4+Ant1	2.435	3.033	0.028	5.50	Case 3
Ant5+Ant1	1.433	3.033	0.028	4.49	Case 4
Ant8+Ant1	1.617	3.033	0.028	4.68	Case 5
WLAN2.4GHz Ant6+7+Ant1	0.891	3.033	0.028	3.95	-
WLAN5GHz Ant5+7+Ant1	1.786	3.033	0.028	4.85	Case 6
WLAN6GHz Ant5+7+Ant1	0.141	3.033	0.028	3.20	-
BT Ant7+Ant1	1.361	3.033	0.028	4.42	Case 7
Ant2+Ant0	3.161	2.494	0.028	5.68	Case 8
Ant3+Ant0	2.284	2.494	0.028	4.81	Case 9
Ant4+Ant0	2.435	2.494	0.028	4.96	Case 10
Ant5+Ant0	1.433	2.494	0.028	3.96	-
Ant8+Ant0	1.617	2.494	0.028	4.14	Case 11
WLAN2.4GHz Ant6+7+Ant0	0.891	2.494	0.028	3.41	-
WLAN5GHz Ant5+7+Ant0	1.786	2.494	0.028	4.31	Case 12
WLAN6GHz Ant5+7+Ant0	0.141	2.494	0.028	2.66	-
BT Ant7+Ant0	1.361	2.494	0.028	3.88	-

Left Side 0mm					
Ant combination	AG0	AG1	NFC	AG0+AG1 + NFC	SPLSR
	SAR	SAR	SAR		
Ant2+Ant1	3.194	2.589	0.001	5.78	Case 1
Ant3+Ant1	1.224	2.589	0.001	3.81	-
Ant4+Ant1	3.186	2.589	0.001	5.78	Case 2
Ant5+Ant1		2.589	0.001	2.59	-
WLAN2.4GHz Ant6+7+Ant1		2.589	0.001	2.59	-
WLAN5GHz Ant5+7+Ant1	0.083	2.589	0.001	2.67	-
WLAN6GHz Ant5+7+Ant1	0.015	2.589	0.001	2.61	-
BT Ant7+Ant1		2.589	0.001	2.59	-

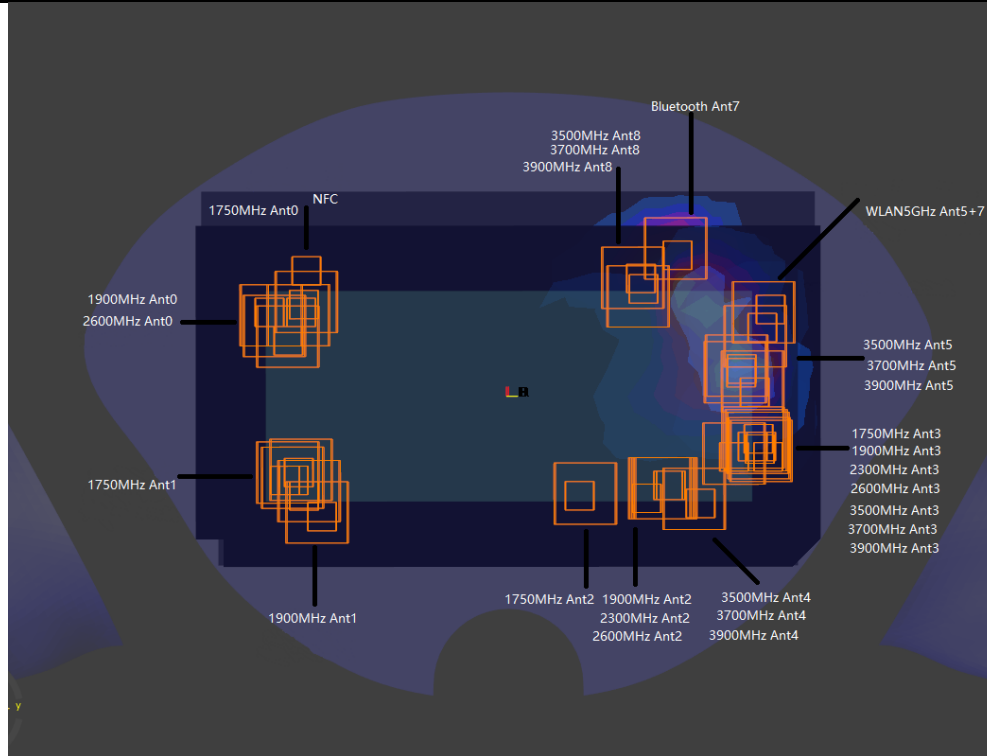
13.5 SPLSR Evaluation and Analysis

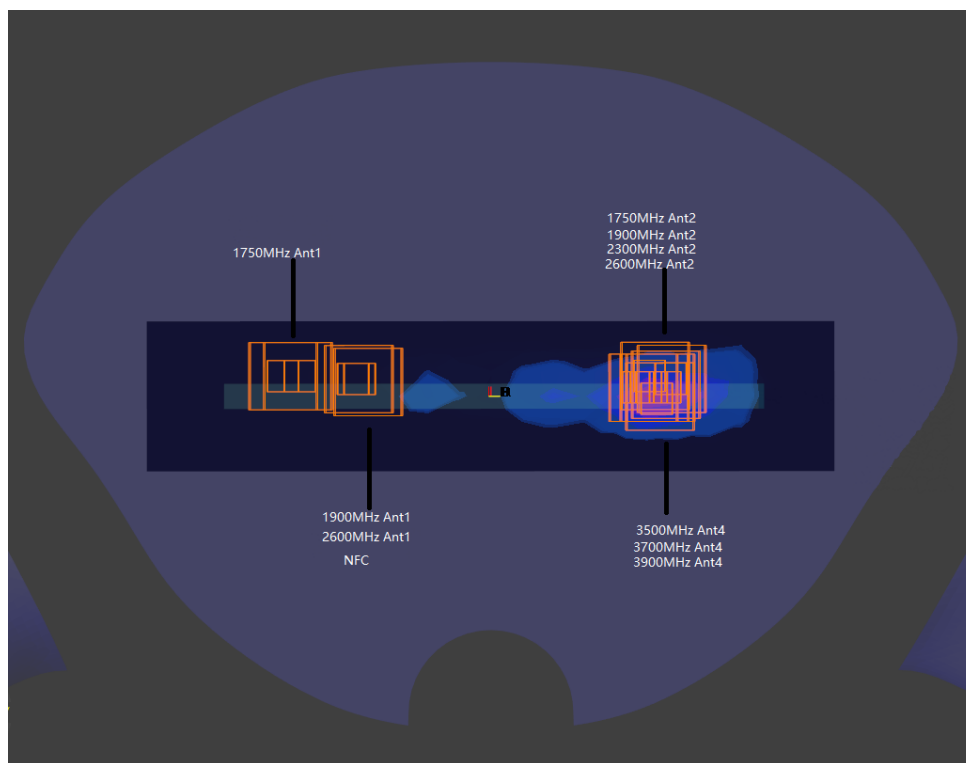
General Note:

1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where $(x1, y1, z1)$ and $(x2, y2, z2)$ are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. $SPLSR = (SAR1 + SAR2)1.5 / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
3. Per April 2022 TCB Workshop Notes, AG1 was summed algebraically with the NFC Antenna for the purposes of hybrid SPLSR combination and they are located at the bottom of the device
4. Per April 2022 TCB Workshop, instead of doing a small volume scan over a co-located antenna pair, used summing the SAR values of the co-located pair and using that value in SPLSR calculation. In the calculation used the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.
5. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.
6. The axis peak locations refer to Section 13.6.



WWAN+ WLAN+ Bluetooth+ NFC_ Front (0mm) for Extremity





WWAN+ WWAN+ NFC_ Left Side (0mm) for Extremity

<Extremity>

Case 1	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant2	Front	3.091	2.091	0mm	-62	55.6	-207	124.9	5.19	0.09	Not required
Ant1		2.096			-54	-69	-204				
NFC		0.001									
Ant2		3.091	2.091	0mm	-62	55.6	-207	142.9	5.19	0.08	Not required
Ant1		2.096									
NFC		0.001			4.1	-71.1	-204				
Case 2	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant3	Front	3.192	3.192	0mm	-51.5	91.5	-207	160.5	5.29	0.08	Not required
Ant1		2.096			-54	-69	-204				
NFC		0.001									
Ant3		3.192	3.192	0mm	-51.5	91.5	-207	171.9	5.29	0.07	Not required
Ant1		2.096									
NFC		0.001			4.1	-71.1	-204				
Case 3	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant4	Front	2.732	2.732	0mm	-70	59.5	-207	129.5	4.83	0.08	Not required
Ant1		2.096			-54	-69	-204				
NFC		0.001									
Ant4		2.732	2.732	0mm	-70	59.5	-207	150.2	4.83	0.07	Not required
Ant1		2.096									
NFC		0.001			4.1	-71.1	-204				
Case 4	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant5	Front	1.981	1.981	0mm	-6	90	-204	166.1	4.08	0.05	Not required
Ant1		2.096	2.097		-54	-69	-204				



NFC		0.001									
Ant5		1.981	1.981		-6	90	-204				
Ant1		2.096	2.097	0mm				161.4	4.08	0.05	Not required
NFC		0.001			4.1	-71.1	-204				
Case 5	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant8	Front	2.385	2.385	0mm	15.4	47.5	-204	135.6	4.48	0.07	Not required
Ant1		2.096	2.097		-54	-69	-204				
NFC		0.001									
Ant8	Front	2.385	2.385	0mm	15.4	47.5	-204	119.1	4.48	0.08	Not required
Ant1		2.096	2.097								
NFC		0.001			4.1	-71.1	-204				
Case 6	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Bluetooth Ant7	Front	2.024	2.024	0mm	25.4	57.1	-207	149.0	4.12	0.06	Not required
Ant1		2.096	2.097		-54	-69	-204				
NFC		0.001									
Bluetooth Ant7	Front	2.024	2.024	0mm	25.4	57.1	-207	130.0	4.12	0.06	Not required
Ant1		2.096	2.097								
NFC		0.001			4.1	-71.1	-204				
Case 7	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant2	Front	3.091	3.091	0mm	11	-64	-207	140.1	5.45	0.09	Not required
Ant0		2.361	2.362		-62	55.6	-207				
NFC		0.001									
Ant2	Front	3.091	3.091	0mm	-62	55.6	-207	142.9	5.45	0.09	Not required
Ant0		2.361	2.362								
NFC		0.001			4.1	-71.1	-204				
Case 8	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant3	Front	3.192	3.192	0mm	-44.9	91.3	-207	165.1	5.55	0.08	Not required
Ant0		2.361	2.362		11	-64	-207				
NFC		0.001									
Ant3	Front	3.192	3.192	0mm	-44.9	91.3	-207	169.7	5.55	0.08	Not required
Ant0		2.361	2.362								
NFC		0.001			4.1	-71.1	-204				
Case 9	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant4	Front	2.732	2.732	0mm	-61.5	63.5	-207	146.7	5.09	0.08	Not required
Ant0		2.361	2.362		11	-64	-207				
NFC		0.001									
Ant4	Front	2.732	2.732	0mm	-63.1	65.4	-207	152.2	5.09	0.08	Not required
Ant0		2.361	2.362								
NFC		0.001			4.1	-71.1	-204				
Case 10	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant5	Front	1.981	1.981	0mm	-6	90	-204	155.0	4.34	0.06	Not required
Ant0		2.361	2.362		11	-64	-207				
NFC		0.001									
Ant5	Front	1.981	1.981	0mm	-6	90	-204	161.4	4.34	0.06	Not required
Ant0		2.361	2.362								
NFC		0.001			4.1	-71.1	-204				
Case 11	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant8	Front	2.385	2.385	0mm	15.4	47.5	-204	111.6	4.75	0.09	Not required
Ant0		2.361	2.362		11	-64	-207				



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NFC		0.001									
Ant8		2.385	2.385		15.4	47.5	-204				
Ant0		2.361	2.362	0mm				119.1	4.75	0.09	Not required
NFC		0.001			4.1	-71.1	-204				
Case 12	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
WLAN5GHz Ant5+7		1.655	1.655		19.5	60.3	-207				
Ant0		2.361	2.362	0mm	11	-64	-207	124.6	4.02	0.06	Not required
NFC		0.001									
WLAN5GHz Ant5+7	Front	1.655	1.655		19.5	60.3	-207				
Ant0		2.361	2.362	0mm				132.3	4.02	0.06	Not required
NFC		0.001			4.1	-71.1	-204				
Case 13	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Bluetooth Ant7		2.024	2.024		25.4	57.1	-207				
Ant0		2.361	2.362	0mm	11	-64	-207	122.0	4.39	0.08	Not required
NFC		0.001									
Bluetooth Ant7	Front	2.024	2.024		25.4	57.1	-207				
Ant0		2.361	2.362	0mm				130.0	4.39	0.07	Not required
NFC		0.001			4.1	-71.1	-204				

Case 1	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant2		3.161	3.161		14	78.3	-207				
Ant1		3.033	3.061	0mm	11.1	-79.5	-207	157.8	6.22	0.10	Not required
NFC		0.028									
Ant2	Back	3.161	3.161		8	60.1	-207				
Ant1		3.033	3.061	0mm				160.1	6.22	0.10	Not required
NFC		0.028			-58.5	-79.1	-164				
Case 2	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant3		2.284	2.284		-0.5	80.5	-207				
Ant1		3.033	3.061	0mm	11.1	-79.5	-207	160.4	5.35	0.08	Not required
NFC		0.028									
Ant3	Back	2.284	2.284		-0.5	80.5	-207				
Ant1		3.033	3.061	0mm				175.2	5.35	0.07	Not required
NFC		0.028			-58.5	-79.1	-164				
Case 3	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant4		2.435	2.435		12	68.5	-207				
Ant1		3.033	3.061	0mm	11.1	-79.5	-207	148.0	5.50	0.09	Not required
NFC		0.028									
Ant4	Back	2.435	2.435		12	68.5	-207				
Ant1		3.033	3.061	0mm				169.1	5.50	0.08	Not required
NFC		0.028			-58.5	-79.1	-164				
Case 4	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant5		1.433	1.433		-31	82	-207				
Ant1		3.033	3.061	0mm	11.1	-79.5	-207	166.9	4.49	0.06	Not required
NFC		0.028									
Ant5	Back	1.433	1.433		-31	82	-207				
Ant1		3.033	3.061	0mm				169.0	4.49	0.06	Not required
NFC		0.028			-58.5	-79.1	-164				
Case 5	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant8	Back	1.617	1.617	0mm	-60.5	49.5	-207	147.5	4.68	0.07	Not required



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Ant1		3.033	3.061	0mm	11.1	-79.5	-207	132.0	4.68	0.08	Not required
NFC		0.028									
Ant8		1.617			-67.6	45.4	-207				
Ant1		3.033									
NFC		0.028			-58.5	-79.1	-164				
Case 6	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
WLAN5GHz Ant5+7	Back	1.786	3.061	0mm	-61.1	64.2	-207	160.8	4.85	0.07	Not required
Ant1		3.033			11.1	-79.5	-207				
NFC		0.028									
WLAN5GHz Ant5+7		1.786			-61.1	64.2	-207				
Ant1		3.033									
NFC		0.028			-58.5	-79.1	-164				
Case 7	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Bluetooth Ant7	Back	1.361	3.061	0mm	-74.2	59.5	-207	163.1	4.42	0.06	Not required
Ant1		3.033			11.1	-79.5	-207				
NFC		0.028									
Bluetooth Ant7		1.361			-74.2	59.5	-207				
Ant1		3.033									
NFC		0.028			-58.5	-79.1	-164				
Case 8	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant2	Back	3.161	2.522	0mm	10	79.2	-207	167.5	5.68	0.08	Not required
Ant0		2.494			-63	-71.6	-207				
NFC		0.028									
Ant2		3.161			8	60.1	-207				
Ant0		2.494									
NFC		0.028			-58.5	-79.1	-164				
Case 9	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant3	Back	2.284	2.522	0mm	-0.5	80.5	-207	164.4	4.81	0.06	Not required
Ant0		2.494			-63	-71.6	-207				
NFC		0.028									
Ant3		2.284			-0.5	80.5	-207				
Ant0		2.494									
NFC		0.028			-58.5	-79.1	-164				
Case 10	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant4	Back	2.435	2.522	0mm	12	68.5	-207	158.9	4.96	0.07	Not required
Ant0		2.494			-63	-71.6	-207				
NFC		0.028									
Ant4		2.435			12	68.5	-207				
Ant0		2.494									
NFC		0.028			-58.5	-79.1	-164				
Case 11	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant8	Back	1.617	2.522	0mm	-67.6	45.4	-207	117.1	4.14	0.07	Not required
Ant0		2.494			-63	-71.6	-207				
NFC		0.028									
Ant8		1.617			-67.6	45.4	-207				
Ant0		2.494									
NFC		0.028			-58.5	-79.1	-164				
Case 12	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
WLAN5GHz Ant5+7	Back	1.786	1.786	0mm	-61.1	64.2	-207	135.8	4.31	0.07	Not required

Ant0		2.494	2.522	0mm	-63	-71.6	-207	149.6	4.31	0.06	Not required
NFC		0.028									
WLAN5GHz Ant5+7		1.786	1.786		-61.1	64.2	-207				
Ant0		2.494	2.522								
NFC		0.028			-58.5	-79.1	-164				

Case 1	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant2	Left Side	3.194	3.194	0mm	-30.6	81.2	-207	152.8	5.78	0.09	Not required
Ant1		2.589	2.590		-31.4	-71.6	-207				
NFC		0.001									
Ant2		3.194	3.194	0mm	-26.6	81.2	-207	151.2	5.78	0.09	Not required
Ant1		2.589	2.590								
NFC		0.001			-25	-70	-204				
Case 2	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant4	Left Side	3.186	3.186	0mm	-26.9	77.5	-207	149.2	5.78	0.09	Not required
Ant1		2.589	2.590		-31.4	-71.6	-207				
NFC		0.001									
Ant4		3.186	3.186	0mm	-26.9	77.5	-207	147.5	5.78	0.09	Not required
Ant1		2.589	2.590								
NFC		0.001			-25	-70	-204				

13.6 Maximum Reported SAR and SAR Peak Locations

General Note:

1. The maximum reported SAR and SAR Peak Locations corresponding to each position of each frequency band of each antenna in the below tables are as follows.
2. The unit of SAR evaluation is W/kg. The unit of x, y, z with Axis (x, y, z) evaluation is mm.

<Extremity>

Front 0mm																			
Band		Ant0			Ant1			Ant2			Ant3			Ant4			Ant5		
GSM1900	SAR							1.470											
	Axis							-72.5	55.6	-207									
WCDMA II	SAR							1.470											
	Axis							-71.6	55.3	-207									
WCDMA IV	SAR	1.898						3.091											
	Axis	3.3	-86	-204				-71.5	55	-207									
LTE Band 7	SAR	1.402						2.295			1.293								
	Axis	11	-64	-207				-70.8	56.3	-207	-44.7	92.7	-207						
LTE Band 25	SAR	1.630			2.096			3.058			3.142								
	Axis	3.6	-85.3	-204	-52	-72	-204	-70.8	56	-207	-44.9	91.3	-207						
LTE Band 30	SAR							2.205			2.234								
	Axis							-68	55.4	-207	-51.2	92.6	-207						
LTE Band 66	SAR	2.361			2.093			2.841			1.893								
	Axis	4.1	-81.2	-204	-52.6	-81.2	-204	-70.1	55	-207	-51.3	92.7	-207						
LTE Band 41	SAR							2.436			2.187								
	Axis							-70	56.3	-207	-51.6	92.9	-207						
LTE Band 42	SAR										1.770			2.221			1.561		
	Axis										-51.5	91.5	-207	-70	59.5	-207	-6	90	-204
LTE Band 48	SAR										1.180			2.593					
	Axis										-50.5	91.5	-207	-70	60.5	-207		16	48
FR1 n7	SAR				1.800			2.307			1.830								
	Axis				-53.6	-85	-207	-66.6	56	-207	-51.6	91.8	-207						
FR1 n25	SAR	1.779			1.650			2.839			3.192								
	Axis	3.5	-85.5	-204	-53	-71.6	-204	-68.5	56.3	-207	-56.9	93.8	-207						
FR1 n30	SAR							2.380											
	Axis							-65.7	56.8	-207									
FR1 n66	SAR				1.686			3.003			2.389								
	Axis				-54	-69	-204	-67.2	58.5	-207	-57.9	94	-207						
FR1 n70	SAR				1.518			2.530			1.380								
	Axis				-53.6	-72.5	-204	-65.6	56.1	-207	-51	93	-207						
FR1 n41	SAR	1.735						2.471			2.329								
	Axis	2.3	-84.5	-207				-62	55.6	-207	-44.8	92.6	-207						
FR1 n48	SAR													2.732			1.981		
	Axis													-61.5	63.5	-207	-7.1	91.3	-204
FR1 n77	SAR										2.329			1.974			1.623		
	Axis										-51.3	91.6	-207	-63.1	65.4	-207	-6.9	90.8	-204

BT Ant7	SAR (W/kg)	2.037			NFC	SAR (W/kg)	0.001		
	Axis	25.4	57.1	-207		Axis	4.1	-71.1	-204
WLAN5GHz Ant5+7	SAR (W/kg)	1.655							
	Axis	19.5	60.3	-207					



Back 0mm																						
Band		Ant0			Ant1			Ant2			Ant3			Ant4			Ant5			Ant8		
GSM1900	SAR							1.316														
	Axis							10	79.2	-207												
WCDMA II	SAR	2.471						2.579														
	Axis	-58	-81	-207				10	81.2	-207												
WCDMA IV	SAR	1.849						2.852														
	Axis	-59.3	-76	-207				8	80.1	-207												
LTE Band 7	SAR	1.391						1.794			0.794											
	Axis	-63	-71.6	-207				11	81.9	-207	-9.6	89	-207									
LTE Band 25	SAR	1.897			2.715			3.161			2.185											
	Axis	-58	-79.5	-207	14	-83.2	-207	9.2	83.5	-207	-7.5	89.8	-207									
LTE Band 30	SAR							1.796			1.908											
	Axis							8.5	81.5	-207	-4.9	90.9	-207									
LTE Band 66	SAR	2.494			3.033			3.120			1.512											
	Axis	-59.8	-77.1	-207	18.1	-83	-207	9.7	83.2	-207	-4.5	90.6	-207									
LTE Band 41	SAR							1.445			1.238											
	Axis							10	81.8	-207	-7.3	90.9	-207									
LTE Band 42	SAR										1.536			1.422			0.843			1.101		
	Axis										-4.1	90.3	-207	13	68.9	-207	-27.5	88.5	-207	-67	46	-207
LTE Band 48	SAR										1.008			1.421						1.449		
	Axis										-10	93	-207	14	70.1	-207				-67.6	45.4	-207
FR1 n7	SAR							1.863			1.309											
	Axis							12	79.9	-207	-2.2	92.6	-207									
FR1 n25	SAR	1.848			2.409			2.526			2.284											
	Axis	-54.7	-84.3	-207	9.5	-84.2	-207	13	79.1	-207	1.1	89.7	-207									
FR1 n30	SAR							2.144														
	Axis							14	78.3	-207												
FR1 n66	SAR	1.409			2.400			2.756			1.877											
	Axis	-62.3	-72.5	-207	11.1	-79.5	-207	11	79.1	-207	1.2	89.9	-207									
FR1 n70	SAR	1.978			2.209			2.496			1.056											
	Axis	-57.8	-76.5	-207	10.5	-82.5	-207	12.2	80	-207	-2	91.3	-207									
FR1 n41	SAR	1.711						2.048			1.537											
	Axis	-65.3	-72.1	-207				12	81.3	-207	-8.1	89.1	-207									
FR1 n48	SAR										0.872			2.214			1.433			1.479		
	Axis										-8.5	89.5	-207	11	69.1	-207	-31	82	-207	-66.5	46.5	-207
FR1 n77	SAR										2.086			2.435			1.037			1.617		
	Axis										-0.5	80.5	-207	12	68.5	-207	-49.5	91	-207	-60.5	49.5	-207

WLAN5GHz Ant5+7	SAR (W/kg)	1.786			BT Ant7	SAR (W/kg)	1.369		
	Axis	-61.1	64.2	-207		Axis	-74.2	59.5	-207
NFC	SAR (W/kg)	0.028							
	Axis	-58.5	-79.1	-164					

Left Side 0mm										
Band		Ant1			Ant2			Ant4		
GSM1900	SAR	2.142			2.142					
	Axis	-29.5	87.5	-207	-29.5	87.5	-207			
WCDMA II	SAR	3.194			3.194					
	Axis	-31.1	87	-207	-31.1	87	-207			
WCDMA IV	SAR	3.184			3.184					
	Axis	-30.9	87.5	-207	-30.9	87.5	-207			
LTE Band 7	SAR	1.942			3.177					
	Axis	-31.4	-71.6	-207	-28.2	81.4	-207			
LTE Band 25	SAR	1.489			2.991					
	Axis	-31.4	-96	-207	-27.9	83.5	-207			
LTE Band 30	SAR	3.159			3.159					
	Axis	-27.4	84.2	-207	-27.4	84.2	-207			
LTE Band 66	SAR	1.508			2.974					
	Axis	-32.2	-85.2	-207	-31.1	86.5	-207			
LTE Band 41	SAR	2.301			3.190					
	Axis	-31.2	-75.8	-207	-29.8	81.8	-207			
LTE Band 42	SAR	3.172			3.172					
	Axis	-26.9	77.5	-207	-26.9	77.5	-207			
LTE Band 48	SAR	3.186			3.186					
	Axis	-26.9	77.5	-207	-26.9	77.5	-207			
FR1 n7	SAR	2.290			3.049					
	Axis	-30.4	-78	-207	-26.6	81.2	-207			
FR1 n25	SAR	1.348			2.793					
	Axis	-30	-99	-207	-27.9	84	-207			
FR1 n30	SAR	3.178			3.178					
	Axis	-30.9	84.2	-207	-30.9	84.2	-207			
FR1 n66	SAR	1.916			3.146					
	Axis	-28.7	-90	-207	-30.6	81.2	-207			
FR1 n70	SAR	1.394			2.877					
	Axis	-30.6	-91.5	-207	-29.5	84.5	-207			
FR1 n41	SAR	2.589			3.183					
	Axis	-28.2	-84.4	-207	-27.4	82.4	-207			
FR1 n48	SAR	3.160			3.160					
	Axis	-30.9	85.3	-207	-30.9	85.3	-207			
FR1 n77	SAR	3.164			3.164					
	Axis	-31.1	85.4	-207	-31.1	85.4	-207			

NFC	SAR (W/kg)	0.001		
	Axis	-25	-70	-204

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14. 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.

15. 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 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
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- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [11] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [12] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [13] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [14] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015

Appendixes

Please refer to separated files for the following appendixes

Appendix A. Plots of System Performance Check

Appendix B. Plots of High SAR Measurement

Appendix C. DASY Calibration Certificate

Appendix D. Test Setup Photos

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