FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2153-1
FCC ID	:	IHDT56ZW2
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

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

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

Hank Huang

Reviewed by: Hank Huang / Supervisor

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Approved by: Johnny Chen / Manager

ACCREDITED
Cert #5145.01

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA151407	Rev. 01	Initial issue of report.	Jul. 08, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2153-1,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.41	1.27	1.27	1.57
		GSM1900	0.11	1.37	0.97	
	WCDMA	Band V	0.37	1.34	**1.34**	
		Band IV	0.16	0.92	0.71	
		Band II	<0.10	1.23	0.90	
	LTE	Band 12/Band 17	0.25	0.77	0.77	
		Band 13	0.34	1.04	1.04	
		Band 26/Band 5	0.44	1.29	1.29	
		Band 66/ Band 4	0.24	1.37	0.99	
		Band 2	0.31	1.23	0.87	
		Band 7	0.43	**1.39**	1.11	
		Band 41/ Band 38	0.15	1.30	1.10	
		Band 42	0.12	0.94	0.94	
	5G NR	n5	0.78	0.93	0.67	
		n66	0.93	0.87	0.52	
		n7	0.81	0.88	0.46	
		n77	<0.10	0.91	0.91	
		n78	<0.10	0.94	0.94	
DTS	WLAN	2.4GHz WLAN	**1.17**	0.38	1.17	1.49
NII		5GHz WLAN	0.17	0.37	1.18	1.57
DSS	Bluetooth	2.4GHz Bluetooth	0.24	0.11	0.10	1.57

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	2.53	3.99
		GSM1900	2.95	
	WCDMA	WCDMA V	1.33	
		WCDMA IV	2.85	
		WCDMA II	2.92	
	LTE	Band 26/Band 5	2.02	
		Band 66/ Band 4	**3.00**	
		Band 2	**3.00**	
		Band 7	2.96	
		Band 41/ Band 38	2.06	
		Band 42	2.68	
	5G NR	n66	2.68	
		n7	2.54	
		n77	1.48	
		n78	1.59	
DTS	WLAN	2.4GHz WLAN	1.75	3.99
NII		5GHz WLAN	2.91	3.99
Date of Testing:			2021/5/20 ~ 2021/6/19	

Remark:

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

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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

2. Administration Data

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory		
Test Firm	Sporton International (Shenzhen) Inc.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1256	421272

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	XT2153-1
FCC ID	IHDT56ZW2
IMEI Code	SIM1: 356368690016010 SIM2: 356368690016028
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz: 802.11b/g/n HT20 WLAN 2.4GHz: 802.11ac/ax VHT20/HE20 WLAN 5GHz: 802.11a/n HT20/HT40 WLAN 5GHz: 802.11ac VHT20/VHT40/VHT80 WLAN 5GHz: 802.11ax HE20/HE40/HE80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
SW Version	RRA31.43
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. 802.11n HT40 is not supported in 2.4G WLAN.
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
5. The 2.4GHz/5GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.
6. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
7. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
8. The device implements the power management 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 appendix E.
9. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
10. For some WWAN bands, receiver off/sensor off reduced power level is higher than hotspot reduced power level, so front/back receiver off SAR can represent hotspot conservatively.
11. 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 and LTE 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 section 18 and appendix F.
12. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
13. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
14. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
15. This device supports 5GNR FR1 bands as following table and limited NSA mode.

<5G NR>

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

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	IHDT56ZW2
Equipment Name	Mobile Cellular Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz LTE Band 66: 1710 MHz ~ 1780 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM
LTE Voice / Data requirements	Voice and Data
LTE Release Version	R15, Cat12
CA Support	Supported, Uplink and Downlink
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3** Modulation: Channel bandwidth / Transmission bandwidth (N_{RB}): 1.4 MHz, 3.0 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz; MPR (dB) 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
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 14.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for 7C/38C /41C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 3 carriers in the downlink and 2 carriers in the uplink.

Transmission (H, M, L) channel numbers and frequencies in each LTE band

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 5

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844

LTE Band 7

	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560

LTE Band 12

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

LTE Band 13

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		

LTE Band 17

	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

LTE Band 26

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

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610
LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680
LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460
M	42590	3500	42590	3500	42590	3500	42590	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540

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

4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n77: 100MHz 5G NR n78: 20MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n7	LTE 66
LTE Anchor Bands for n66	LTE B5/7
LTE Anchor Bands for n77	LTE B12
LTE Anchor Bands for n78	LTE B5/7/38

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

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

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

NR Band 77		
	Bandwidth 100MHz	
	Ch. #	Freq. (MHz)
L	650000	3750
M	656000	3840
H	662000	3930

NR Band 78														
	Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647334	3710.01	648000	3720	648334	3725.01	648668	3730.02	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	652668	3790.02	652000	3780	651668	3775.02	651334	3770.01	650668	3760.02	650334	3755.01		

For Par27Q

NR Band 77		
	Bandwidth 100MHz	
	Ch. #	Freq. (MHz)
L		
M	633334	3500.01
H		

NR Band 78														
	Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630668	3460.02	631334	3470.01	631668	3475.02	632000	3480	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
H	636000	3540	635332	3529.98	635000	3525	634666	3519.99	634000	3510	633666	3504.99		

5. Smart Transmit feature for RF Exposure compliance

The RF exposure limit is defined based on time-averaged RF exposure. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6GHz). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR characterization (referred to as SAR char, respectively) will be used as input for Smart Transmit. SAR char will be entered via the Embedded File System (EFS) to enable the Smart Transmit Feature.

<Terminologies in this report>

P_{limit}	The time-averaged RF power which corresponds to SAR_design_target.
P_{max}	Maximum target power level
SAR_design_target:	The design target for SAR compliance. It should be less than regulatory SAR limit to account for all device design related uncertainty.
SAR char	P_{limit} for all the technologies/bands for all applicable DSI

<SAR Characterization>

SAR char must be generated to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for Smart Transmit to control and manage RF exposure for f < 6 GHz.

<SAR design target and uncertainty>

	Uncertainty dB (k=2)
Total uncertainty	1.5

To account for total uncertainty, SAR_design_target should be determined as:

$$SAR_design_target < SAR_{regulatory_limit} \times 10^{\frac{-total\ u\ ncertainty}{10}}$$

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit, for each characterized technology and band.

Smart Transmit allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

<P_{limit} for supported technologies and bands (P_{limit} in EFS file)>

FCC SAR-PImit							
Band	Antenna	Head DSI 2	Body Worn DSI 3	Hotspot On DSI 7	Extremely DSI6	Sensor Off DSI4	Pmax
GSM850(3 Tx slots)**	1	31.20	23.20	23.20	27.70	25.7	25.7
GSM1900(2 Tx slots)**	1	34.00	17.50	17.50	24.30	23.0	23.0
WCDMA V	1	28.90	23.00	23.00	27.80	23.0	23.0
WCDMA IV	1	32.40	15.50	15.50	21.00	23.0	23.0
WCDMA II	1	36.30	16.50	16.50	21.50	23.0	23.0
LTE B12/B17	1	30.50	25.70	25.70	23.00	23.0	23.0
LTE B13	1	29.30	24.40	24.40	23.00	23.0	23.0
LTE B26/B5	1	28.00	23.00	23.00	25.80	23.0	23.0
LTE B66/4	1	30.80	15.50	15.50	21.00	23.0	23.0
LTE B2	1	29.70	16.00	16.00	21.50	23.0	23.0
LTE B7	1	28.20	19.00	19.00	22.00	23.0	23.0
LTE B41/38(PC3)**	1	30.80	19.00	19.00	23.70	21.0	21.0
LTE B42**	4	30.10	8.50	8.50	15.50	21.0	21.0
n5	2	18.00	24.50	23.00	23.00	23.0	23.0
n66	2	12.00	14.00	14.00	19.00	23.0	23.0
n7	2	13.50	15.00	15.00	18.00	23.0	23.0
n77	4	33.80	10.50	10.50	16.00	22.0	22.0
n78	4	40.00	10.50	10.50	16.00	22.0	22.0

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1.0 dB uncertainty.

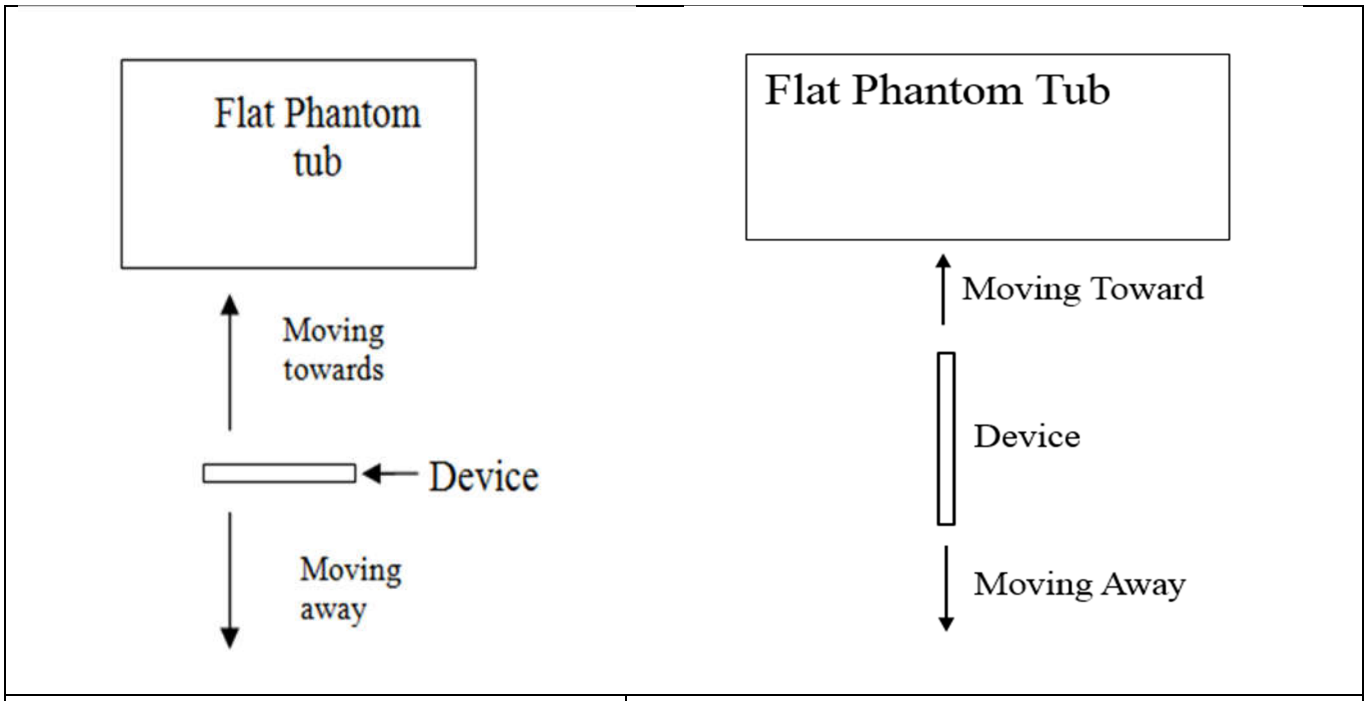
**All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM).

The max allowed output power is the P_{limit} + 1.0 dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

6. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5825MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom side of the device. When front/back/top/bottom side of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



Sensor detection test set-up, front and back faces	Sensor detection test set-up, top, bottom

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	17	20	26	27

<Handheld for Antenna 1>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	9	8	10	9	13

<Handheld for Antenna 2>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	8	8	9	6	8

<Handheld for Antenna 4>

Proximity Sensor Triggering Distance (mm)		
Position	Back	
	Moving towards	Moving away
Minimum	9	12

<Handheld for Antenna 5>

Proximity Sensor Triggering Distance (mm)		
Position	Back	
	Moving towards	Moving away
Minimum	6	9

<Handheld for Antenna 6>

Proximity Sensor Triggering Distance (mm)		
Position	Back	
	Moving towards	Moving away
Minimum	8	11

7. RF Exposure Limits

7.1 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.

7.2 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.

8. Specific Absorption Rate (SAR)

8.1 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.

8.2 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:

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

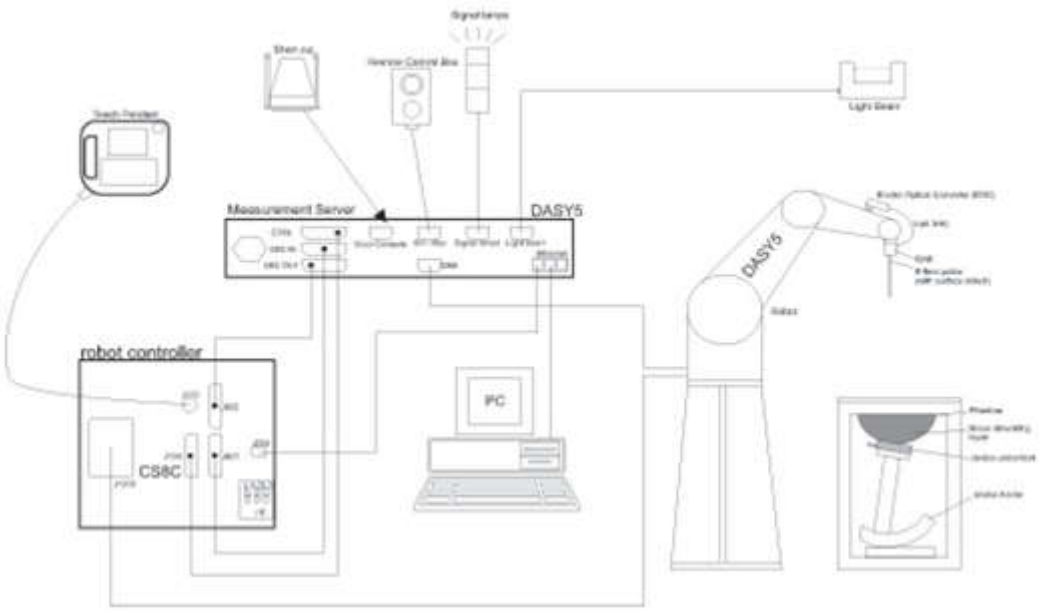
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

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



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

9.1 E-Field Probe

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

<EX3DV4 Probe>

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

9.2 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

9.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

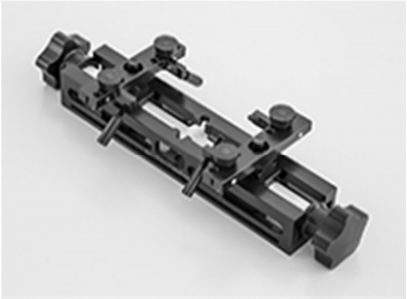
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

9.4 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

10. 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

10.1 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 form 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

10.2 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.

10.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{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 ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

10.4 Zoom Scan

Zoom scans are used 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 shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* 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.

10.5 Volume Scan Procedures

The volume scan is used for 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.

10.6 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.

11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	2018/12/6	2021/11/24
SPEAG	835MHz System Validation Kit	D835V2	4d162	2018/12/5	2021/11/24
SPEAG	1750MHz System Validation Kit	D1750V2	1137	2018/7/30	2021/7/22
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2018/12/7	2021/11/24
SPEAG	2450MHz System Validation Kit	D2450V2	924	2020/9/2	2021/9/1
SPEAG	2600MHz System Validation Kit	D2600V2	1070	2018/12/7	2021/11/24
SPEAG	3500MHz System Validation Kit	D3500V2	1076	2019/4/29	2022/4/14
SPEAG	3700MHz System Validation Kit	D3700V2	1037	2019/4/29	2022/4/14
SPEAG	3900MHz System Validation Kit	D3900V2	1022	2019/7/11	2022/7/10
SPEAG	5000MHz System Validation Kit	D5GHzV2	1167	2018/8/3	2021/8/2
SPEAG	Data Acquisition Electronics	DAE4	1386	2021/1/13	2022/1/12
SPEAG	Data Acquisition Electronics	DAE4	1664	2021/3/1	2022/2/28
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	2021/4/30	2022/4/29
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	2021/3/15	2022/3/14
SPEAG	SAM Twin Phantom	QD000P40CC	TP-1500	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2033	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2035	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201563813	2020/12/25	2021/12/24
Anritsu	Radio communication analyzer	MT8821C	6201588577	2021/4/8	2022/4/7
Agilent	Wireless Communication Test Set	E5515C	MY50267224	2020/7/21	2021/7/20
Agilent	Network Analyzer	E5071C	MY46523671	2020/10/15	2021/10/14
Speag	Dielectric Assessment KIT	DAK-3.5	1071	2020/12/23	2021/12/22
Agilent	Signal Generator	N5181A	MY50145381	2020/12/25	2021/12/24
Anritsu	Power Senor	MA2411B	1306099	2020/12/25	2021/12/24
Anritsu	Power Meter	ML2495A	1349001	2020/7/21	2021/7/20
Anritsu	Power Sensor	MA2411B	1207253	2020/12/25	2021/12/24
Anritsu	Power Meter	ML2495A	1218010	2020/12/25	2021/12/24
R&S	CBT BLUETOOTH TESTER	CBT	100963	2020/12/25	2021/12/24
R&S	Spectrum Analyzer	FSP7	100818	2020/7/21	2021/7/20
TES	Hygrometer	1310	200505600	2020/7/30	2021/7/29
Anymetre	Thermo-Hygrometer	JR593	2020062101	2020/7/21	2021/7/20
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	

Note:

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

12. System Verification

12.1 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.

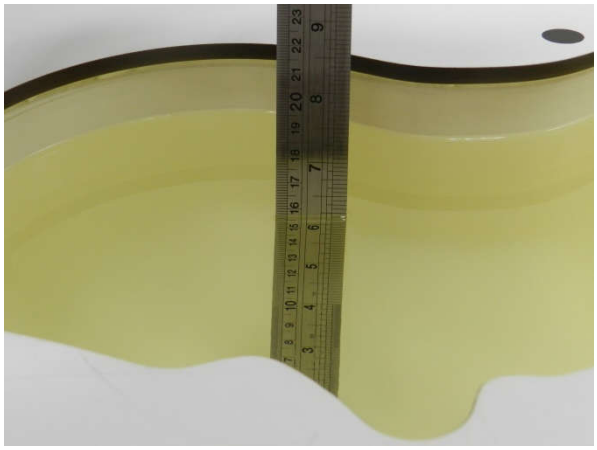


Fig 11.1 Photo of Liquid Height for Head SAR

Fig 11.2 Photo of Liquid Height for Body SAR

12.2 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 (εr)
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. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.5	0.895	41.004	0.89	41.90	0.56	-2.14	±5	2021/5/23
750	Head	22.4	0.921	41.563	0.89	41.90	3.48	-0.80	±5	2021/5/30
835	Head	22.5	0.916	41.029	0.90	41.50	1.78	-1.13	±5	2021/5/25
835	Head	22.6	0.910	42.910	0.90	41.50	1.11	3.40	±5	2021/6/2
1750	Head	22.4	1.378	41.340	1.37	40.10	0.58	3.09	±5	2021/5/20
1750	Head	22.6	1.381	40.830	1.37	40.10	0.80	1.82	±5	2021/6/4
1900	Head	22.7	1.435	38.464	1.40	40.00	2.50	-3.84	±5	2021/5/22
1900	Head	22.4	1.446	39.090	1.40	40.00	3.29	-2.27	±5	2021/6/6
2450	Head	22.8	1.834	39.654	1.80	39.20	1.89	1.16	±5	2021/5/24
2450	Head	22.7	1.824	38.032	1.80	39.20	1.33	-2.98	±5	2021/6/8
2600	Head	22.6	2.056	37.284	1.96	39.00	4.90	-4.40	±5	2021/5/21
2600	Head	22.6	1.894	40.240	1.96	39.00	-3.37	3.18	±5	2021/6/10
3500	Head	22.7	2.862	39.729	2.91	37.90	-1.65	4.83	±5	2021/6/12
3500	Head	22.8	2.941	39.136	2.91	37.90	1.07	3.26	±5	2021/6/19
3700	Head	22.4	2.967	39.530	3.12	37.70	-4.90	4.85	±5	2021/5/27
3700	Head	22.8	3.042	36.381	3.12	37.70	-2.50	-3.50	±5	2021/6/14
3900	Head	22.6	3.226	39.349	3.33	37.51	-3.12	4.90	±5	2021/5/25
3900	Head	22.5	3.233	39.126	3.33	37.51	-2.91	4.31	±5	2021/6/18
5250	Head	22.8	4.714	36.412	4.71	35.95	0.08	1.29	±5	2021/5/26
5250	Head	22.4	4.744	36.854	4.71	35.95	0.72	2.51	±5	2021/6/16
5600	Head	22.7	5.141	35.813	5.07	35.50	1.40	0.88	±5	2021/5/27
5600	Head	22.4	5.182	36.105	5.07	35.50	2.21	1.70	±5	2021/6/18
5750	Head	22.6	5.315	35.552	5.22	35.35	1.82	0.57	±5	2021/5/28
5750	Head	22.5	5.357	35.815	5.22	35.35	2.62	1.32	±5	2021/6/18
835	Head	22.6	0.912	42.890	0.90	41.50	1.33	3.35	±5	2021/7/6

12.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2021/5/23	750	Head	250	1099	7641	1664	2.24	8.52	8.96	5.16
2021/5/30	750	Head	250	1099	7641	1664	2.30	8.52	9.2	7.98
2021/5/25	835	Head	250	4d162	7641	1664	2.42	9.61	9.68	0.73
2021/6/2	835	Head	250	4d162	7641	1664	2.41	9.61	9.64	0.31
2021/5/20	1750	Head	250	1137	7641	1664	9.13	36.50	36.52	0.05
2021/6/4	1750	Head	250	1137	7641	1664	9.15	36.50	36.6	0.27
2021/5/22	1900	Head	250	5d182	7641	1664	9.99	39.60	39.96	0.91
2021/6/6	1900	Head	250	5d182	7641	1664	10.10	39.60	40.4	2.02
2021/5/24	2450	Head	250	924	7641	1664	12.10	51.40	48.4	-5.84
2021/6/8	2450	Head	250	924	7641	1664	12.00	51.40	48	-6.61
2021/5/21	2600	Head	250	1070	7641	1664	14.00	58.10	56	-3.61
2021/6/10	2600	Head	250	1070	7641	1664	14.10	58.10	56.4	-2.93
2021/6/12	3500	Head	100	1076	7641	1664	6.32	67.90	63.2	-6.92
2021/6/19	3500	Head	100	1076	7641	1664	6.31	67.90	63.1	-7.07
2021/5/27	3700	Head	100	1037	7641	1664	6.43	68.50	64.3	-6.13
2021/6/14	3700	Head	100	1037	7641	1664	6.41	68.50	64.1	-6.42
2021/5/25	3900	Head	100	1022	3819	1386	6.49	70.50	64.9	-7.94
2021/6/18	3900	Head	100	1022	3819	1386	6.44	70.50	64.4	-8.65
2021/5/26	5250	Head	100	1167	7641	1664	8.27	77.00	82.7	7.40
2021/6/16	5250	Head	100	1167	7641	1664	8.32	77.00	83.2	8.05
2021/5/27	5600	Head	100	1167	7641	1664	8.46	80.80	84.6	4.70
2021/6/18	5600	Head	100	1167	7641	1664	8.53	80.80	85.3	5.57
2021/5/28	5750	Head	100	1167	7641	1664	7.53	76.90	75.3	-2.08
2021/6/18	5750	Head	100	1167	7641	1664	7.59	76.90	75.9	-1.30
2021/7/6	835	Head	250	4d162	7641	1664	2.46	9.61	9.84	2.39

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2021/5/23	750	Head	250	1099	7641	1664	1.50	5.64	6	6.38
2021/5/30	750	Head	250	1099	7641	1664	1.54	5.64	6.16	9.22
2021/5/25	835	Head	250	4d162	7641	1664	1.59	6.35	6.36	0.16
2021/6/2	835	Head	250	4d162	7641	1664	1.58	6.35	6.32	-0.47
2021/5/20	1750	Head	250	1137	7641	1664	4.85	19.50	19.4	-0.51
2021/6/4	1750	Head	250	1137	7641	1664	4.86	19.50	19.44	-0.31
2021/5/22	1900	Head	250	5d182	7641	1664	5.06	20.70	20.24	-2.22
2021/6/6	1900	Head	250	5d182	7641	1664	5.10	20.70	20.4	-1.45
2021/5/24	2450	Head	250	924	7641	1664	5.45	24.00	21.8	-9.17
2021/6/8	2450	Head	250	924	7641	1664	5.42	24.00	21.68	-9.67
2021/5/21	2600	Head	250	1070	7641	1664	6.05	26.10	24.2	-7.28
2021/6/10	2600	Head	250	1070	7641	1664	6.08	26.10	24.32	-6.82
2021/6/12	3500	Head	100	1076	7641	1664	2.29	25.30	22.9	-9.49
2021/6/19	3500	Head	100	1076	7641	1664	2.28	25.30	22.8	-9.88
2021/5/27	3700	Head	100	1037	7641	1664	2.35	24.80	23.5	-5.24
2021/6/14	3700	Head	100	1037	7641	1664	2.33	24.80	23.3	-6.05
2021/5/25	3900	Head	100	1022	3819	1386	2.28	24.60	22.8	-7.32
2021/6/18	3900	Head	100	1022	3819	1386	2.26	24.60	22.6	-8.13
2021/5/26	5250	Head	100	1167	7641	1664	2.28	22.00	22.8	3.64
2021/6/16	5250	Head	100	1167	7641	1664	2.29	22.00	22.9	4.09
2021/5/27	5600	Head	100	1167	7641	1664	2.30	23.20	23	-0.86
2021/6/18	5600	Head	100	1167	7641	1664	2.32	23.20	23.2	0.00
2021/5/28	5750	Head	100	1167	7641	1664	2.09	21.60	20.9	-3.24
2021/6/18	5750	Head	100	1167	7641	1664	2.11	21.60	21.1	-2.31
2021/7/6	835	Head	250	4d162	7641	1664	1.55	6.35	6.2	-2.36

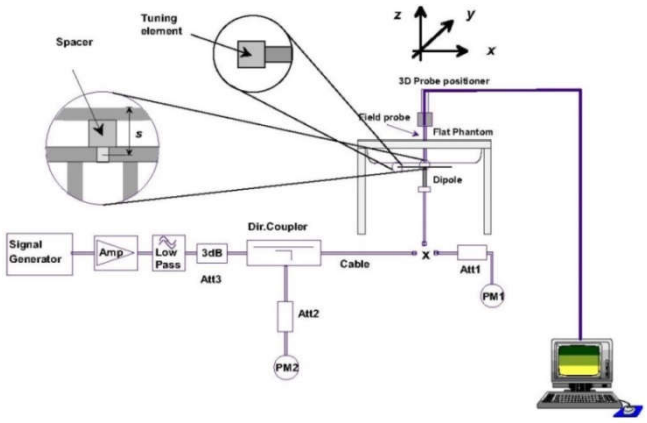


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

13. RF Exposure Positions

13.1 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.

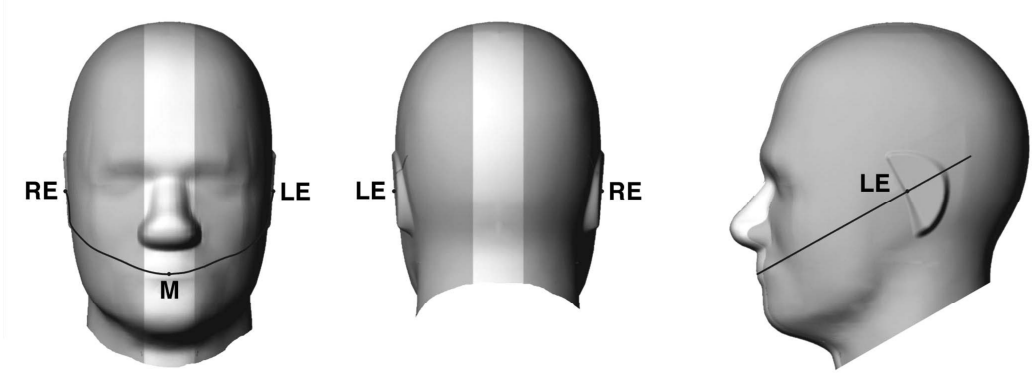


Fig 12.1.1 Front, back, and side views of SAM twin phantom

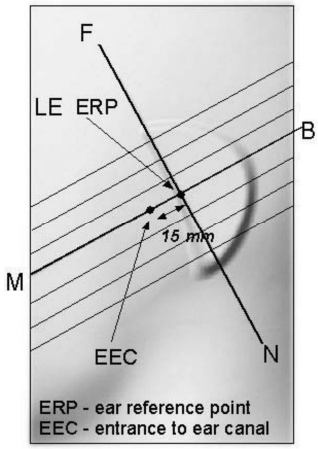


Fig 12.1.2 Close-up side view of phantom showing the ear region.

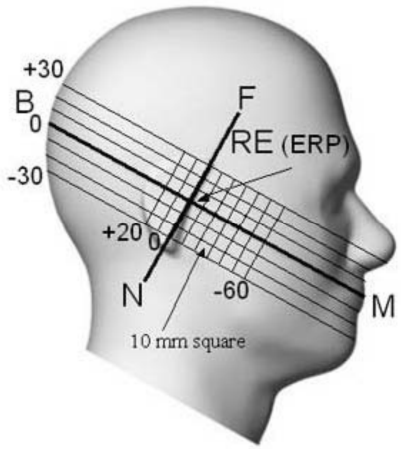


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

13.2 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 wt 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 wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

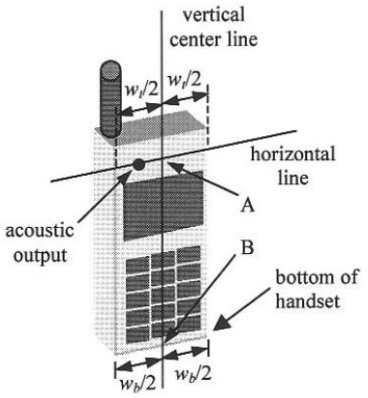


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

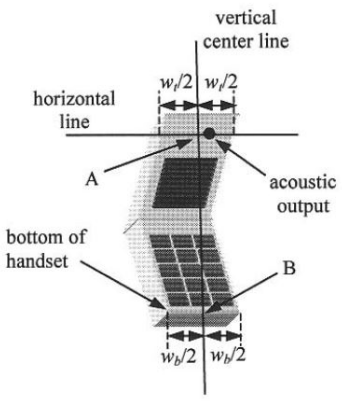


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

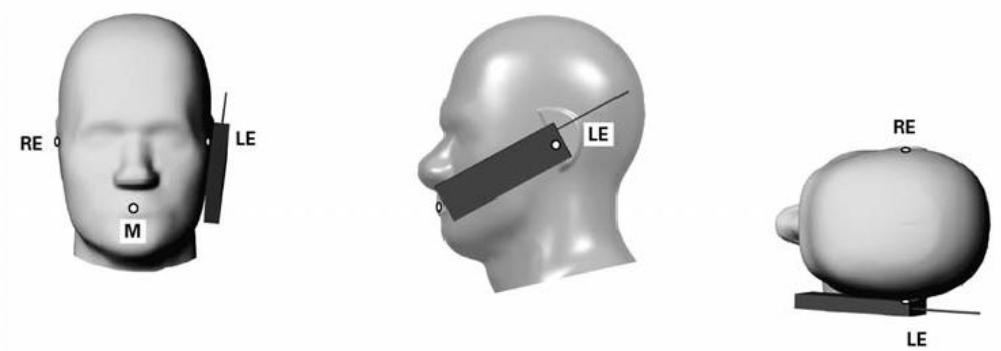


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

13.3 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

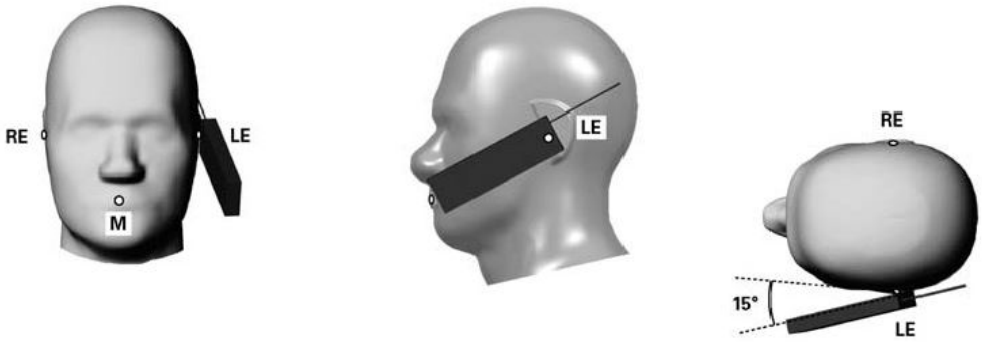


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

13.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is > 1.2 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 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-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

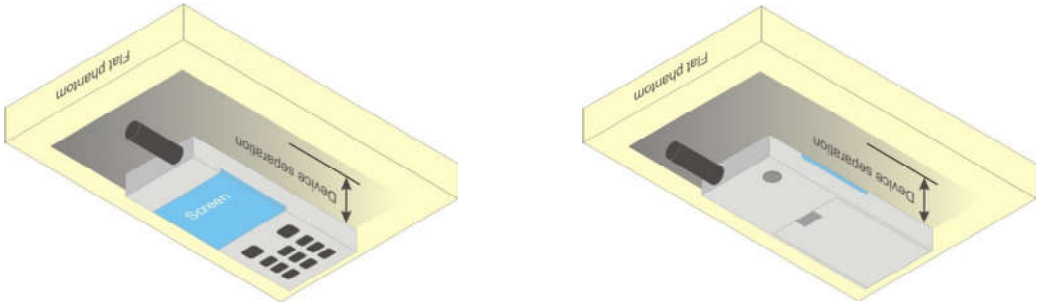


Fig 12.4 Body Worn Position

13.5 Product Specific 10g SAR Exposure

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

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

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

13.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form 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.

14. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 3Tx slots for GSM850 and GPRS 2Tx slots for GSM1900 are considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c . For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c .

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

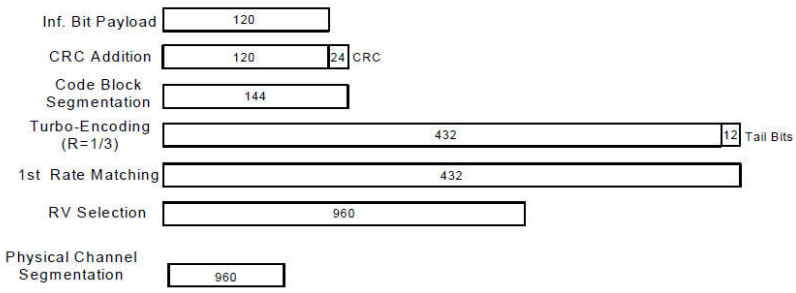


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

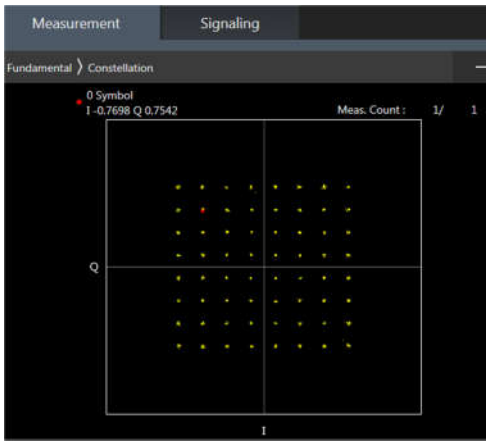
General Note:

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

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4 / B5 / B17 / B38 SAR test was covered by B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

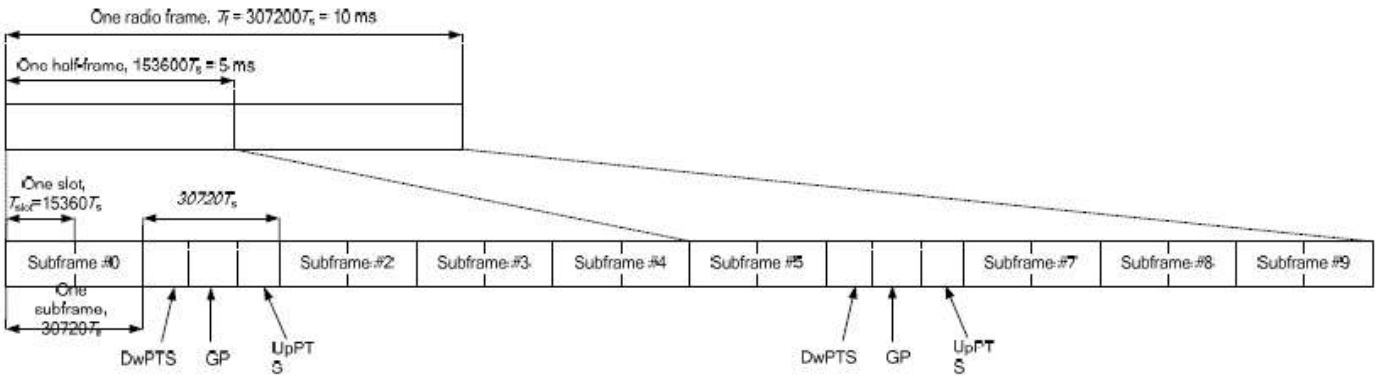


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<LTE Carrier Aggregation>

General Note:

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

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	CA_2A-5A			1	CA_4A-7C	4A,7C	
2	CA_4A-4A			2	CA_5A-7C	7A,7C	
3	CA_4A-5A	4A		3	CA_5A-66A-66A	66A	
4	CA_4A-7A	4A,7A		4	CA_41D	4A,7C	
5	CA_4A-12A						
6	CA_4A-17A						
7	CA_5A-7A	7A					
8	CA_5A-66A	66A	3CC-3				
9	CA_7B	7B					
10	CA_7C	7C	3CC-1				
11	CA_7A-7A	7A					
12	CA_12A-66A						
13	CA_38C	38C					
14	CA_41C	41C					
15	CA_41A-41A						
16	CA_66B						
17	CA_66C						
18	CA_66A-66A	66A	3CC-3				

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Bands 4/7/66/38/41 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	WWAN Band
	LTE Band: B4/B7/ B66/ B38 / B41

LTE Carrier Aggregation Conducted Power (Downlink)

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink three carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

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

LTE Carrier Aggregation Conducted Power (Uplink)

1. This device supports uplink carrier aggregation for LTE CA_7C, LTE CA_38C, LTE CA_41C with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. For the non-contiguously allocated resource blocks which the MPR level is determined by various RB separation and RB sizes requirement, and the allowed MPR levels, settings and the conducted powers are permanently implemented in this device per the 3GPP 36.36.101 section 6.2.3A.1.3 requirements.
2. According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
3. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs
4. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05. The required test channel should be associated with the UL PCC. For channels at the ends of a frequency band, the SCC and subsequent CCs are added to the side within the transmission band. Otherwise, the CCs should be added alternatively to either side of the PCC.

<Power Measurement Setup>

5G NR Output Power (Unit: dBm)

General Note:

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

<3GPP 38.101 MPR for EN-DC>

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

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]	≤ 0.5[2]	0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

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

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

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

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

FR 1	EN-DC	LTE UL	5G-NR UL
n5	DC_7A-n5A	Ant1	Ant2
n7	DC_66A-n7A	Ant1	Ant2
n66	DC_5A-n66A	Ant1	Ant2
	DC_7A-n66A	Ant1	Ant2
n77	DC_12A-n77A	Ant1	Ant4
n78	DC_5A-n78A	Ant1	Ant4
	DC_7A-n78A	Ant1	Ant4
	DC_38A-n78A	Ant1	Ant4

<WLAN Conducted Power>

General Note:

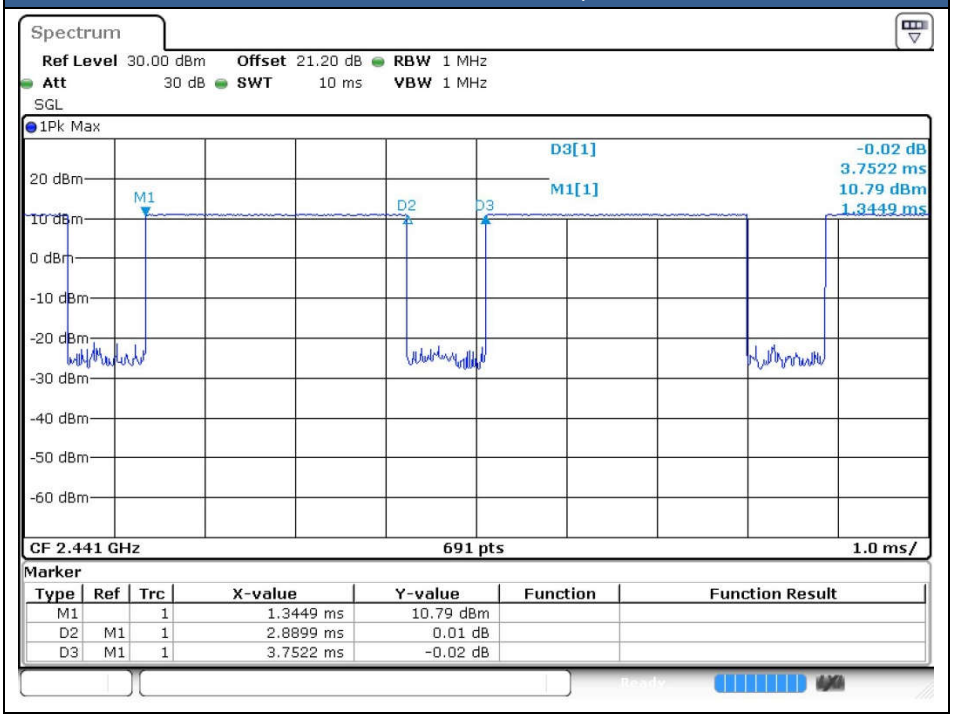
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements.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

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 77.02 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation

Bluetooth time-domain plot



15. Antenna Location

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

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. The device implements the power management 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 appendix E.
6. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
7. For some WWAN bands, receiver off/sensor off reduced power level is higher than hotspot reduced power level, so front/back receiver off SAR can represent hotspot conservatively.
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 and LTE 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 section 18 and appendix F.
9. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
10. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
11. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
12. This device supports 5GNR FR1 bands limited NSA mode.
13. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
    a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/5/7/26/66/38/41/42, 5GNR n7/n66/n77/n78, WLAN 2.4GHz/5.2GHz/5.8GHz, therefore product specific 10g SAR is necessary.
    b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
    c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.

GSM Note:

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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B5 / B17 / B38 SAR test was covered by LTE B66 / B26 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
   b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure.
   c. PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   d. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK /16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
   f. For 5G FR1 n5 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. The 2.4GHz/5GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.

DSI status description:

The device has the following DSI state which used at different exposure condition.
This WWAN bands enabled with Qualcomm Smart Transmit feature which located at chapter 5. The default power is Pmax power, When Plimit power higher than Pmax power, the output power will be limited at Pmax, and so the SAR will use Pmax power to do the testing.

Exposure Condition	DSI	Trigger conditions
Head	DSI 2	Earpiece On
Body worn	DSI 3	Sensor On
Hotspot	DSI 7	Hotspot On
Extremity(Handheld)	DSI 6	Sensor On
Sensor off	DSI 4	Sensor Off

Power Reduction description:

Condition	Scenes
DBS	WLAN 2.4GHz + WLAN 5GHz
Simultaneous_2Tx	WWAN + WLAN 2.4GHz or WLAN 5GHz/BT
Simultaneous_3Tx	WWAN + WLAN 2.4GHz + WLAN 5GHz/BT

16.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850	GPRS(3Tx slots)	Right Cheek	Ant 1	DSI 2	128	824.2	29.53	31.00	1.403	0.19	0.291	**0.408**
	GSM850	GPRS(3Tx slots)	Right Tilted	Ant 1	DSI 2	128	824.2	29.53	31.00	1.403	0.1	0.147	0.206
	GSM850	GPRS(3Tx slots)	Left Cheek	Ant 1	DSI 2	128	824.2	29.53	31.00	1.403	-0.01	0.244	0.342
	GSM850	GPRS(3Tx slots)	Left Tilted	Ant 1	DSI 2	128	824.2	29.53	31.00	1.403	-0.08	0.117	0.164
	GSM1900	GPRS(2 Tx slots)	Right Cheek	Ant 1	DSI 2	661	1880	28.65	30.00	1.365	0.11	0.046	0.062
	GSM1900	GPRS(2 Tx slots)	Right Tilted	Ant 1	DSI 2	661	1880	28.65	30.00	1.365	-0.04	0.055	0.074
02	GSM1900	GPRS(2 Tx slots)	Left Cheek	Ant 1	DSI 2	661	1880	28.65	30.00	1.365	0.06	0.083	**0.114**
	GSM1900	GPRS(2 Tx slots)	Left Tilted	Ant 1	DSI 2	661	1880	28.65	30.00	1.365	0.01	0.029	0.039

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA V	RMC 12.2Kbps	Right Cheek	Ant 1	DSI 2	4233	846.6	22.98	24.00	1.265	0.15	0.289	**0.366**
	WCDMA V	RMC 12.2Kbps	Right Tilted	Ant 1	DSI 2	4233	846.6	22.98	24.00	1.265	0.08	0.136	0.172
	WCDMA V	RMC 12.2Kbps	Left Cheek	Ant 1	DSI 2	4233	846.6	22.98	24.00	1.265	-0.17	0.225	0.285
	WCDMA V	RMC 12.2Kbps	Left Tilted	Ant 1	DSI 2	4233	846.6	22.98	24.00	1.265	-0.04	0.107	0.135
	WCDMA IV	RMC 12.2Kbps	Right Cheek	Ant 1	DSI 2	1413	1732.6	23.19	24.00	1.205	0.01	0.088	0.106
	WCDMA IV	RMC 12.2Kbps	Right Tilted	Ant 1	DSI 2	1413	1732.6	23.19	24.00	1.205	0.08	0.050	0.060
04	WCDMA IV	RMC 12.2Kbps	Left Cheek	Ant 1	DSI 2	1413	1732.6	23.19	24.00	1.205	0.16	0.136	**0.164**
	WCDMA IV	RMC 12.2Kbps	Left Tilted	Ant 1	DSI 2	1413	1732.6	23.19	24.00	1.205	-0.13	0.046	0.056
	WCDMA II	RMC 12.2Kbps	Right Cheek	Ant 1	DSI 2	9538	1907.6	23.10	24.00	1.230	0.11	0.035	0.043
	WCDMA II	RMC 12.2Kbps	Right Tilted	Ant 1	DSI 2	9538	1907.6	23.10	24.00	1.230	-0.06	0.033	0.040
05	WCDMA II	RMC 12.2Kbps	Left Cheek	Ant 1	DSI 2	9538	1907.6	23.10	24.00	1.230	0.04	0.054	**0.066**
	WCDMA II	RMC 12.2Kbps	Left Tilted	Ant 1	DSI 2	9538	1907.6	23.10	24.00	1.230	-0.19	0.018	0.023

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
06	LTE Band 12	10M	QPSK	1	25	Right Cheek	Ant 1	DSI 2	23095	707.5	22.80	24.00	1.318	0.01	0.191	**0.252**
	LTE Band 12	10M	QPSK	1	25	Right Tilted	Ant 1	DSI 2	23095	707.5	22.80	24.00	1.318	0.18	0.103	0.136
	LTE Band 12	10M	QPSK	1	25	Left Cheek	Ant 1	DSI 2	23095	707.5	22.80	24.00	1.318	0.03	0.148	0.195
	LTE Band 12	10M	QPSK	1	25	Left Tilted	Ant 1	DSI 2	23095	707.5	22.80	24.00	1.318	-0.02	0.072	0.095
	LTE Band 12	10M	QPSK	25	12	Right Cheek	Ant 1	DSI 2	23095	707.5	21.75	23.00	1.334	0.16	0.097	0.130
	LTE Band 12	10M	QPSK	25	12	Right Tilted	Ant 1	DSI 2	23095	707.5	21.75	23.00	1.334	-0.11	0.043	0.057
	LTE Band 12	10M	QPSK	25	12	Left Cheek	Ant 1	DSI 2	23095	707.5	21.75	23.00	1.334	0.03	0.081	0.108
	LTE Band 12	10M	QPSK	25	12	Left Tilted	Ant 1	DSI 2	23095	707.5	21.75	23.00	1.334	0.18	0.038	0.051
07	LTE Band 13	10M	QPSK	1	25	Right Cheek	Ant 1	DSI 2	23230	782	22.75	24.00	1.334	-0.1	0.254	**0.339**
	LTE Band 13	10M	QPSK	1	25	Right Tilted	Ant 1	DSI 2	23230	782	22.75	24.00	1.334	0.19	0.121	0.161
	LTE Band 13	10M	QPSK	1	25	Left Cheek	Ant 1	DSI 2	23230	782	22.75	24.00	1.334	-0.11	0.208	0.277
	LTE Band 13	10M	QPSK	1	25	Left Tilted	Ant 1	DSI 2	23230	782	22.75	24.00	1.334	0.06	0.105	0.140
	LTE Band 13	10M	QPSK	25	12	Right Cheek	Ant 1	DSI 2	23230	782	21.87	23.00	1.297	0.09	0.144	0.187
	LTE Band 13	10M	QPSK	25	12	Right Tilted	Ant 1	DSI 2	23230	782	21.87	23.00	1.297	0.01	0.069	0.090
	LTE Band 13	10M	QPSK	25	12	Left Cheek	Ant 1	DSI 2	23230	782	21.87	23.00	1.297	-0.08	0.117	0.152
	LTE Band 13	10M	QPSK	25	12	Left Tilted	Ant 1	DSI 2	23230	782	21.87	23.00	1.297	0.11	0.060	0.077
08	LTE Band 26	15M	QPSK	1	37	Right Cheek	Ant 1	DSI 2	26865	831.5	22.73	24.00	1.340	0.1	0.326	**0.437**
	LTE Band 26	15M	QPSK	1	37	Right Tilted	Ant 1	DSI 2	26865	831.5	22.73	24.00	1.340	-0.03	0.153	0.205
	LTE Band 26	15M	QPSK	1	37	Left Cheek	Ant 1	DSI 2	26865	831.5	22.73	24.00	1.340	0.09	0.258	0.346
	LTE Band 26	15M	QPSK	1	37	Left Tilted	Ant 1	DSI 2	26865	831.5	22.73	24.00	1.340	-0.03	0.153	0.205
	LTE Band 26	15M	QPSK	36	20	Right Cheek	Ant 1	DSI 2	26865	831.5	21.71	23.00	1.346	0.07	0.197	0.265
	LTE Band 26	15M	QPSK	36	20	Right Tilted	Ant 1	DSI 2	26865	831.5	21.71	23.00	1.346	0.12	0.086	0.115
	LTE Band 26	15M	QPSK	36	20	Left Cheek	Ant 1	DSI 2	26865	831.5	21.71	23.00	1.346	-0.01	0.144	0.194
	LTE Band 26	15M	QPSK	36	20	Left Tilted	Ant 1	DSI 2	26865	831.5	21.71	23.00	1.346	0.13	0.086	0.116
	LTE Band 66	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	132322	1745	22.68	24.00	1.355	0.11	0.103	0.140
	LTE Band 66	20M	QPSK	1	49	Right Tilted	Ant 1	DSI 2	132322	1745	22.68	24.00	1.355	-0.14	0.086	0.117
09	LTE Band 66	20M	QPSK	1	49	Left Cheek	Ant 1	DSI 2	132322	1745	22.68	24.00	1.355	0.13	0.174	**0.236**
	LTE Band 66	20M	QPSK	1	49	Left Tilted	Ant 1	DSI 2	132322	1745	22.68	24.00	1.355	0.09	0.078	0.106
	LTE Band 66	20M	QPSK	50	24	Right Cheek	Ant 1	DSI 2	132322	1745	21.86	23.00	1.300	0.1	0.053	0.068
	LTE Band 66	20M	QPSK	50	24	Right Tilted	Ant 1	DSI 2	132322	1745	21.86	23.00	1.300	-0.05	0.045	0.059
	LTE Band 66	20M	QPSK	50	24	Left Cheek	Ant 1	DSI 2	132322	1745	21.86	23.00	1.300	0.06	0.091	0.118
	LTE Band 66	20M	QPSK	50	24	Left Tilted	Ant 1	DSI 2	132322	1745	21.86	23.00	1.300	0.12	0.042	0.054
	LTE Band 2	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	19100	1900	22.73	24.00	1.340	0.1	0.113	0.151
	LTE Band 2	20M	QPSK	1	49	Right Tilted	Ant 1	DSI 2	19100	1900	22.73	24.00	1.340	0.18	0.161	0.216
10	LTE Band 2	20M	QPSK	1	49	Left Cheek	Ant 1	DSI 2	19100	1900	22.73	24.00	1.340	-0.03	0.231	**0.309**
	LTE Band 2	20M	QPSK	1	49	Left Tilted	Ant 1	DSI 2	19100	1900	22.73	24.00	1.340	0.09	0.082	0.109
	LTE Band 2	20M	QPSK	50	24	Right Cheek	Ant 1	DSI 2	19100	1900	21.81	23.00	1.315	-0.03	0.075	0.098
	LTE Band 2	20M	QPSK	50	24	Right Tilted	Ant 1	DSI 2	19100	1900	21.81	23.00	1.315	0.07	0.086	0.113
	LTE Band 2	20M	QPSK	50	24	Left Cheek	Ant 1	DSI 2	19100	1900	21.81	23.00	1.315	0.12	0.123	0.162
	LTE Band 2	20M	QPSK	50	24	Left Tilted	Ant 1	DSI 2	19100	1900	21.81	23.00	1.315	-0.04	0.042	0.055
11	LTE Band 7	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	21100	2535	22.80	24.00	1.318	-0.01	0.328	**0.432**
	LTE Band 7C	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	PCC(21100) +SCC(20902)	PCC(2535) +SCC(2515.2)	22.71	24.00	1.346	0.05	0.317	0.427
	LTE Band 7	20M	QPSK	1	49	Right Tilted	Ant 1	DSI 2	21100	2535	22.80	24.00	1.318	0.09	0.123	0.162
	LTE Band 7	20M	QPSK	1	49	Left Cheek	Ant 1	DSI 2	21100	2535	22.80	24.00	1.318	0.12	0.162	0.214
	LTE Band 7	20M	QPSK	1	49	Left Tilted	Ant 1	DSI 2	21100	2535	22.80	24.00	1.318	-0.07	0.128	0.169
	LTE Band 7	20M	QPSK	50	24	Right Cheek	Ant 1	DSI 2	21100	2535	21.88	23.00	1.294	0.11	0.179	0.232
	LTE Band 7	20M	QPSK	50	24	Right Tilted	Ant 1	DSI 2	21100	2535	21.88	23.00	1.294	-0.08	0.072	0.093
	LTE Band 7	20M	QPSK	50	24	Left Cheek	Ant 1	DSI 2	21100	2535	21.88	23.00	1.294	0.09	0.081	0.105
	LTE Band 7	20M	QPSK	50	24	Left Tilted	Ant 1	DSI 2	21100	2535	21.88	23.00	1.294	0.1	0.067	0.087

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
12	LTE Band 41	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	40185	2549.5	22.87	24.00	1.297	62.9	1.006	0.07	0.118	**0.154**
	LTE Band 41C	20M	QPSK	1	49	Right Cheek	Ant 1	DSI 2	PCC(40185) +SCC(39987)	PCC(2549.5) +SCC(2529.7)	22.88	24.00	1.294	62.9	1.006	0.03	0.090	0.117
	LTE Band 41	20M	QPSK	1	49	Right Tilted	Ant 1	DSI 2	40185	2549.5	22.87	24.00	1.297	62.9	1.006	0.12	0.049	0.064
	LTE Band 41	20M	QPSK	1	49	Left Cheek	Ant 1	DSI 2	40185	2549.5	22.87	24.00	1.297	62.9	1.006	-0.04	0.061	0.079
	LTE Band 41	20M	QPSK	1	49	Left Tilted	Ant 1	DSI 2	40185	2549.5	22.87	24.00	1.297	62.9	1.006	-0.06	0.052	0.067
	LTE Band 41	20M	QPSK	50	24	Right Cheek	Ant 1	DSI 2	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.05	0.096	0.120
	LTE Band 41	20M	QPSK	50	24	Right Tilted	Ant 1	DSI 2	40185	2549.5	22.04	23.00	1.247	62.9	1.006	-0.07	0.043	0.054
	LTE Band 41	20M	QPSK	50	24	Left Cheek	Ant 1	DSI 2	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.18	0.051	0.063
	LTE Band 41	20M	QPSK	50	24	Left Tilted	Ant 1	DSI 2	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.03	0.041	0.051
13	LTE Band 42	20M	QPSK	1	49	Right Cheek	Ant 4	DSI 2	42190	3460	23.50	24.00	1.122	62.9	1.006	0.09	0.103	**0.116**
	LTE Band 42	20M	QPSK	1	49	Right Tilted	Ant 4	DSI 2	42190	3460	23.50	24.00	1.122	62.9	1.006	0.04	0.069	0.078
	LTE Band 42	20M	QPSK	1	49	Left Cheek	Ant 4	DSI 2	42190	3460	23.50	24.00	1.122	62.9	1.006	0.06	0.098	0.111
	LTE Band 42	20M	QPSK	1	49	Left Tilted	Ant 4	DSI 2	42190	3460	23.50	24.00	1.122	62.9	1.006	-0.06	0.031	0.035
	LTE Band 42	20M	QPSK	50	24	Right Cheek	Ant 4	DSI 2	42190	3460	22.60	23.00	1.096	62.9	1.006	0.03	0.067	0.074
	LTE Band 42	20M	QPSK	50	24	Right Tilted	Ant 4	DSI 2	42190	3460	22.60	23.00	1.096	62.9	1.006	0.04	0.043	0.047
	LTE Band 42	20M	QPSK	50	24	Left Cheek	Ant 4	DSI 2	42190	3460	22.60	23.00	1.096	62.9	1.006	0.05	0.064	0.071
	LTE Band 42	20M	QPSK	50	24	Left Tilted	Ant 4	DSI 2	42190	3460	22.60	23.00	1.096	62.9	1.006	-0.09	0.029	0.032

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5	20M	BPSK	1	1	DFT-15	Right Cheek	ANT2	DSI 2	167300	836.5	18.08	19.00	1.236	-0.02	0.328	0.405
	N5	20M	BPSK	1	1	DFT-15	Right Tilted	ANT2	DSI 2	167300	836.5	18.08	19.00	1.236	0.06	0.354	0.438
14	N5	20M	BPSK	1	1	DFT-15	Left Cheek	ANT2	DSI 2	167300	836.5	18.08	19.00	1.236	0.05	0.629	**0.777**
	N5	20M	BPSK	1	1	DFT-15	Left Tilted	ANT2	DSI 2	167300	836.5	18.08	19.00	1.236	0.17	0.562	0.695
	N5	20M	BPSK	50	28	DFT-15	Right Cheek	ANT2	DSI 2	167300	836.5	18.07	19.00	1.239	0.06	0.364	0.451
	N5	20M	BPSK	50	28	DFT-15	Right Tilted	ANT2	DSI 2	167300	836.5	18.07	19.00	1.239	0.01	0.320	0.396
	N5	20M	BPSK	50	28	DFT-15	Left Cheek	ANT2	DSI 2	167300	836.5	18.07	19.00	1.239	0.02	0.581	0.720
	N5	20M	BPSK	50	28	DFT-15	Left Tilted	ANT2	DSI 2	167300	836.5	18.07	19.00	1.239	-0.07	0.498	0.617
	N66	20M	BPSK	1	53	DFT-15	Right Cheek	ANT2	DSI 2	349000	1745	11.97	13.00	1.268	0.06	0.222	0.281
	N66	20M	BPSK	1	53	DFT-15	Right Tilted	ANT2	DSI 2	349000	1745	11.97	13.00	1.268	0.09	0.206	0.261
	N66	20M	BPSK	1	53	DFT-15	Left Cheek	ANT2	DSI 2	349000	1745	11.97	13.00	1.268	0.02	0.470	0.596
	N66	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	349000	1745	11.97	13.00	1.268	0.01	0.650	0.824
	N66	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	344000	1720	11.74	13.00	1.337	0.04	0.365	0.488
15	N66	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	354000	1770	11.69	13.00	1.352	0.08	0.685	**0.926**
	N66	20M	BPSK	50	28	DFT-15	Right Cheek	ANT2	DSI 2	349000	1745	11.90	13.00	1.288	0.03	0.193	0.249
	N66	20M	BPSK	50	28	DFT-15	Right Tilted	ANT2	DSI 2	349000	1745	11.90	13.00	1.288	0.05	0.183	0.236
	N66	20M	BPSK	50	28	DFT-15	Left Cheek	ANT2	DSI 2	349000	1745	11.90	13.00	1.288	0.01	0.456	0.587
	N66	20M	BPSK	50	28	DFT-15	Left Tilted	ANT2	DSI 2	349000	1745	11.90	13.00	1.288	0.04	0.593	0.764
	N66	20M	BPSK	100	0	DFT-15	Left Tilted	ANT2	DSI 2	349000	1745	11.83	13.00	1.309	0.02	0.555	0.727
	N7	20M	BPSK	1	53	DFT-15	Right Cheek	ANT2	DSI 2	512000	2560	13.75	14.50	1.189	0.09	0.193	0.229
	N7	20M	BPSK	1	53	DFT-15	Right Tilted	ANT2	DSI 2	512000	2560	13.75	14.50	1.189	0.04	0.223	0.265
	N7	20M	BPSK	1	53	DFT-15	Left Cheek	ANT2	DSI 2	512000	2560	13.75	14.50	1.189	-0.04	0.450	0.535
16	N7	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	512000	2560	13.75	14.50	1.189	0.05	0.683	**0.812**
	N7	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	502000	2510	13.49	14.50	1.262	0.05	0.363	0.458
	N7	20M	BPSK	1	53	DFT-15	Left Tilted	ANT2	DSI 2	507000	2535	13.58	14.50	1.236	0.18	0.546	0.675
	N7	20M	BPSK	50	28	DFT-15	Right Cheek	ANT2	DSI 2	512000	2560	13.68	14.50	1.208	0.11	0.188	0.227
	N7	20M	BPSK	50	28	DFT-15	Right Tilted	ANT2	DSI 2	512000	2560	13.68	14.50	1.208	-0.12	0.231	0.279
	N7	20M	BPSK	50	28	DFT-15	Left Cheek	ANT2	DSI 2	512000	2560	13.68	14.50	1.208	-0.15	0.400	0.483
	N7	20M	BPSK	50	28	DFT-15	Left Tilted	ANT2	DSI 2	512000	2560	13.68	14.50	1.208	0.19	0.670	0.809
	N7	20M	BPSK	50	28	DFT-15	Left Tilted	ANT2	DSI 2	502000	2510	13.55	14.50	1.245	0.11	0.358	0.446
	N7	20M	BPSK	50	28	DFT-15	Left Tilted	ANT2	DSI 2	507000	2535	13.58	14.50	1.236	-0.1	0.521	0.644

	N7	20M	BPSK	100	0	DFT-15	Left Tilted	ANT2	DSI 2	512000	2560	13.67	14.50	1.211	0.01	0.631	0.764
	N77	100M	BPSK	1	1	DFT-30	Right Cheek	ANT4	DSI 2	656000	3840	22.28	23.00	1.180	0.02	0.006	0.007
17	N77	100M	BPSK	1	1	DFT-30	Right Tilted	ANT4	DSI 2	656000	3840	22.28	23.00	1.180	0.03	0.052	**0.061**
	N77	100M	BPSK	1	1	DFT-30	Left Cheek	ANT4	DSI 2	656000	3840	22.28	23.00	1.180	-	n/a	n/a
	N77	100M	BPSK	1	1	DFT-30	Left Tilted	ANT4	DSI 2	656000	3840	22.28	23.00	1.180	-0.17	0.001	0.001
	N77	100M	BPSK	135	69	DFT-30	Right Cheek	ANT4	DSI 2	656000	3840	22.12	23.00	1.225	-0.12	0.020	0.024
	N77	100M	BPSK	135	69	DFT-30	Right Tilted	ANT4	DSI 2	656000	3840	22.12	23.00	1.225	-0.13	0.030	0.036
	N77	100M	BPSK	135	69	DFT-30	Left Cheek	ANT4	DSI 2	656000	3840	22.12	23.00	1.225	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Left Tilted	ANT4	DSI 2	656000	3840	22.12	23.00	1.225	-0.04	0.009	0.012
	N77	100M	BPSK	1	271	DFT-30	Right Cheek	ANT4	DSI 2	633334	3500.01	22.30	23.00	1.175	-	n/a	n/a
	N77	100M	BPSK	1	271	DFT-30	Right Tilted	ANT4	DSI 2	633334	3500.01	22.30	23.00	1.175	0.07	0.004	0.005
	N77	100M	BPSK	1	271	DFT-30	Left Cheek	ANT4	DSI 2	633334	3500.01	22.30	23.00	1.175	-	n/a	n/a
	N77	100M	BPSK	1	271	DFT-30	Left Tilted	ANT4	DSI 2	633334	3500.01	22.30	23.00	1.175	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Right Cheek	ANT4	DSI 2	633334	3500.01	22.21	23.00	1.199	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Right Tilted	ANT4	DSI 2	633334	3500.01	22.21	23.00	1.199	0.03	0.017	0.020
	N77	100M	BPSK	135	69	DFT-30	Left Cheek	ANT4	DSI 2	633334	3500.01	22.21	23.00	1.199	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Left Tilted	ANT4	DSI 2	633334	3500.01	22.21	23.00	1.199	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Right Cheek	ANT4	DSI 2	650000	3750	22.29	23.00	1.178	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Right Tilted	ANT4	DSI 2	650000	3750	22.29	23.00	1.178	-0.01	0.011	0.013
	N78	100M	BPSK	1	1	DFT-30	Left Cheek	ANT4	DSI 2	650000	3750	22.29	23.00	1.178	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Left Tilted	ANT4	DSI 2	650000	3750	22.29	23.00	1.178	0.18	0.001	0.001
	N78	100M	BPSK	135	0	DFT-30	Right Cheek	ANT4	DSI 2	650000	3750	22.06	22.50	1.107	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Right Tilted	ANT4	DSI 2	650000	3750	22.06	22.50	1.107	0.05	0.012	0.014
	N78	100M	BPSK	135	0	DFT-30	Left Cheek	ANT4	DSI 2	650000	3750	22.06	22.50	1.107	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Left Tilted	ANT4	DSI 2	650000	3750	22.06	22.50	1.107	0.15	0.002	0.003
	N78	100M	BPSK	1	271	DFT-30	Right Cheek	ANT4	DSI 2	633334	3500.01	22.39	23.00	1.151	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Right Tilted	ANT4	DSI 2	633334	3500.01	22.39	23.00	1.151	0.08	0.012	0.013
	N78	100M	BPSK	1	271	DFT-30	Left Cheek	ANT4	DSI 2	633334	3500.01	22.39	23.00	1.151	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Left Tilted	ANT4	DSI 2	633334	3500.01	22.39	23.00	1.151	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Right Cheek	ANT4	DSI 2	633334	3500.01	22.18	22.50	1.076	-	n/a	n/a
18	N78	100M	BPSK	135	0	DFT-30	Right Tilted	ANT4	DSI 2	633334	3500.01	22.18	22.50	1.076	-0.12	0.026	**0.028**
	N78	100M	BPSK	135	0	DFT-30	Left Cheek	ANT4	DSI 2	633334	3500.01	22.18	22.50	1.076	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Left Tilted	ANT4	DSI 2	633334	3500.01	22.18	22.50	1.076	-0.11	0.003	0.003

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	ANT3+6	Standalone/DBS	1	2412	18.67	20.00	1.358	98.29	1.017	0.17	0.589	0.814
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	ANT3+6	Standalone/DBS	1	2412	18.67	20.00	1.358	98.29	1.017	-0.12	0.426	0.588
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	ANT3+6	Standalone/DBS	1	2412	18.67	20.00	1.358	98.29	1.017	-0.11	0.212	0.293
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	ANT3+6	Standalone/DBS	1	2412	18.67	20.00	1.358	98.29	1.017	0.01	0.240	0.332
19	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	ANT3+6	Standalone/DBS	6	2437	18.26	20.00	1.493	98.29	1.017	-0.09	0.773	**1.174**
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	ANT3+6	Simultaneous_2Tx	1	2412	14.07	15.50	1.390	98.29	1.017	0.1	0.274	0.387
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	ANT3+6	Simultaneous_3Tx	1	2412	12.61	14.00	1.377	98.29	1.017	0.14	0.181	0.254

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.04	0.038	0.048
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.06	0.051	0.065
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.09	0.048	0.061
20	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.06	0.057	**0.072**
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.08	0.082	0.097
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.06	0.119	0.141
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.01	0.106	0.126
21	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.07	0.141	**0.167**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	ANT5+6	Simultaneous_3Tx	106	5530	15.63	17.00	1.370	100	1.000	-0.19	0.062	0.085
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	155	5775	19.54	20.50	1.247	100	1.000	0.09	0.048	0.060
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	155	5775	19.54	20.50	1.247	100	1.000	0.01	0.091	0.114
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	ANT5+6	Standalone/Simultaneous_2Tx/3Tx/DBS/Full	155	5775	19.54	20.50	1.247	100	1.000	0.05	0.100	0.125
22	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	ANT5+6	Standalone/Simultaneous_2Tx/3Tx /DBS/Full	155	5775	19.54	20.50	1.247	100	1.000	-0.02	0.117	**0.146**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	ANT5+6	Simultaneous_3Tx	155	5775	17.58	19.00	1.387	100	1.000	-0.07	0.069	0.095

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	Bluetooth	DH5 1Mbps	Right Cheek	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.09	0.155	**0.236**
	Bluetooth	DH5 1Mbps	Right Tilted	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.07	0.109	0.166
	Bluetooth	DH5 1Mbps	Left Cheek	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.03	0.067	0.102
	Bluetooth	DH5 1Mbps	Left Tilted	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.01	0.083	0.126

16.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS(3Tx slots)	Front	5mm	Ant 1	DSI 7	128	824.2	27.67	28.50	1.211	0.08	0.683	0.827
	GSM850	GPRS(3Tx slots)	Back	5mm	Ant 1	DSI 7	128	824.2	27.67	28.50	1.211	-0.08	0.930	1.126
	GSM850	GPRS(3Tx slots)	Left Side	5mm	Ant 1	DSI 7	128	824.2	27.67	28.50	1.211	-0.14	0.185	0.224
	GSM850	GPRS(3Tx slots)	Right Side	5mm	Ant 1	DSI 7	128	824.2	27.67	28.50	1.211	0.09	0.274	0.332
	GSM850	GPRS(3Tx slots)	Bottom Side	5mm	Ant 1	DSI 7	128	824.2	27.67	28.50	1.211	-0.07	0.424	0.513
	GSM850	GPRS(3Tx slots)	Front	5mm	Ant 1	DSI 7	189	836.4	27.41	28.50	1.285	0.03	0.733	0.942
	GSM850	GPRS(3Tx slots)	Front	5mm	Ant 1	DSI 7	251	848.8	27.18	28.50	1.355	-0.06	0.740	1.003
24	GSM850	GPRS(3Tx slots)	Back	5mm	Ant 1	DSI 7	189	836.4	27.41	28.50	1.285	0.05	0.989	**1.271**
	GSM850	GPRS(3Tx slots)	Back	5mm	Ant 1	DSI 7	251	848.8	27.18	28.50	1.355	0.12	0.891	1.207
	GSM1900	GPRS(2 Tx slots)	Front	5mm	Ant 1	DSI 7	661	1880	22.95	24.50	1.429	0.1	0.498	0.712
	GSM1900	GPRS(2 Tx slots)	Back	5mm	Ant 1	DSI 7	661	1880	22.95	24.50	1.429	-0.01	0.676	0.966
	GSM1900	GPRS(2 Tx slots)	Left Side	5mm	Ant 1	DSI 7	661	1880	22.95	24.50	1.429	0	0.072	0.103
	GSM1900	GPRS(2 Tx slots)	Right Side	5mm	Ant 1	DSI 7	661	1880	22.95	24.50	1.429	-	n/a	n/a
25	GSM1900	GPRS(2 Tx slots)	Bottom Side	5mm	Ant 1	DSI 7	661	1880	22.95	24.50	1.429	0.04	0.960	**1.372**
	GSM1900	GPRS(2 Tx slots)	Back	5mm	Ant 1	DSI 7	512	1850.2	22.78	24.50	1.486	0.09	0.501	0.744
	GSM1900	GPRS(2 Tx slots)	Back	5mm	Ant 1	DSI 7	810	1909.8	22.80	24.50	1.479	-0.12	0.400	0.592
	GSM1900	GPRS(2 Tx slots)	Bottom Side	5mm	Ant 1	DSI 7	512	1850.2	22.78	24.50	1.486	0.06	0.814	1.210
	GSM1900	GPRS(2 Tx slots)	Bottom Side	5mm	Ant 1	DSI 7	810	1909.8	22.80	24.50	1.479	0.04	0.728	1.077

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 1	DSI 7	4233	846.6	22.98	24.00	1.265	-0.1	0.731	0.925
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	4233	846.6	22.98	24.00	1.265	-0.05	0.838	1.060
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI 7	4233	846.6	22.98	24.00	1.265	0.08	0.196	0.248
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI 7	4233	846.6	22.98	24.00	1.265	-0.07	0.306	0.387
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	4233	846.6	22.98	24.00	1.265	-0.02	0.402	0.508
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 1	DSI 7	4132	826.4	22.89	24.00	1.291	0.15	0.753	0.972
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 1	DSI 7	4182	836.4	22.83	24.00	1.309	0.08	0.766	1.003
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	4132	826.4	22.89	24.00	1.291	0.02	0.941	1.215
26	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	4182	836.4	22.83	24.00	1.309	0.04	1.020	**1.335**
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Ant 1	DSI 7	1413	1732.6	15.59	16.50	1.233	0.18	0.375	0.462
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	1413	1732.6	15.59	16.50	1.233	0.08	0.444	0.547
	WCDMA IV	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI 7	1413	1732.6	15.59	16.50	1.233	0.01	0.047	0.058
	WCDMA IV	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI 7	1413	1732.6	15.59	16.50	1.233	-	n/a	n/a
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	1413	1732.6	15.59	16.50	1.233	-0.01	0.740	0.912
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	1312	1712.4	15.52	16.50	1.253	0.1	0.687	0.861
27	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	1513	1752.6	15.51	16.50	1.256	0.16	0.736	**0.924**
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	DSI 7	9538	1907.6	16.74	17.50	1.191	0.17	0.547	0.652
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	9538	1907.6	16.74	17.50	1.191	0.17	0.754	0.898
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	Ant 1	DSI 7	9538	1907.6	16.74	17.50	1.191	-0.17	0.084	0.100
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	Ant 1	DSI 7	9538	1907.6	16.74	17.50	1.191	-	n/a	n/a
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	9538	1907.6	16.74	17.50	1.191	0.09	0.997	1.188
28	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	9262	1852.4	16.66	17.50	1.213	-0.04	1.010	**1.226**
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	DSI 7	9400	1880	16.73	17.50	1.194	-0.04	0.504	0.602
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	9262	1852.4	16.66	17.50	1.213	0.13	0.674	0.818
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	DSI 7	9400	1880	16.73	17.50	1.194	-0.05	0.256	0.306

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	25	Front	5mm	Ant 1	DSI 7	23095	707.5	22.80	24.00	1.318	0.07	0.453	0.597
29	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 1	DSI 7	23095	707.5	22.80	24.00	1.318	-0.03	0.584	**0.770**
	LTE Band 12	10M	QPSK	1	25	Left Side	5mm	Ant 1	DSI 7	23095	707.5	22.80	24.00	1.318	0.01	0.248	0.327
	LTE Band 12	10M	QPSK	1	25	Right Side	5mm	Ant 1	DSI 7	23095	707.5	22.80	24.00	1.318	-0.12	0.250	0.330
	LTE Band 12	10M	QPSK	1	25	Bottom Side	5mm	Ant 1	DSI 7	23095	707.5	22.80	24.00	1.318	-0.1	0.354	0.467
	LTE Band 12	10M	QPSK	25	12	Front	5mm	Ant 1	DSI 7	23095	707.5	21.75	23.00	1.334	0.09	0.238	0.317
	LTE Band 12	10M	QPSK	25	12	Back	5mm	Ant 1	DSI 7	23095	707.5	21.75	23.00	1.334	-0.03	0.339	0.452
	LTE Band 12	10M	QPSK	25	12	Left Side	5mm	Ant 1	DSI 7	23095	707.5	21.75	23.00	1.334	-0.03	0.140	0.187
	LTE Band 12	10M	QPSK	25	12	Right Side	5mm	Ant 1	DSI 7	23095	707.5	21.75	23.00	1.334	0.13	0.153	0.204
	LTE Band 12	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	DSI 7	23095	707.5	21.75	23.00	1.334	-0.14	0.166	0.221
	LTE Band 13	10M	QPSK	1	25	Front	5mm	Ant 1	DSI 7	23230	782	22.75	24.00	1.334	-0.07	0.615	0.820
30	LTE Band 13	10M	QPSK	1	25	Back	5mm	Ant 1	DSI 7	23230	782	22.75	24.00	1.334	0.04	0.778	**1.037**
	LTE Band 13	10M	QPSK	1	25	Left Side	5mm	Ant 1	DSI 7	23230	782	22.75	24.00	1.334	-0.09	0.205	0.273
	LTE Band 13	10M	QPSK	1	25	Right Side	5mm	Ant 1	DSI 7	23230	782	22.75	24.00	1.334	-0.08	0.273	0.364
	LTE Band 13	10M	QPSK	1	25	Bottom Side	5mm	Ant 1	DSI 7	23230	782	22.75	24.00	1.334	0.09	0.345	0.460
	LTE Band 13	10M	QPSK	25	12	Front	5mm	Ant 1	DSI 7	23230	782	21.87	23.00	1.297	-0.11	0.417	0.541
	LTE Band 13	10M	QPSK	25	12	Back	5mm	Ant 1	DSI 7	23230	782	21.87	23.00	1.297	-0.17	0.446	0.579
	LTE Band 13	10M	QPSK	25	12	Left Side	5mm	Ant 1	DSI 7	23230	782	21.87	23.00	1.297	0.18	0.121	0.157
	LTE Band 13	10M	QPSK	25	12	Right Side	5mm	Ant 1	DSI 7	23230	782	21.87	23.00	1.297	-0.09	0.166	0.215
	LTE Band 13	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	DSI 7	23230	782	21.87	23.00	1.297	0.15	0.225	0.292
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 1	DSI 7	23230	782	21.74	23.00	1.337	-0.17	0.326	0.436
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 1	DSI 7	23230	782	21.74	23.00	1.337	-0.12	0.402	0.537
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 1	DSI 7	26865	831.5	22.73	24.00	1.340	-0.19	0.745	0.998
31	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	DSI 7	26865	831.5	22.73	24.00	1.340	0.05	0.959	**1.285**
	LTE Band 26	15M	QPSK	1	37	Left Side	5mm	Ant 1	DSI 7	26865	831.5	22.73	24.00	1.340	0.06	0.184	0.247
	LTE Band 26	15M	QPSK	1	37	Right Side	5mm	Ant 1	DSI 7	26865	831.5	22.73	24.00	1.340	-0.19	0.256	0.343
	LTE Band 26	15M	QPSK	1	37	Bottom Side	5mm	Ant 1	DSI 7	26865	831.5	22.73	24.00	1.340	-0.04	0.433	0.580
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 1	DSI 7	26765	821.5	22.56	24.00	1.393	0.16	0.738	1.028
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 1	DSI 7	26965	841.5	22.52	24.00	1.406	-0.18	0.747	1.050
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	DSI 7	26765	821.5	22.56	24.00	1.393	-0.07	0.921	1.283
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	DSI 7	26965	841.5	22.52	24.00	1.406	0.14	0.903	1.270
	LTE Band 26	15M	QPSK	36	20	Front	5mm	Ant 1	DSI 7	26865	831.5	21.71	23.00	1.346	-0.02	0.589	0.793
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 1	DSI 7	26865	831.5	21.71	23.00	1.346	0.15	0.840	1.131
	LTE Band 26	15M	QPSK	36	20	Left Side	5mm	Ant 1	DSI 7	26865	831.5	21.71	23.00	1.346	0.19	0.152	0.205
	LTE Band 26	15M	QPSK	36	20	Right Side	5mm	Ant 1	DSI 7	26865	831.5	21.71	23.00	1.346	0.04	0.208	0.280
	LTE Band 26	15M	QPSK	36	20	Bottom Side	5mm	Ant 1	DSI 7	26865	831.5	21.71	23.00	1.346	0.04	0.360	0.485
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 1	DSI 7	26765	821.5	21.62	23.00	1.374	0.17	0.772	1.061
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 1	DSI 7	26965	841.5	21.58	23.00	1.387	0.08	0.766	1.062
	LTE Band 26	15M	QPSK	75	0	Front	5mm	Ant 1	DSI 7	26865	831.5	21.61	23.00	1.377	-0.16	0.590	0.813
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Ant 1	DSI 7	26865	831.5	21.61	23.00	1.377	-0.18	0.737	1.015
	LTE Band 66	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	132322	1745	15.64	16.50	1.219	0.19	0.527	0.642
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	132322	1745	15.64	16.50	1.219	-0.13	0.791	0.964
	LTE Band 66	20M	QPSK	1	49	Left Side	5mm	Ant 1	DSI 7	132322	1745	15.64	16.50	1.219	-0.18	0.070	0.085
	LTE Band 66	20M	QPSK	1	49	Right Side	5mm	Ant 1	DSI 7	132322	1745	15.64	16.50	1.219	-	n/a	n/a
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	132322	1745	15.64	16.50	1.219	-0.13	1.010	1.231
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	132072	1720	15.41	16.50	1.285	-0.05	0.932	1.198
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	132572	1770	15.40	16.50	1.288	-0.11	0.990	1.275
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	132072	1720	15.41	16.50	1.285	0.11	0.573	0.736
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	132572	1770	15.40	16.50	1.288	0.04	0.687	0.885
	LTE Band 66	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225	0.08	0.530	0.649
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225	0.08	0.808	0.989
	LTE Band 66	20M	QPSK	50	24	Left Side	5mm	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225	0.02	0.075	0.092
	LTE Band 66	20M	QPSK	50	24	Right Side	5mm	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225	-	n/a	n/a

32	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225	0.02	1.120	**1.372**
	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	132072	1720	15.61	16.50	1.227	0.13	0.985	1.209
	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	132572	1770	15.50	16.50	1.259	0.17	1.080	1.360
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	132072	1720	15.61	16.50	1.227	0.17	0.590	0.724
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	132572	1770	15.50	16.50	1.259	0.16	0.683	0.860
	LTE Band 66	20M	QPSK	100	0	Back	5mm	Ant 1	DSI 7	132322	1745	15.56	16.50	1.242	-0.13	0.662	0.822
	LTE Band 66	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	DSI 7	132322	1745	15.56	16.50	1.242	0.01	1.060	1.316
	LTE Band 2	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	19100	1900	16.07	17.00	1.239	0.12	0.467	0.579
	LTE Band 2	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	19100	1900	16.07	17.00	1.239	0.1	0.651	0.806
	LTE Band 2	20M	QPSK	1	49	Left Side	5mm	Ant 1	DSI 7	19100	1900	16.07	17.00	1.239	0.1	0.080	0.099
	LTE Band 2	20M	QPSK	1	49	Right Side	5mm	Ant 1	DSI 7	19100	1900	16.07	17.00	1.239	-	n/a	n/a
	LTE Band 2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	19100	1900	16.07	17.00	1.239	0.05	0.935	1.158
	LTE Band 2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	18700	1860	15.88	17.00	1.294	0.04	0.876	1.134
	LTE Band 2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	18900	1880	15.93	17.00	1.279	-0.08	0.940	1.203
	LTE Band 2	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	18700	1860	15.88	17.00	1.294	-0.08	0.564	0.730
	LTE Band 2	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	18900	1880	15.93	17.00	1.279	0.07	0.650	0.832
	LTE Band 2	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	19100	1900	16.04	17.00	1.247	0.13	0.473	0.590
	LTE Band 2	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	19100	1900	16.04	17.00	1.247	-0.01	0.663	0.827
	LTE Band 2	20M	QPSK	50	24	Left Side	5mm	Ant 1	DSI 7	19100	1900	16.04	17.00	1.247	-0.18	0.082	0.102
	LTE Band 2	20M	QPSK	50	24	Right Side	5mm	Ant 1	DSI 7	19100	1900	16.04	17.00	1.247	-	n/a	n/a
	LTE Band 2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	19100	1900	16.04	17.00	1.247	-0.11	0.955	1.191
	LTE Band 2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	18700	1860	15.89	17.00	1.291	-0.19	0.937	1.210
33	LTE Band 2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	18900	1880	15.99	17.00	1.262	0.09	0.976	**1.232**
	LTE Band 2	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	18700	1860	15.89	17.00	1.291	-0.01	0.592	0.764
	LTE Band 2	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	18900	1880	15.99	17.00	1.262	0.13	0.666	0.840
	LTE Band 2	20M	QPSK	100	0	Back	5mm	Ant 1	DSI 7	19100	1900	15.96	17.00	1.271	-0.08	0.686	0.872
	LTE Band 2	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	DSI 7	19100	1900	15.96	17.00	1.271	0.05	0.890	1.131
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	21100	2535	19.00	20.00	1.259	-0.05	0.526	0.662
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	21100	2535	19.00	20.00	1.259	0.06	0.799	1.006
	LTE Band 7	20M	QPSK	1	49	Left Side	5mm	Ant 1	DSI 7	21100	2535	19.00	20.00	1.259	-0.01	0.358	0.451
	LTE Band 7	20M	QPSK	1	49	Right Side	5mm	Ant 1	DSI 7	21100	2535	19.00	20.00	1.259	0.03	0.132	0.166
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	21100	2535	19.00	20.00	1.259	0.04	0.919	1.157
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	20850	2510	18.88	20.00	1.294	0.09	0.928	1.201
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	21350	2560	18.94	20.00	1.276	0.18	0.862	1.100
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	20850	2510	18.88	20.00	1.294	-0.18	0.791	1.024
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	21350	2560	18.94	20.00	1.276	-0.06	0.731	0.933
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	21100	2535	18.80	20.00	1.318	0.15	0.540	0.712
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	21100	2535	18.80	20.00	1.318	0.05	0.801	1.056
	LTE Band 7	20M	QPSK	50	24	Left Side	5mm	Ant 1	DSI 7	21100	2535	18.80	20.00	1.318	-0.06	0.372	0.490
	LTE Band 7	20M	QPSK	50	24	Right Side	5mm	Ant 1	DSI 7	21100	2535	18.80	20.00	1.318	-0.06	0.135	0.178
	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	21100	2535	18.80	20.00	1.318	0.13	0.943	1.243
34	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	20850	2510	18.70	20.00	1.349	-0.03	1.030	**1.389**
	LTE Band 7C	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	PCC(20850) +SCC(21048)	PCC(2510) +SCC(2529.8)	18.73	20.00	1.340	0.01	0.490	0.656
	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	21350	2560	18.71	20.00	1.346	-0.12	0.872	1.174
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	20850	2510	18.70	20.00	1.349	-0.16	0.820	1.106
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	21350	2560	18.71	20.00	1.346	0.18	0.745	1.003
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Ant 1	DSI 7	21100	2535	18.79	20.00	1.321	0.04	0.783	1.035
	LTE Band 7	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	DSI 7	21100	2535	18.79	20.00	1.321	0.15	0.851	1.124

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	40185	2549.5	21.28	22.00	1.180	62.9	1.006	-0.11	0.561	0.666
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	40185	2549.5	21.28	22.00	1.180	62.9	1.006	0.06	0.740	0.879
	LTE Band 41	20M	QPSK	1	49	Left Side	5mm	Ant 1	DSI 7	40185	2549.5	21.28	22.00	1.180	62.9	1.006	-0.08	0.385	0.457
	LTE Band 41	20M	QPSK	1	49	Right Side	5mm	Ant 1	DSI 7	40185	2549.5	21.28	22.00	1.180	62.9	1.006	-0.04	0.139	0.165
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	40185	2549.5	21.28	22.00	1.180	62.9	1.006	-0.06	0.770	0.914
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	39750	2506	21.14	22.00	1.219	62.9	1.006	0.15	0.612	0.750
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	40620	2593	21.07	22.00	1.239	62.9	1.006	0.01	0.451	0.562
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	41055	2636.5	21.05	22.00	1.245	62.9	1.006	0.14	0.421	0.527
	LTE Band 41	20M	QPSK	1	49	Front	5mm	Ant 1	DSI 7	41490	2680	21.12	22.00	1.225	62.9	1.006	-0.13	0.376	0.463
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	39750	2506	21.14	22.00	1.219	62.9	1.006	-0.09	0.888	1.089
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	40620	2593	21.07	22.00	1.239	62.9	1.006	-0.1	0.547	0.682
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	41055	2636.5	21.05	22.00	1.245	62.9	1.006	-0.11	0.464	0.581
	LTE Band 41	20M	QPSK	1	49	Back	5mm	Ant 1	DSI 7	41490	2680	21.12	22.00	1.225	62.9	1.006	0.17	0.416	0.512
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	39750	2506	21.14	22.00	1.219	62.9	1.006	0.07	0.919	1.127
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	40620	2593	21.07	22.00	1.239	62.9	1.006	0.11	0.606	0.755
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	41055	2636.5	21.05	22.00	1.245	62.9	1.006	0.11	0.477	0.597
	LTE Band 41	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	DSI 7	41490	2680	21.12	22.00	1.225	62.9	1.006	0.13	0.447	0.551
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	40185	2549.5	21.24	22.00	1.191	62.9	1.006	-0.15	0.577	0.691
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	40185	2549.5	21.24	22.00	1.191	62.9	1.006	0.15	0.732	0.877
	LTE Band 41	20M	QPSK	50	24	Left Side	5mm	Ant 1	DSI 7	40185	2549.5	21.24	22.00	1.191	62.9	1.006	-0.03	0.388	0.465
	LTE Band 41	20M	QPSK	50	24	Right Side	5mm	Ant 1	DSI 7	40185	2549.5	21.24	22.00	1.191	62.9	1.006	-0.08	0.141	0.169
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	40185	2549.5	21.24	22.00	1.191	62.9	1.006	-0.01	0.932	1.117
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	39750	2506	21.23	22.00	1.194	62.9	1.006	0.07	0.634	0.762
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	40620	2593	21.19	22.00	1.205	62.9	1.006	-0.18	0.471	0.571
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	41055	2636.5	21.06	22.00	1.242	62.9	1.006	-0.18	0.428	0.535
	LTE Band 41	20M	QPSK	50	24	Front	5mm	Ant 1	DSI 7	41490	2680	21.20	22.00	1.202	62.9	1.006	-0.16	0.395	0.478
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	39750	2506	21.23	22.00	1.194	62.9	1.006	0.16	0.916	1.100
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	40620	2593	21.19	22.00	1.205	62.9	1.006	-0.14	0.571	0.692
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	41055	2636.5	21.06	22.00	1.242	62.9	1.006	-0.17	0.470	0.587
	LTE Band 41	20M	QPSK	50	24	Back	5mm	Ant 1	DSI 7	41490	2680	21.20	22.00	1.202	62.9	1.006	-0.11	0.430	0.520
35	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	39750	2506	21.23	22.00	1.194	62.9	1.006	-0.13	1.080	**1.297**
	LTE Band 41C	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	PCC(3975) +SCC(39948)	PCC(2506) +SCC(2525.8)	21.43	22.00	1.140	62.9	1.006	-0.15	0.560	0.642
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	40620	2593	21.19	22.00	1.205	62.9	1.006	0.11	0.620	0.752
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	41055	2636.5	21.06	22.00	1.242	62.9	1.006	-0.15	0.489	0.611
	LTE Band 41	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	DSI 7	41490	2680	21.20	22.00	1.202	62.9	1.006	-0.13	0.466	0.564
	LTE Band 41	20M	QPSK	100	0	Front	5mm	Ant 1	DSI 7	40185	2549.5	21.22	22.00	1.197	62.9	1.006	0.09	0.558	0.672
	LTE Band 41	20M	QPSK	100	0	Back	5mm	Ant 1	DSI 7	40185	2549.5	21.22	22.00	1.197	62.9	1.006	0.02	0.695	0.837
	LTE Band 41	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	DSI 7	40185	2549.5	21.22	22.00	1.197	62.9	1.006	-0.04	0.770	0.927
	LTE Band 42	20M	QPSK	1	49	Front	5mm	Ant 4	DSI 7	42190	3460	10.93	11.50	1.140	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	49	Back	5mm	Ant 4	DSI 7	42190	3460	10.93	11.50	1.140	62.9	1.006	0.18	0.788	0.904
	LTE Band 42	20M	QPSK	1	49	Left Side	5mm	Ant 4	DSI 7	42190	3460	10.93	11.50	1.140	62.9	1.006	-0.18	0.111	0.127
	LTE Band 42	20M	QPSK	1	49	Right Side	5mm	Ant 4	DSI 7	42190	3460	10.93	11.50	1.140	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	49	Top Side	5mm	Ant 4	DSI 7	42190	3460	10.93	11.50	1.140	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	49	Back	5mm	Ant 4	DSI 7	42590	3500	10.67	11.50	1.211	62.9	1.006	0.04	0.523	0.637
	LTE Band 42	20M	QPSK	1	49	Back	5mm	Ant 4	DSI 7	42990	3540	10.52	11.50	1.253	62.9	1.006	0.07	0.361	0.455
	LTE Band 42	20M	QPSK	50	24	Front	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-	n/a	n/a
36	LTE Band 42	20M	QPSK	50	24	Back	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.1	0.818	**0.940**
	LTE Band 42	20M	QPSK	50	24	Left Side	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.18	0.113	0.130
	LTE Band 42	20M	QPSK	50	24	Right Side	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	24	Top Side	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	50	24	Back	5mm	Ant 4	DSI 7	42590	3500	10.75	11.50	1.189	62.9	1.006	-0.15	0.545	0.652
	LTE Band 42	20M	QPSK	50	24	Back	5mm	Ant 4	DSI 7	42990	3540	10.56	11.50	1.242	62.9	1.006	0.13	0.374	0.467
	LTE Band 42	20M	QPSK	100	0	Back	5mm	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.1	0.814	0.936

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5	20M	BPSK	1	1	DFT-15	Front	5mm	ANT2	DSI 7	167300	836.5	23.10	24.00	1.230	0.06	0.521	0.641
	N5	20M	BPSK	1	1	DFT-15	Back	5mm	ANT2	DSI 7	167300	836.5	23.10	24.00	1.230	-0.03	0.542	0.667
	N5	20M	BPSK	1	1	DFT-15	Left Side	5mm	ANT2	DSI 7	167300	836.5	23.10	24.00	1.230	0.02	0.170	0.209
	N5	20M	BPSK	1	1	DFT-15	Right Side	5mm	ANT2	DSI 7	167300	836.5	23.10	24.00	1.230	0.01	0.313	0.385
37	N5	20M	BPSK	1	1	DFT-15	Top Side	5mm	ANT2	DSI 7	167300	836.5	23.10	24.00	1.230	-0.06	0.756	**0.930**
	N5	20M	BPSK	50	28	DFT-15	Front	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	0.05	0.465	0.632
	N5	20M	BPSK	50	28	DFT-15	Back	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	0.01	0.489	0.664
	N5	20M	BPSK	50	28	DFT-15	Left Side	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	-0.05	0.140	0.190
	N5	20M	BPSK	50	28	DFT-15	Right Side	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	0.03	0.256	0.348
	N5	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	-0.08	0.493	0.670
	N5	20M	BPSK	100	0	DFT-15	Top Side	5mm	ANT2	DSI 7	167300	836.5	22.67	24.00	1.358	0.06	0.561	0.743
	N66	20M	BPSK	1	53	DFT-15	Front	5mm	ANT2	DSI 7	349000	1745	14.11	15.00	1.227	0.06	0.351	0.431
	N66	20M	BPSK	1	53	DFT-15	Back	5mm	ANT2	DSI 7	349000	1745	14.11	15.00	1.227	0.1	0.360	0.442
	N66	20M	BPSK	1	53	DFT-15	Left Side	5mm	ANT2	DSI 7	349000	1745	14.11	15.00	1.227	-	n/a	n/a
	N66	20M	BPSK	1	53	DFT-15	Right Side	5mm	ANT2	DSI 7	349000	1745	14.11	15.00	1.227	-0.09	0.121	0.149
	N66	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	349000	1745	14.11	15.00	1.227	-0.18	0.659	0.809
	N66	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	344000	1720	13.86	15.00	1.300	-0.07	0.466	0.606
38	N66	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	354000	1770	13.83	15.00	1.309	0.15	0.662	**0.867**
	N66	20M	BPSK	50	28	DFT-15	Front	5mm	ANT2	DSI 7	349000	1745	13.96	15.00	1.271	0.12	0.327	0.415
	N66	20M	BPSK	50	28	DFT-15	Back	5mm	ANT2	DSI 7	349000	1745	13.96	15.00	1.271	-0.04	0.349	0.443
	N66	20M	BPSK	50	28	DFT-15	Left Side	5mm	ANT2	DSI 7	349000	1745	13.96	15.00	1.271	-	n/a	n/a
	N66	20M	BPSK	50	28	DFT-15	Right Side	5mm	ANT2	DSI 7	349000	1745	13.96	15.00	1.271	0.06	0.117	0.149
	N66	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	349000	1745	13.96	15.00	1.271	0.16	0.661	0.840
	N66	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	344000	1720	13.84	15.00	1.306	0.15	0.471	0.615
	N66	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	354000	1770	13.78	15.00	1.324	0.06	0.641	0.849
	N66	20M	BPSK	100	0	DFT-15	Top Side	5mm	ANT2	DSI 7	349000	1745	13.91	15.00	1.285	0.14	0.642	0.825
	N7	20M	BPSK	1	53	DFT-15	Front	5mm	ANT2	DSI 7	512000	2560	15.35	16.00	1.161	0.13	0.314	0.365
	N7	20M	BPSK	1	53	DFT-15	Back	5mm	ANT2	DSI 7	512000	2560	15.35	16.00	1.161	0.03	0.397	0.461
	N7	20M	BPSK	1	53	DFT-15	Left Side	5mm	ANT2	DSI 7	512000	2560	15.35	16.00	1.161	-	n/a	n/a
	N7	20M	BPSK	1	53	DFT-15	Right Side	5mm	ANT2	DSI 7	512000	2560	15.35	16.00	1.161	-0.15	0.083	0.096
39	N7	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	512000	2560	15.35	16.00	1.161	0.06	0.756	**0.878**
	N7	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	502000	2510	15.09	16.00	1.233	-0.14	0.420	0.518
	N7	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI 7	507000	2535	15.16	16.00	1.213	0.17	0.608	0.738
	N7	20M	BPSK	50	28	DFT-15	Front	5mm	ANT2	DSI 7	512000	2560	15.21	16.00	1.199	0.15	0.293	0.351
	N7	20M	BPSK	50	28	DFT-15	Back	5mm	ANT2	DSI 7	512000	2560	15.21	16.00	1.199	0.04	0.367	0.440
	N7	20M	BPSK	50	28	DFT-15	Left Side	5mm	ANT2	DSI 7	512000	2560	15.21	16.00	1.199	-	n/a	n/a
	N7	20M	BPSK	50	28	DFT-15	Right Side	5mm	ANT2	DSI 7	512000	2560	15.21	16.00	1.199	-0.14	0.065	0.078
	N7	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	512000	2560	15.21	16.00	1.199	0.16	0.728	0.873
	N7	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	502000	2510	15.08	16.00	1.236	-0.07	0.406	0.502
	N7	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI 7	507000	2535	15.17	16.00	1.211	0.05	0.567	0.686
	N7	20M	BPSK	100	0	DFT-15	Top Side	5mm	ANT2	DSI 7	512000	2560	15.18	16.00	1.208	0.19	0.725	0.876
	N77	100M	BPSK	1	1	DFT-30	Front	5mm	ANT4	DSI 7	656000	3840	10.54	11.50	1.247	-0.13	0.025	0.031
	N77	100M	BPSK	1	1	DFT-30	Back	5mm	ANT4	DSI 7	656000	3840	10.54	11.50	1.247	0.06	0.292	0.364
	N77	100M	BPSK	1	1	DFT-30	Left Side	5mm	ANT4	DSI 7	656000	3840	10.54	11.50	1.247	-0.16	0.041	0.051
	N77	100M	BPSK	1	1	DFT-30	Right Side	5mm	ANT4	DSI 7	656000	3840	10.54	11.50	1.247	-	n/a	n/a
	N77	100M	BPSK	1	1	DFT-30	Top Side	5mm	ANT4	DSI 7	656000	3840	10.54	11.50	1.247	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Front	5mm	ANT4	DSI 7	656000	3840	10.51	11.50	1.256	-0.06	0.016	0.020
	N77	100M	BPSK	135	69	DFT-30	Back	5mm	ANT4	DSI 7	656000	3840	10.51	11.50	1.256	0.03	0.229	0.288
	N77	100M	BPSK	135	69	DFT-30	Left Side	5mm	ANT4	DSI 7	656000	3840	10.51	11.50	1.256	-0.15	0.035	0.044
	N77	100M	BPSK	135	69	DFT-30	Right Side	5mm	ANT4	DSI 7	656000	3840	10.51	11.50	1.256	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Top Side	5mm	ANT4	DSI 7	656000	3840	10.51	11.50	1.256	-	n/a	n/a

	N77	100M	BPSK	1	271	DFT-30	Front	5mm	ANT4	DSI 7	633334	3500.01	10.44	11.50	1.276	-0.1	0.033	0.042
	N77	100M	BPSK	1	271	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.44	11.50	1.276	-0.16	0.510	0.651
	N77	100M	BPSK	1	271	DFT-30	Left Side	5mm	ANT4	DSI 7	633334	3500.01	10.44	11.50	1.276	-0.07	0.052	0.066
	N77	100M	BPSK	1	271	DFT-30	Right Side	5mm	ANT4	DSI 7	633334	3500.01	10.44	11.50	1.276	-	n/a	n/a
	N77	100M	BPSK	1	271	DFT-30	Top Side	5mm	ANT4	DSI 7	633334	3500.01	10.44	11.50	1.276	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Front	5mm	ANT4	DSI 7	633334	3500.01	10.42	11.50	1.282	0.08	0.043	0.055
40	N77	100M	BPSK	135	69	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.42	11.50	1.282	-0.01	0.706	**0.905**
	N77	100M	BPSK	135	69	DFT-30	Left Side	5mm	ANT4	DSI 7	633334	3500.01	10.42	11.50	1.282	-0.16	0.079	0.101
	N77	100M	BPSK	135	69	DFT-30	Right Side	5mm	ANT4	DSI 7	633334	3500.01	10.42	11.50	1.282	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Top Side	5mm	ANT4	DSI 7	633334	3500.01	10.42	11.50	1.282	-	n/a	n/a
	N77	100M	BPSK	270	0	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.29	11.50	1.321	-0.04	0.681	0.900
	N78	100M	BPSK	1	1	DFT-30	Front	5mm	ANT4	DSI 7	650000	3750	10.49	11.50	1.262	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Back	5mm	ANT4	DSI 7	650000	3750	10.49	11.50	1.262	-0.19	0.294	0.371
	N78	100M	BPSK	1	1	DFT-30	Left Side	5mm	ANT4	DSI 7	650000	3750	10.49	11.50	1.262	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Right Side	5mm	ANT4	DSI 7	650000	3750	10.49	11.50	1.262	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Top Side	5mm	ANT4	DSI 7	650000	3750	10.49	11.50	1.262	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Front	5mm	ANT4	DSI 7	650000	3750	10.45	11.50	1.274	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Back	5mm	ANT4	DSI 7	650000	3750	10.45	11.50	1.274	0.04	0.185	0.236
	N78	100M	BPSK	135	0	DFT-30	Left Side	5mm	ANT4	DSI 7	650000	3750	10.45	11.50	1.274	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Right Side	5mm	ANT4	DSI 7	650000	3750	10.45	11.50	1.274	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Top Side	5mm	ANT4	DSI 7	650000	3750	10.45	11.50	1.274	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Front	5mm	ANT4	DSI 7	633334	3500.01	10.57	11.50	1.239	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.57	11.50	1.239	0.17	0.626	0.775
	N78	100M	BPSK	1	271	DFT-30	Left Side	5mm	ANT4	DSI 7	633334	3500.01	10.57	11.50	1.239	0.12	0.052	0.064
	N78	100M	BPSK	1	271	DFT-30	Right Side	5mm	ANT4	DSI 7	633334	3500.01	10.57	11.50	1.239	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Top Side	5mm	ANT4	DSI 7	633334	3500.01	10.57	11.50	1.239	0.03	0.009	0.011
	N78	100M	BPSK	135	0	DFT-30	Front	5mm	ANT4	DSI 7	633334	3500.01	10.51	11.50	1.256	-	n/a	n/a
41	N78	100M	BPSK	135	0	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.51	11.50	1.256	0.05	0.747	**0.938**
	N78	100M	BPSK	135	0	DFT-30	Left Side	5mm	ANT4	DSI 7	633334	3500.01	10.51	11.50	1.256	-0.01	0.075	0.094
	N78	100M	BPSK	135	0	DFT-30	Right Side	5mm	ANT4	DSI 7	633334	3500.01	10.51	11.50	1.256	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Top Side	5mm	ANT4	DSI 7	633334	3500.01	10.51	11.50	1.256	0.05	0.016	0.020
	N78	100M	BPSK	270	0	DFT-30	Back	5mm	ANT4	DSI 7	633334	3500.01	10.31	11.50	1.315	0.06	0.710	0.934

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	-0.11	0.114	0.160
42	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	0.03	0.269	**0.377**
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	-0.01	0.099	0.139
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	-	n/a	n/a
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	0.03	0.153	0.214
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	0.07	0.032	0.039
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	-0.06	0.073	0.089
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	0.05	0.029	0.036
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	-	n/a	n/a
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	-0.01	0.046	0.056

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	ANT5+6	Simultaneous_2Tx	42	5210	7.73	9.00	1.340	100	1.000	-	n/a	n/a
43	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	ANT5+6	Simultaneous_2Tx	42	5210	7.73	9.00	1.340	100	1.000	0.11	0.274	**0.367**
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Left Side	5mm	ANT5+6	Simultaneous_2Tx	42	5210	7.73	9.00	1.340	100	1.000	-0.03	0.020	0.027
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	ANT5+6	Simultaneous_2Tx	42	5210	7.73	9.00	1.340	100	1.000	-	n/a	n/a
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	ANT5+6	Simultaneous_2Tx	42	5210	7.73	9.00	1.340	100	1.000	0.04	0.037	0.050
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	ANT5+6	Simultaneous_3Tx	42	5210	6.69	8.00	1.352	100	1.000	0.07	0.176	0.238
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	-	n/a	n/a
44	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	-0.15	0.274	**0.346**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	0.07	0.013	0.017
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	-	n/a	n/a
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	-	n/a	n/a
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	ANT5+6	Simultaneous_3Tx	155	5775	7.56	8.50	1.242	100	1.000	0.09	0.223	0.277

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	-0.03	0.057	0.086
	Bluetooth	DH5 1Mbps	Back	5mm	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	-0.02	0.066	0.101
	Bluetooth	DH5 1Mbps	Left Side	5mm	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	-0.14	0.022	0.034
	Bluetooth	DH5 1Mbps	Right Side	5mm	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	-0.16	0.007	0.011
45	Bluetooth	DH5 1Mbps	Top Side	5mm	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.03	0.075	**0.114**

16.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS(3Tx slots)	Front	5mm	-	Ant 1	DSI 3	128	824.2	27.67	28.50	1.211	0.08	0.683	0.827
	GSM850	GPRS(3Tx slots)	Back	5mm	-	Ant 1	DSI 3	128	824.2	27.67	28.50	1.211	-0.08	0.930	1.126
	GSM850	GPRS(3Tx slots)	Front	5mm	-	Ant 1	DSI 3	189	836.4	27.41	28.50	1.285	0.03	0.733	0.942
	GSM850	GPRS(3Tx slots)	Front	5mm	-	Ant 1	DSI 3	251	848.8	27.18	28.50	1.355	-0.06	0.740	1.003
46	GSM850	GPRS(3Tx slots)	Back	5mm	-	Ant 1	DSI 3	189	836.4	27.41	28.50	1.285	0.05	0.989	**1.271**
	GSM850	GPRS(3Tx slots)	Back	5mm	-	Ant 1	DSI 3	251	848.8	27.18	28.50	1.355	0.12	0.891	1.207
	GSM850	GPRS(3Tx slots)	Back	5mm	Headset	Ant 1	DSI 3	189	836.4	27.41	28.50	1.285	-0.01	0.523	0.672
	GSM850	GPRS(3Tx slots)	Front	16mm	-	Ant 1	DSI4	251	848.8	29.03	31.00	1.574	0.05	0.172	0.271
	GSM850	GPRS(3Tx slots)	Back	25mm	-	Ant 1	DSI4	189	836.4	29.25	31.00	1.496	0.02	0.160	0.239
	GSM1900	GPRS(2 Tx slots)	Front	5mm	-	Ant 1	DSI 3	661	1880	22.95	24.50	1.429	0.1	0.498	0.712
47	GSM1900	GPRS(2 Tx slots)	Back	5mm	-	Ant 1	DSI 3	661	1880	22.95	24.50	1.429	-0.01	0.676	**0.966**
	GSM1900	GPRS(2 Tx slots)	Back	5mm	-	Ant 1	DSI 3	512	1850.2	22.78	24.50	1.486	0.09	0.501	0.744
	GSM1900	GPRS(2 Tx slots)	Back	5mm	-	Ant 1	DSI 3	810	1909.8	22.80	24.50	1.479	-0.12	0.400	0.592
	GSM1900	GPRS(2 Tx slots)	Front	16mm	-	Ant 1	DSI4	661	1880	28.65	30.00	1.365	0.06	0.250	0.341
	GSM1900	GPRS(2 Tx slots)	Back	25mm	-	Ant 1	DSI4	661	1880	28.65	30.00	1.365	-0.03	0.199	0.272

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Ant 1	DSI4	4233	846.6	22.98	24.00	1.265	-0.1	0.731	0.925
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI4	4233	846.6	22.98	24.00	1.265	-0.05	0.838	1.060
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Ant 1	DSI4	4132	826.4	22.89	24.00	1.291	0.15	0.753	0.972
	WCDMA V	RMC 12.2Kbps	Front	5mm	-	Ant 1	DSI4	4182	836.4	22.83	24.00	1.309	0.08	0.766	1.003
	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI4	4132	826.4	22.89	24.00	1.291	0.02	0.941	1.215
48	WCDMA V	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI4	4182	836.4	22.83	24.00	1.309	0.04	1.020	**1.335**
	WCDMA V	RMC 12.2Kbps	Back	5mm	Headset	Ant 1	DSI4	4182	836.4	22.83	24.00	1.309	-0.08	0.378	0.495
	WCDMA IV	RMC 12.2Kbps	Front	5mm	-	Ant 1	DSI 3	1413	1732.6	15.59	16.50	1.233	0.18	0.375	0.462
	WCDMA IV	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI 3	1413	1732.6	15.59	16.50	1.233	0.08	0.444	0.547
49	WCDMA IV	RMC 12.2Kbps	Front	16mm	-	Ant 1	DSI4	1413	1732.6	23.19	24.00	1.205	-0.05	0.589	**0.710**
	WCDMA IV	RMC 12.2Kbps	Back	25mm	-	Ant 1	DSI4	1413	1732.6	23.19	24.00	1.205	0.02	0.401	0.483
	WCDMA II	RMC 12.2Kbps	Front	5mm	-	Ant 1	DSI 3	9538	1907.6	16.74	17.50	1.191	0.13	0.547	0.652
50	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI 3	9538	1907.6	16.74	17.50	1.191	0.17	0.754	**0.898**
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI 3	9262	1852.4	16.66	17.50	1.213	0.13	0.674	0.818
	WCDMA II	RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI 3	9400	1880	16.73	17.50	1.194	-0.05	0.256	0.306
	WCDMA II	RMC 12.2Kbps	Front	16mm	-	Ant 1	DSI4	9538	1907.6	23.10	24.00	1.230	0.05	0.568	0.699
	WCDMA II	RMC 12.2Kbps	Back	25mm	-	Ant 1	DSI4	9538	1907.6	23.10	24.00	1.230	-0.03	0.375	0.461

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	25	Front	5mm	-	Ant 1	DSI4	23095	707.5	22.80	24.00	1.318	0.07	0.453	0.597
51	LTE Band 12	10M	QPSK	1	25	Back	5mm	-	Ant 1	DSI4	23095	707.5	22.80	24.00	1.318	-0.03	0.584	**0.770**
	LTE Band 12	10M	QPSK	25	12	Front	5mm	-	Ant 1	DSI4	23095	707.5	21.75	23.00	1.334	0.09	0.238	0.317
	LTE Band 12	10M	QPSK	25	12	Back	5mm	-	Ant 1	DSI4	23095	707.5	21.75	23.00	1.334	-0.03	0.339	0.452
	LTE Band 13	10M	QPSK	1	25	Front	5mm	-	Ant 1	DSI4	23230	782	22.75	24.00	1.334	-0.07	0.615	0.820
52	LTE Band 13	10M	QPSK	1	25	Back	5mm	-	Ant 1	DSI4	23230	782	22.75	24.00	1.334	0.04	0.778	**1.037**
	LTE Band 13	10M	QPSK	25	12	Front	5mm	-	Ant 1	DSI4	23230	782	21.87	23.00	1.297	-0.11	0.417	0.541
	LTE Band 13	10M	QPSK	25	12	Back	5mm	-	Ant 1	DSI4	23230	782	21.87	23.00	1.297	-0.17	0.446	0.579
	LTE Band 13	10M	QPSK	50	0	Front	5mm	-	Ant 1	DSI4	23230	782	21.74	23.00	1.337	-0.17	0.326	0.436
	LTE Band 13	10M	QPSK	50	0	Back	5mm	-	Ant 1	DSI4	23230	782	21.74	23.00	1.337	-0.12	0.402	0.537
	LTE Band 26	15M	QPSK	1	37	Front	5mm	-	Ant 1	DSI4	26865	831.5	22.73	24.00	1.340	-0.19	0.745	0.998
53	LTE Band 26	15M	QPSK	1	37	Back	5mm	-	Ant 1	DSI4	26865	831.5	22.73	24.00	1.340	0.05	0.959	**1.285**
	LTE Band 26	15M	QPSK	1	37	Front	5mm	-	Ant 1	DSI4	26765	821.5	22.56	24.00	1.393	0.16	0.738	1.028
	LTE Band 26	15M	QPSK	1	37	Front	5mm	-	Ant 1	DSI4	26965	841.5	22.52	24.00	1.406	-0.18	0.747	1.050
	LTE Band 26	15M	QPSK	1	37	Back	5mm	-	Ant 1	DSI4	26765	821.5	22.56	24.00	1.393	-0.07	0.921	1.283
	LTE Band 26	15M	QPSK	1	37	Back	5mm	-	Ant 1	DSI4	26965	841.5	22.52	24.00	1.406	0.14	0.903	1.270
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Headset	Ant 1	DSI4	26865	831.5	22.73	24.00	1.340	0.06	0.284	0.380
	LTE Band 26	15M	QPSK	36	20	Front	5mm	-	Ant 1	DSI4	26865	831.5	21.71	23.00	1.346	-0.02	0.589	0.793
	LTE Band 26	15M	QPSK	36	20	Back	5mm	-	Ant 1	DSI4	26865	831.5	21.71	23.00	1.346	0.15	0.840	1.131
	LTE Band 26	15M	QPSK	36	20	Back	5mm	-	Ant 1	DSI4	26765	821.5	21.62	23.00	1.374	0.17	0.772	1.061
	LTE Band 26	15M	QPSK	36	20	Back	5mm	-	Ant 1	DSI4	26965	841.5	21.58	23.00	1.387	0.08	0.766	1.062
	LTE Band 26	15M	QPSK	75	0	Front	5mm	-	Ant 1	DSI4	26865	831.5	21.61	23.00	1.377	-0.16	0.590	0.813
	LTE Band 26	15M	QPSK	75	0	Back	5mm	-	Ant 1	DSI4	26865	831.5	21.61	23.00	1.377	-0.18	0.737	1.015
	LTE Band 66	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	132322	1745	15.64	16.50	1.219	0.19	0.527	0.642
	LTE Band 66	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	132322	1745	15.64	16.50	1.219	-0.13	0.791	0.964
	LTE Band 66	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	132072	1720	15.41	16.50	1.285	0.11	0.573	0.736
	LTE Band 66	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	132572	1770	15.40	16.50	1.288	0.04	0.687	0.885
	LTE Band 66	20M	QPSK	1	49	Front	16mm	-	Ant 1	DSI4	132322	1745	22.68	24.00	1.355	-0.02	0.696	0.943
	LTE Band 66	20M	QPSK	1	49	Back	25mm	-	Ant 1	DSI4	132322	1745	22.68	24.00	1.355	-0.03	0.400	0.542
	LTE Band 66	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	132322	1745	15.62	16.50	1.225	0.08	0.530	0.649
54	LTE Band 66	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	132322	1745	15.62	16.50	1.225	0.08	0.808	**0.989**
	LTE Band 66	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	132072	1720	15.61	16.50	1.227	0.17	0.590	0.724
	LTE Band 66	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	132572	1770	15.50	16.50	1.259	0.16	0.683	0.860
	LTE Band 66	20M	QPSK	50	24	Front	16mm	-	Ant 1	DSI4	132322	1745	21.86	23.00	1.300	0.03	0.585	0.761
	LTE Band 66	20M	QPSK	50	24	Back	25mm	-	Ant 1	DSI4	132322	1745	21.86	23.00	1.300	0.02	0.311	0.404
	LTE Band 66	20M	QPSK	100	0	Back	5mm	-	Ant 1	DSI 3	132322	1745	15.56	16.50	1.242	-0.13	0.662	0.822
	LTE Band 2	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	19100	1900	16.07	17.00	1.239	0.12	0.467	0.579
	LTE Band 2	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	19100	1900	16.07	17.00	1.239	0.1	0.651	0.806
	LTE Band 2	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	18700	1860	15.88	17.00	1.294	-0.08	0.564	0.730
	LTE Band 2	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	18900	1880	15.93	17.00	1.279	0.07	0.650	0.832
	LTE Band 2	20M	QPSK	1	49	Front	16mm	-	Ant 1	DSI4	19100	1900	22.73	24.00	1.340	-0.06	0.633	0.848
	LTE Band 2	20M	QPSK	1	49	Back	25mm	-	Ant 1	DSI4	18900	1880	22.66	24.00	1.361	0.02	0.430	0.585
	LTE Band 2	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	19100	1900	16.04	17.00	1.247	0.13	0.473	0.590
	LTE Band 2	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	19100	1900	16.04	17.00	1.247	-0.01	0.663	0.827
	LTE Band 2	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	18700	1860	15.89	17.00	1.291	-0.01	0.592	0.764
	LTE Band 2	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	18900	1880	15.99	17.00	1.262	0.13	0.666	0.840
	LTE Band 2	20M	QPSK	50	24	Front	16mm	-	Ant 1	DSI4	19100	1900	21.81	23.00	1.315	0.12	0.358	0.471
	LTE Band 2	20M	QPSK	50	24	Back	25mm	-	Ant 1	DSI4	18900	1880	21.76	23.00	1.330	-0.1	0.206	0.274
55	LTE Band 2	20M	QPSK	100	0	Back	5mm	-	Ant 1	DSI 3	19100	1900	15.96	17.00	1.271	-0.08	0.686	**0.872**
	LTE Band 2	20M	QPSK	100	0	Back	25mm	-	Ant 1	DSI4	19100	1900	21.75	23.00	1.334	0.05	0.205	0.273
	LTE Band 7	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	21100	2535	19.00	20.00	1.259	-0.05	0.526	0.662
	LTE Band 7	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	21100	2535	19.00	20.00	1.259	0.06	0.799	1.006

	LTE Band 7	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	20850	2510	18.88	20.00	1.294	-0.18	0.791	1.024
	LTE Band 7	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	21350	2560	18.94	20.00	1.276	-0.06	0.731	0.933
	LTE Band 7	20M	QPSK	1	49	Front	16mm	-	Ant 1	DSI4	21100	2535	22.80	24.00	1.318	-0.05	0.655	0.863
	LTE Band 7	20M	QPSK	1	49	Back	25mm	-	Ant 1	DSI4	20850	2510	22.72	24.00	1.343	0.02	0.357	0.479
	LTE Band 7	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	21100	2535	18.80	20.00	1.318	0.15	0.540	0.712
	LTE Band 7	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	21100	2535	18.80	20.00	1.318	0.05	0.801	1.056
56	LTE Band 7	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	20850	2510	18.70	20.00	1.349	-0.16	0.820	**1.106**
	LTE Band 7C	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	PCC(20850) +SCC(21048)	PCC(2510) +SCC(2529.8)	18.73	20.00	1.340	0.01	0.445	0.596
	LTE Band 7	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	21350	2560	18.71	20.00	1.346	0.18	0.745	1.003
	LTE Band 7	20M	QPSK	50	24	Front	16mm	-	Ant 1	DSI4	21100	2535	21.88	23.00	1.294	0.01	0.533	0.690
	LTE Band 7	20M	QPSK	50	24	Back	25mm	-	Ant 1	DSI4	20850	2510	21.86	24.00	1.637	0.09	0.195	0.319
	LTE Band 7	20M	QPSK	100	0	Back	5mm	-	Ant 1	DSI 3	21100	2535	18.79	20.00	1.321	0.04	0.783	1.035

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	40185	2549.5	21.28	22.00	1.180	62.9	1.006	-0.11	0.561	0.666
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	40185	2549.5	21.28	22.00	1.180	62.9	1.006	0.06	0.740	0.879
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	39750	2506	21.14	22.00	1.219	62.9	1.006	0.15	0.612	0.750
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	40620	2593	21.07	22.00	1.239	62.9	1.006	0.01	0.451	0.562
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	41055	2636.5	21.05	22.00	1.245	62.9	1.006	0.14	0.421	0.527
	LTE Band 41	20M	QPSK	1	49	Front	5mm	-	Ant 1	DSI 3	41490	2680	21.12	22.00	1.225	62.9	1.006	-0.13	0.376	0.463
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	39750	2506	21.14	22.00	1.219	62.9	1.006	-0.09	0.888	1.089
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	40620	2593	21.07	22.00	1.239	62.9	1.006	-0.1	0.547	0.682
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	41055	2636.5	21.05	22.00	1.245	62.9	1.006	-0.11	0.464	0.581
	LTE Band 41	20M	QPSK	1	49	Back	5mm	-	Ant 1	DSI 3	41490	2680	21.12	22.00	1.225	62.9	1.006	0.17	0.416	0.512
	LTE Band 41	20M	QPSK	1	49	Front	16mm	-	Ant 1	DSI4	39750	2506	22.77	24.00	1.327	62.9	1.006	-0.05	0.268	0.358
	LTE Band 41	20M	QPSK	1	49	Back	25mm	-	Ant 1	DSI4	39750	2506	22.77	24.00	1.327	62.9	1.006	0.07	0.118	0.158
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	40185	2549.5	21.24	22.00	1.191	62.9	1.006	-0.15	0.577	0.691
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	40185	2549.5	21.24	22.00	1.191	62.9	1.006	0.15	0.732	0.877
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	39750	2506	21.23	22.00	1.194	62.9	1.006	0.07	0.634	0.762
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	40620	2593	21.19	22.00	1.205	62.9	1.006	-0.18	0.471	0.571
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	41055	2636.5	21.06	22.00	1.242	62.9	1.006	-0.18	0.428	0.535
	LTE Band 41	20M	QPSK	50	24	Front	5mm	-	Ant 1	DSI 3	41490	2680	21.20	22.00	1.202	62.9	1.006	-0.16	0.395	0.478
57	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	39750	2506	21.23	22.00	1.194	62.9	1.006	0.16	0.916	**1.100**
	LTE Band 41C	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	PCC(39750) +SCC(39948)	PCC(2506) +SCC(2525.8)	21.43	22.00	1.140	62.9	1.006	0.04	0.481	0.552
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	40620	2593	21.19	22.00	1.205	62.9	1.006	-0.14	0.571	0.692
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	41055	2636.5	21.06	22.00	1.242	62.9	1.006	-0.17	0.470	0.587
	LTE Band 41	20M	QPSK	50	24	Back	5mm	-	Ant 1	DSI 3	41490	2680	21.20	22.00	1.202	62.9	1.006	-0.11	0.430	0.520
	LTE Band 41	20M	QPSK	50	24	Front	16mm	-	Ant 1	DSI4	39750	2506	22.02	23.00	1.253	62.9	1.006	0.06	0.203	0.256
	LTE Band 41	20M	QPSK	50	24	Back	25mm	-	Ant 1	DSI4	39750	2506	22.02	23.00	1.253	62.9	1.006	0.01	0.097	0.122
	LTE Band 41	20M	QPSK	100	0	Front	5mm	-	Ant 1	DSI 3	40185	2549.5	21.22	22.00	1.197	62.9	1.006	0.09	0.558	0.672
	LTE Band 41	20M	QPSK	100	0	Back	5mm	-	Ant 1	DSI 3	40185	2549.5	21.22	22.00	1.197	62.9	1.006	0.02	0.695	0.837
	LTE Band 42	20M	QPSK	1	49	Front	5mm	-	Ant 4	DSI 3	42190	3460	10.93	11.50	1.140	62.9	1.006	-	n/a	n/a
	LTE Band 42	20M	QPSK	1	49	Back	5mm	-	Ant 4	DSI 3	42190	3460	10.93	11.50	1.140	62.9	1.006	0.18	0.788	0.904
	LTE Band 42	20M	QPSK	1	49	Back	5mm	-	Ant 4	DSI 3	42590	3500	10.67	11.50	1.211	62.9	1.006	0.04	0.523	0.637
	LTE Band 42	20M	QPSK	1	49	Back	5mm	-	Ant 4	DSI 3	42990	3540	10.52	11.50	1.253	62.9	1.006	0.07	0.361	0.455
	LTE Band 42	20M	QPSK	1	49	Front	16mm	-	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	0.06	0.039	0.044
	LTE Band 42	20M	QPSK	1	49	Back	25mm	-	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	-0.15	0.615	0.694
	LTE Band 42	20M	QPSK	50	24	Front	5mm	-	Ant 4	DSI 3	42190	3460	10.92	11.50	1.143	62.9	1.006	-	n/a	n/a
58	LTE Band 42	20M	QPSK	50	24	Back	5mm	-	Ant 4	DSI 3	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.1	0.818	**0.940**
	LTE Band 42	20M	QPSK	50	24	Back	5mm	-	Ant 4	DSI 3	42590	3500	10.75	11.50	1.189	62.9	1.006	-0.15	0.545	0.652
	LTE Band 42	20M	QPSK	50	24	Back	5mm	-	Ant 4	DSI 3	42990	3540	10.56	11.50	1.242	62.9	1.006	0.13	0.374	0.467
	LTE Band 42	20M	QPSK	50	24	Front	16mm	-	Ant 4	DSI4	42190	3460	22.60	23.00	1.096	62.9	1.006	0.02	0.018	0.020
	LTE Band 42	20M	QPSK	50	24	Back	25mm	-	Ant 4	DSI4	42190	3460	22.60	23.00	1.096	62.9	1.006	0.07	0.357	0.394
	LTE Band 42	20M	QPSK	100	0	Back	5mm	-	Ant 4	DSI 3	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.1	0.814	0.936

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5	20M	BPSK	1	1	DFT-15	Front	5mm	-	ANT2	DSI4	167300	836.5	23.10	24.00	1.230	0.06	0.521	0.641
59	N5	20M	BPSK	1	1	DFT-15	Back	5mm	-	ANT2	DSI4	167300	836.5	23.10	24.00	1.230	-0.03	0.542	**0.667**
	N5	20M	BPSK	50	28	DFT-15	Front	5mm	-	ANT2	DSI4	167300	836.5	22.67	24.00	1.358	0.05	0.465	0.632
	N5	20M	BPSK	50	28	DFT-15	Back	5mm	-	ANT2	DSI4	167300	836.5	22.67	24.00	1.358	0.01	0.489	0.664
	N66	20M	BPSK	1	53	DFT-15	Front	5mm	-	ANT2	DSI 3	349000	1745	14.11	15.00	1.227	0.06	0.351	0.431
	N66	20M	BPSK	1	53	DFT-15	Back	5mm	-	ANT2	DSI 3	349000	1745	14.11	15.00	1.227	0.1	0.360	0.442
60	N66	20M	BPSK	1	53	DFT-15	Front	16mm	-	ANT2	DSI4	349000	1745	23.10	24.00	1.230	0.09	0.423	**0.520**
	N66	20M	BPSK	1	53	DFT-15	Back	25mm	-	ANT2	DSI4	349000	1745	23.10	24.00	1.230	0.01	0.138	0.170
	N66	20M	BPSK	50	28	DFT-15	Front	5mm	-	ANT2	DSI 3	349000	1745	13.96	15.00	1.271	0.12	0.327	0.415
	N66	20M	BPSK	50	28	DFT-15	Back	5mm	-	ANT2	DSI 3	349000	1745	13.96	15.00	1.271	-0.04	0.349	0.443
	N7	20M	BPSK	1	53	DFT-15	Front	5mm	-	ANT2	DSI 3	512000	2560	15.35	16.00	1.161	0.13	0.314	0.365
61	N7	20M	BPSK	1	53	DFT-15	Back	5mm	-	ANT2	DSI 3	512000	2560	15.35	16.00	1.161	0.03	0.397	**0.461**
	N7	20M	BPSK	1	53	DFT-15	Front	16mm	-	ANT2	DSI4	512000	2560	23.21	24.00	1.199	0.03	0.362	0.434
	N7	20M	BPSK	1	53	DFT-15	Back	25mm	-	ANT2	DSI4	512000	2560	23.21	24.00	1.199	0.07	0.121	0.145
	N7	20M	BPSK	50	28	DFT-15	Front	5mm	-	ANT2	DSI 3	512000	2560	15.21	16.00	1.199	0.15	0.293	0.351
	N7	20M	BPSK	50	28	DFT-15	Back	5mm	-	ANT2	DSI 3	512000	2560	15.21	16.00	1.199	0.04	0.367	0.440
	N77	100M	BPSK	1	1	DFT-30	Front	5mm	-	ANT4	DSI 3	656000	3840	10.54	11.50	1.247	-0.13	0.025	0.031
	N77	100M	BPSK	1	1	DFT-30	Back	5mm	-	ANT4	DSI 3	656000	3840	10.54	11.50	1.247	0.06	0.292	0.364
	N77	100M	BPSK	1	1	DFT-30	Front	16mm	-	ANT4	DSI 3	656000	3840	22.28	23.00	1.180	-	n/a	n/a
	N77	100M	BPSK	1	1	DFT-30	Back	25mm	-	ANT4	DSI 3	656000	3840	22.28	23.00	1.180	0.01	0.021	0.025
	N77	100M	BPSK	135	69	DFT-30	Front	5mm	-	ANT4	DSI 3	656000	3840	10.51	11.50	1.256	-0.06	0.016	0.020
	N77	100M	BPSK	135	69	DFT-30	Back	5mm	-	ANT4	DSI 3	656000	3840	10.51	11.50	1.256	0.03	0.229	0.288
	N77	100M	BPSK	1	271	DFT-30	Front	5mm	-	ANT4	DSI 3	633334	3500.01	10.44	11.50	1.276	-0.1	0.033	0.042
	N77	100M	BPSK	1	271	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.44	11.50	1.276	-0.16	0.510	0.651
	N77	100M	BPSK	1	271	DFT-30	Front	16mm	-	ANT4	DSI4	633334	3500.01	22.30	23.00	1.175	-	n/a	n/a
	N77	100M	BPSK	1	271	DFT-30	Back	25mm	-	ANT4	DSI4	633334	3500.01	22.30	23.00	1.175	0.08	0.089	0.105
	N77	100M	BPSK	135	69	DFT-30	Front	5mm	-	ANT4	DSI 3	633334	3500.01	10.42	11.50	1.282	0.08	0.043	0.055
62	N77	100M	BPSK	135	69	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.42	11.50	1.282	-0.01	0.706	**0.905**
	N77	100M	BPSK	135	69	DFT-30	Front	16mm	-	ANT4	DSI4	633334	3500.01	22.21	23.00	1.199	-	n/a	n/a
	N77	100M	BPSK	135	69	DFT-30	Back	25mm	-	ANT4	DSI4	633334	3500.01	22.21	23.00	1.199	-0.01	0.198	0.238
	N77	100M	BPSK	270	0	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.29	11.50	1.321	-0.04	0.681	0.900
	N78	100M	BPSK	1	1	DFT-30	Front	5mm	-	ANT4	DSI 3	650000	3750	10.49	11.50	1.262	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Back	5mm	-	ANT4	DSI 3	650000	3750	10.49	11.50	1.262	-0.19	0.294	0.371
	N78	100M	BPSK	1	1	DFT-30	Front	16mm	-	ANT4	DSI 3	650000	3750	22.29	23.00	1.178	-	n/a	n/a
	N78	100M	BPSK	1	1	DFT-30	Back	25mm	-	ANT4	DSI 3	650000	3750	22.29	23.00	1.178	0.09	0.086	0.101
	N78	100M	BPSK	135	0	DFT-30	Front	5mm	-	ANT4	DSI 3	650000	3750	10.45	11.50	1.274	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Back	5mm	-	ANT4	DSI 3	650000	3750	10.45	11.50	1.274	-0.13	0.185	0.236
	N78	100M	BPSK	1	271	DFT-30	Front	5mm	-	ANT4	DSI 3	633334	3500.01	10.57	11.50	1.239	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.57	11.50	1.239	0.17	0.626	0.775
	N78	100M	BPSK	1	271	DFT-30	Front	16mm	-	ANT4	DSI4	633334	3500.01	22.39	23.00	1.151	-	n/a	n/a
	N78	100M	BPSK	1	271	DFT-30	Back	25mm	-	ANT4	DSI4	633334	3500.01	22.39	23.00	1.151	0.09	0.121	0.139
	N78	100M	BPSK	135	0	DFT-30	Front	5mm	-	ANT4	DSI 3	633334	3500.01	10.51	11.50	1.256	-	n/a	n/a
63	N78	100M	BPSK	135	0	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.51	11.50	1.256	0.05	0.747	**0.938**
	N78	100M	BPSK	135	0	DFT-30	Front	16mm	-	ANT4	DSI4	633334	3500.01	22.18	22.50	1.076	-	n/a	n/a
	N78	100M	BPSK	135	0	DFT-30	Back	25mm	-	ANT4	DSI4	633334	3500.01	22.18	22.50	1.076	-0.03	0.276	0.297
	N78	100M	BPSK	270	0	DFT-30	Back	5mm	-	ANT4	DSI 3	633334	3500.01	10.31	11.50	1.315	0.06	0.710	0.934

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	-	ANT3+6	Standalone	1	2412	20.09	21.50	1.384	98.29	1.017	0.06	0.319	0.449
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	Standalone	1	2412	20.09	21.50	1.384	98.29	1.017	-0.13	0.760	1.069
64	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	Standalone	6	2437	19.68	21.50	1.521	98.29	1.017	0.1	0.758	**1.172**
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	DBS	1	2412	18.65	20.00	1.365	98.29	1.017	0.07	0.570	0.791
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	-0.11	0.114	0.160
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	Simultaneous_2Tx	1	2412	15.11	16.50	1.377	98.29	1.017	0.03	0.269	0.377
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	-	ANT3+6	Simultaneous_3Tx	1	2412	10.19	11.00	1.205	98.29	1.017	-0.06	0.073	0.089
	WLAN2.4GHz	802.11b 1Mbps	Front	16mm	-	ANT3+6	Full	1	2412	21.67	23.00	1.357	98.29	1.017	0.03	0.121	0.167
	WLAN2.4GHz	802.11b 1Mbps	Back	25mm	-	ANT3+6	Full	6	2437	21.16	23.00	1.527	98.29	1.017	0.09	0.100	0.155

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	-	ANT5+6	Standalone	58	5290	12.89	14.00	1.291	100	1.000	0.13	0.050	0.065
65	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	58	5290	12.89	14.00	1.291	100	1.000	0.09	0.794	**1.025**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	DBS	58	5290	11.75	13.00	1.334	100	1.000	0.06	0.492	0.656
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_2Tx	58	5290	8.21	9.00	1.199	100	1.000	-0.09	0.286	0.343
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_3Tx	58	5290	7.19	8.00	1.205	100	1.000	0.08	0.218	0.263
	WLAN5.3GHz	802.11a 6Mbps	Front	16mm	-	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.02	0.005	0.006
	WLAN5.3GHz	802.11a 6Mbps	Back	25mm	-	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	-0.06	0.793	1.003
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	16mm	-	ANT5+6	Simultaneous_2Tx	58	5290	14.93	16.00	1.279	100	1.000	-	n/a	n/a
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	25mm	-	ANT5+6	Simultaneous_2Tx	58	5290	14.93	16.00	1.279	100	1.000	0.04	0.259	0.331
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	-	ANT5+6	Standalone	106	5530	11.73	13.00	1.340	100	1.000	0.09	0.062	0.083
66	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	106	5530	11.73	13.00	1.340	100	1.000	0.05	0.883	**1.183**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	DBS	106	5530	9.85	11.00	1.303	100	1.000	0.01	0.528	0.688
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_2Tx	106	5530	6.53	7.50	1.250	100	1.000	0.09	0.288	0.360
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_3Tx	106	5530	4.71	6.00	1.346	100	1.000	-0.15	0.218	0.293
	WLAN5.5GHz	802.11a 6Mbps	Front	16mm	-	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.06	0.020	0.024
	WLAN5.5GHz	802.11a 6Mbps	Back	25mm	-	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.09	0.788	0.936
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	16mm	-	ANT5+6	Simultaneous_2Tx	106	5530	12.99	14.00	1.262	100	1.000	-	n/a	n/a
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	25mm	-	ANT5+6	Simultaneous_2Tx	106	5530	12.99	14.00	1.262	100	1.000	0.06	0.324	0.409
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	-	ANT5+6	Standalone	155	5775	13.02	14.00	1.253	100	1.000	-	n/a	n/a
67	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	155	5775	13.02	14.00	1.253	100	1.000	0.09	0.872	**1.093**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	DBS	155	5775	11.13	12.50	1.371	100	1.000	0.02	0.523	0.717
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_2Tx	155	5775	7.99	9.00	1.262	100	1.000	-0.15	0.274	0.346
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Simultaneous_3Tx	155	5775	7.56	8.50	1.242	100	1.000	0.09	0.223	0.277
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	16mm	-	ANT5+6	Full	155	5775	19.54	20.50	1.247	100	1.000	0.06	0.016	0.020
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	25mm	-	ANT5+6	Full	155	5775	19.54	20.50	1.247	100	1.000	0.04	0.767	0.957
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	16mm	-	ANT5+6	Simultaneous_2Tx	155	5775	14.85	16.00	1.303	100	1.000	-	n/a	n/a
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	25mm	-	ANT5+6	Simultaneous_2Tx	155	5775	14.85	16.00	1.303	100	1.000	-0.07	0.256	0.334

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	-	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	-0.03	0.057	0.086
68	Bluetooth	DH5 1Mbps	Back	5mm	-	ANT3	Full	39	2441	11.30	12.00	1.175	77.02	1.298	0.03	0.066	**0.101**

16.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM850	GPRS(3Tx slots)	Front	0mm	Ant 1	DSI4	128	824.2	29.53	31.00	1.403	0.07	1.630	2.287
	GSM850	GPRS(3Tx slots)	Front	0mm	Ant 1	DSI4	189	836.4	29.25	31.00	1.496	-0.16	1.660	2.484
	GSM850	GPRS(3Tx slots)	Front	0mm	Ant 1	DSI4	251	848.8	29.03	31.00	1.574	0.02	1.220	1.920
69	GSM850	GPRS(3Tx slots)	Back	0mm	Ant 1	DSI4	128	824.2	29.53	31.00	1.403	0.09	1.800	**2.525**
	GSM850	GPRS(3Tx slots)	Back	0mm	Ant 1	DSI4	189	836.4	29.25	31.00	1.496	0.09	1.640	2.454
	GSM850	GPRS(3Tx slots)	Back	0mm	Ant 1	DSI4	251	848.8	29.03	31.00	1.574	0.13	1.580	2.487
	GSM850	GPRS(3Tx slots)	Bottom Side	0mm	Ant 1	DSI4	128	824.2	29.53	31.00	1.403	-0.14	0.988	1.386
	GSM1900	GPRS(2 Tx slots)	Front	0mm	Ant 1	DSI4	661	1880	28.65	30.00	1.365	0.01	1.570	2.142
	GSM1900	GPRS(2 Tx slots)	Front	0mm	Ant 1	DSI4	512	1850.2	28.38	30.00	1.452	0.1	1.500	2.178
	GSM1900	GPRS(2 Tx slots)	Front	0mm	Ant 1	DSI4	810	1909.8	28.45	30.00	1.429	-0.06	1.560	2.229
	GSM1900	GPRS(2 Tx slots)	Back	0mm	Ant 1	DSI4	661	1880	28.65	30.00	1.365	-0.12	2.030	2.770
70	GSM1900	GPRS(2 Tx slots)	Back	0mm	Ant 1	DSI4	512	1850.2	28.38	30.00	1.452	0.07	2.030	**2.948**
	GSM1900	GPRS(2 Tx slots)	Back	0mm	Ant 1	DSI4	810	1909.8	28.45	30.00	1.429	-0.12	1.990	2.843
	GSM1900	GPRS(2 Tx slots)	Bottom Side	0mm	Ant 1	DSI4	661	1880	28.65	30.00	1.365	0.16	1.570	2.142
	GSM1900	GPRS(2 Tx slots)	Bottom Side	0mm	Ant 1	DSI4	512	1850.2	28.38	30.00	1.452	-0.18	1.520	2.207
	GSM1900	GPRS(2 Tx slots)	Bottom Side	0mm	Ant 1	DSI4	810	1909.8	28.45	30.00	1.429	0.06	2.000	2.858

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	0mm	Ant 1	DSI4	4233	846.6	22.98	24.00	1.265	-0.14	1.030	1.303
71	WCDMA V	RMC 12.2Kbps	Back	0mm	Ant 1	DSI4	4233	846.6	22.98	24.00	1.265	0.05	1.050	**1.328**
	WCDMA IV	RMC 12.2Kbps	Front	0mm	Ant 1	DSI 6	1413	1732.6	21.02	22.00	1.253	0.03	1.510	1.892
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	1413	1732.6	21.02	22.00	1.253	-0.19	1.950	2.444
	WCDMA IV	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	1312	1712.4	21.00	22.00	1.259	0.01	1.910	2.405
72	WCDMA IV	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	1513	1752.6	20.92	22.00	1.282	0.09	2.220	**2.847**
	WCDMA IV	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	DSI 6	1413	1732.6	21.02	22.00	1.253	-0.01	1.270	1.591
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Ant 1	DSI4	1413	1732.6	23.19	24.00	1.205	0.06	1.520	1.832
	WCDMA IV	RMC 12.2Kbps	Back	7mm	Ant 1	DSI4	1513	1752.6	22.91	24.00	1.285	0.01	1.590	2.044
	WCDMA IV	RMC 12.2Kbps	Bottom Side	8mm	Ant 1	DSI4	1413	1732.6	23.19	24.00	1.205	0.09	1.940	2.338
	WCDMA II	RMC 12.2Kbps	Front	0mm	Ant 1	DSI 6	9538	1907.6	21.40	22.50	1.288	0.04	1.590	2.048
	WCDMA II	RMC 12.2Kbps	Front	0mm	Ant 1	DSI 6	9262	1852.4	21.28	22.50	1.324	-0.19	1.660	2.198
	WCDMA II	RMC 12.2Kbps	Front	0mm	Ant 1	DSI 6	9400	1880	21.36	22.50	1.300	-0.13	0.527	0.685
73	WCDMA II	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	9538	1907.6	21.40	22.50	1.288	0.09	2.270	**2.924**
	WCDMA II	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	9262	1852.4	21.28	22.50	1.324	0.04	2.090	2.768
	WCDMA II	RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	9400	1880	21.36	22.50	1.300	0.02	0.867	1.127
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	DSI 6	9538	1907.6	21.40	22.50	1.288	-0.09	1.790	2.306
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	DSI 6	9262	1852.4	21.28	22.50	1.324	0.06	1.560	2.066
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	Ant 1	DSI 6	9400	1880	21.36	22.50	1.300	0.19	0.886	1.152
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	DSI4	9262	1852.4	22.97	24.00	1.268	0.06	1.600	2.028
	WCDMA II	RMC 12.2Kbps	Back	7mm	Ant 1	DSI4	9538	1907.6	23.10	24.00	1.230	0.01	1.770	2.178
	WCDMA II	RMC 12.2Kbps	Bottom Side	8mm	Ant 1	DSI4	9538	1907.6	23.10	24.00	1.230	0.05	1.980	2.436

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
74	LTE Band 26	15M	QPSK	1	37	Back	0mm	Ant 1	DSI4	26865	831.5	22.73	24.00	1.340	0.03	1.510	**2.023**
	LTE Band 26	15M	QPSK	1	37	Back	0mm	Ant 1	DSI4	26765	821.5	22.56	24.00	1.393	-0.07	1.420	1.978
	LTE Band 26	15M	QPSK	1	37	Back	0mm	Ant 1	DSI4	26965	841.5	22.52	24.00	1.406	-0.1	1.300	1.828
	LTE Band 26	15M	QPSK	36	20	Back	0mm	Ant 1	DSI4	26865	831.5	21.71	23.00	1.346	0.14	0.835	1.124
	LTE Band 26	15M	QPSK	75	0	Back	0mm	Ant 1	DSI4	26865	831.5	21.61	23.00	1.377	-0.18	0.820	1.129
	LTE Band 66	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	132322	1745	20.91	22.00	1.285	-0.01	1.700	2.185
	LTE Band 66	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	132072	1720	20.81	22.00	1.315	0.17	1.620	2.131
	LTE Band 66	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	132572	1770	20.77	22.00	1.327	0.19	1.690	2.243
	LTE Band 66	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	132322	1745	20.91	22.00	1.285	0.01	1.990	2.558
	LTE Band 66	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	132072	1720	20.81	22.00	1.315	0.11	1.830	2.407
	LTE Band 66	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	132572	1770	20.77	22.00	1.327	0.01	2.090	2.774
	LTE Band 66	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	132322	1745	20.91	22.00	1.285	0.11	1.560	2.005
	LTE Band 66	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	132072	1720	20.81	22.00	1.315	-0.14	1.200	1.578
	LTE Band 66	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	132572	1770	20.77	22.00	1.327	-0.09	1.440	1.911
	LTE Band 66	20M	QPSK	1	49	Front	5mm	Ant 1	DSI4	132572	1770	22.62	24.00	1.374	0.01	1.940	2.666
	LTE Band 66	20M	QPSK	1	49	Back	7mm	Ant 1	DSI4	132572	1770	22.62	24.00	1.374	0.05	1.680	2.308
75	LTE Band 66	20M	QPSK	1	49	Bottom Side	8mm	Ant 1	DSI4	132322	1745	22.68	24.00	1.355	0.08	2.210	**2.995**
	LTE Band 66	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	132322	1745	20.67	22.00	1.358	0.06	1.730	2.350
	LTE Band 66	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	132072	1720	20.66	22.00	1.361	-0.13	1.700	2.314
	LTE Band 66	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	132572	1770	20.66	22.00	1.361	0.09	1.750	2.383
	LTE Band 66	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	132322	1745	20.67	22.00	1.358	-0.15	2.040	2.771
	LTE Band 66	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	132072	1720	20.66	22.00	1.361	-0.15	1.950	2.655
	LTE Band 66	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	132572	1770	20.66	22.00	1.361	-0.14	2.170	2.954
	LTE Band 66	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	132322	1745	20.67	22.00	1.358	0.19	1.610	2.187
	LTE Band 66	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	132072	1720	20.66	22.00	1.361	0.16	1.260	1.715
	LTE Band 66	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	132572	1770	20.66	22.00	1.361	0.16	1.490	2.029
	LTE Band 66	20M	QPSK	50	24	Front	5mm	Ant 1	DSI4	132572	1770	21.81	23.00	1.315	0.04	1.350	1.776
	LTE Band 66	20M	QPSK	50	24	Back	7mm	Ant 1	DSI4	132572	1770	21.81	23.00	1.315	0.09	1.074	1.413
	LTE Band 66	20M	QPSK	50	24	Bottom Side	8mm	Ant 1	DSI4	132322	1745	21.86	23.00	1.300	0.02	1.560	2.028
	LTE Band 66	20M	QPSK	100	0	Front	0mm	Ant 1	DSI 6	132322	1745	20.46	22.00	1.426	-0.14	1.760	2.509
	LTE Band 66	20M	QPSK	100	0	Back	0mm	Ant 1	DSI 6	132322	1745	20.46	22.00	1.426	0.15	2.030	2.894
	LTE Band 66	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	DSI 6	132322	1745	20.46	22.00	1.426	0.08	1.500	2.138
	LTE Band 2	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	19100	1900	21.77	22.50	1.183	0.12	1.730	2.047
	LTE Band 2	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	18700	1860	21.64	22.50	1.219	0.15	1.750	2.133
	LTE Band 2	20M	QPSK	1	49	Front	0mm	Ant 1	DSI 6	18900	1880	21.50	22.50	1.259	0	1.810	2.279
	LTE Band 2	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	19100	1900	21.77	22.50	1.183	0.13	2.380	2.816
	LTE Band 2	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	18700	1860	21.64	22.50	1.219	0.12	2.180	2.657
	LTE Band 2	20M	QPSK	1	49	Back	0mm	Ant 1	DSI 6	18900	1880	21.50	22.50	1.259	0.08	2.320	2.921
	LTE Band 2	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	19100	1900	21.77	22.50	1.183	-0.11	1.670	1.976
	LTE Band 2	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	18700	1860	21.64	22.50	1.219	-0.03	1.520	1.853
	LTE Band 2	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI 6	18900	1880	21.50	22.50	1.259	0.06	1.620	2.039
	LTE Band 2	20M	QPSK	1	49	Front	5mm	Ant 1	DSI4	18900	1880	22.66	24.00	1.361	0.09	1.880	2.560
	LTE Band 2	20M	QPSK	1	49	Back	7mm	Ant 1	DSI4	18900	1880	22.66	24.00	1.361	0.01	1.950	2.655
76	LTE Band 2	20M	QPSK	1	49	Bottom Side	8mm	Ant 1	DSI4	18900	1880	22.66	24.00	1.361	0.08	2.200	**2.995**
	LTE Band 2	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	19100	1900	21.63	22.50	1.222	0.09	1.780	2.175
	LTE Band 2	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	18700	1860	21.46	22.50	1.271	0.09	1.850	2.351
	LTE Band 2	20M	QPSK	50	24	Front	0mm	Ant 1	DSI 6	18900	1880	21.62	22.50	1.225	-0.06	1.860	2.278
	LTE Band 2	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	19100	1900	21.63	22.50	1.222	0.06	2.370	2.896
	LTE Band 2	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	18700	1860	21.46	22.50	1.271	0	2.190	2.783
	LTE Band 2	20M	QPSK	50	24	Back	0mm	Ant 1	DSI 6	18900	1880	21.62	22.50	1.225	-0.02	2.350	2.878
	LTE Band 2	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	19100	1900	21.63	22.50	1.222	0.15	1.680	2.053
	LTE Band 2	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	18700	1860	21.46	22.50	1.271	-0.15	1.610	2.046
	LTE Band 2	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI 6	18900	1880	21.62	22.50	1.225	-0.15	1.710	2.094

	LTE Band 2	20M	QPSK	100	0	Front	0mm	Ant 1	DSI 6	19100	1900	21.45	22.50	1.274	0.15	1.730	2.203
	LTE Band 2	20M	QPSK	100	0	Back	0mm	Ant 1	DSI 6	19100	1900	21.45	22.50	1.274	0.01	2.280	2.904
	LTE Band 2	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	DSI 6	19100	1900	21.45	22.50	1.274	-0.13	1.650	2.101
	LTE Band 7	20M	QPSK	1	49	Front	0mm	Ant 1	DSI6	21100	2535	22.19	23.00	1.205	0.17	1.350	1.627
	LTE Band 7	20M	QPSK	1	49	Back	0mm	Ant 1	DSI6	21100	2535	22.19	23.00	1.205	0.05	1.830	2.205
	LTE Band 7	20M	QPSK	1	49	Back	0mm	Ant 1	DSI6	20850	2510	21.92	23.00	1.282	0.15	1.910	2.449
	LTE Band 7	20M	QPSK	1	49	Back	0mm	Ant 1	DSI6	21350	2560	21.95	23.00	1.274	0.04	1.760	2.241
	LTE Band 7	20M	QPSK	1	49	Left Side	0mm	Ant 1	DSI4	21100	2535	22.80	24.00	1.318	0.04	1.060	1.397
	LTE Band 7	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI6	21100	2535	22.19	23.00	1.205	-0.09	1.960	2.362
	LTE Band 7	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI6	20850	2510	21.92	23.00	1.282	0.06	2.000	2.565
	LTE Band 7	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI6	21350	2560	21.95	23.00	1.274	-0.03	1.870	2.381
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 1	DSI4	21100	2535	22.80	24.00	1.318	0.02	1.140	1.503
	LTE Band 7	20M	QPSK	1	49	Back	7mm	Ant 1	DSI4	20850	2510	22.72	24.00	1.343	0.01	1.040	1.396
	LTE Band 7	20M	QPSK	1	49	Bottom Side	8mm	Ant 1	DSI4	20850	2510	22.72	24.00	1.343	0.09	0.882	1.184
	LTE Band 7	20M	QPSK	50	24	Front	0mm	Ant 1	DSI6	21100	2535	21.88	23.00	1.294	0.17	1.390	1.799
	LTE Band 7	20M	QPSK	50	24	Back	0mm	Ant 1	DSI6	21100	2535	21.88	23.00	1.294	0.07	1.870	2.420
	LTE Band 7	20M	QPSK	50	24	Back	0mm	Ant 1	DSI6	20850	2510	21.86	23.00	1.300	-0.09	2.090	2.717
	LTE Band 7	20M	QPSK	50	24	Back	0mm	Ant 1	DSI6	21350	2560	21.84	23.00	1.306	-0.01	1.830	2.390
	LTE Band 7	20M	QPSK	50	24	Left Side	0mm	Ant 1	DSI4	21100	2535	21.88	23.00	1.294	0.13	0.816	1.056
	LTE Band 7	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI6	21100	2535	21.88	23.00	1.294	-0.03	2.060	2.666
77	LTE Band 7	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI6	20850	2510	21.86	23.00	1.300	-0.19	2.280	**2.964**
	LTE Band 7C	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI6	PCC(20850) +SCC(21048)	PCC(2510) +SCC(2529.8)	21.85	23.00	1.303	0.18	1.210	1.577
	LTE Band 7	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI6	21350	2560	21.84	23.00	1.306	0.07	1.940	2.534
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 1	DSI4	21100	2535	21.88	24.00	1.629	0.05	0.617	1.005
	LTE Band 7	20M	QPSK	50	24	Back	7mm	Ant 1	DSI4	20850	2510	21.86	24.00	1.637	-0.07	0.565	0.925
	LTE Band 7	20M	QPSK	50	24	Bottom Side	8mm	Ant 1	DSI4	20850	2510	21.86	24.00	1.637	0.01	0.487	0.797
	LTE Band 7	20M	QPSK	100	0	Back	0mm	Ant 1	DSI6	21100	2535	21.84	23.00	1.306	0.15	1.900	2.482
	LTE Band 7	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	DSI6	21100	2535	21.84	23.00	1.306	0.15	1.910	2.495

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 41	20M	QPSK	1	49	Front	0mm	Ant 1	DSI4	40185	2549.5	22.87	24.00	1.297	62.9	1.006	-0.04	1.010	1.318
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Ant 1	DSI4	40185	2549.5	22.87	24.00	1.297	62.9	1.006	-0.12	1.340	1.749
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Ant 1	DSI4	39750	2506	22.77	24.00	1.327	62.9	1.006	0.06	1.210	1.616
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Ant 1	DSI4	40620	2593	22.61	24.00	1.377	62.9	1.006	0.01	0.904	1.252
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Ant 1	DSI4	41055	2636.5	22.71	24.00	1.346	62.9	1.006	0.09	0.890	1.205
	LTE Band 41	20M	QPSK	1	49	Back	0mm	Ant 1	DSI4	41490	2680	22.67	24.00	1.358	62.9	1.006	0.05	0.900	1.230
78	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	40185	2549.5	22.87	24.00	1.297	62.9	1.006	0.19	1.580	**2.062**
	LTE Band 41C	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	PCC(40185) +SCC(39987)	PCC(2549.5) +SCC(2529.7)	22.88	24.00	1.294	62.9	1.006	-0.09	1.560	2.031
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	39750	2506	22.77	24.00	1.327	62.9	1.006	-0.06	1.470	1.963
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	40620	2593	22.61	24.00	1.377	62.9	1.006	0.01	1.170	1.621
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	41055	2636.5	22.71	24.00	1.346	62.9	1.006	0.08	1.080	1.462
	LTE Band 41	20M	QPSK	1	49	Bottom Side	0mm	Ant 1	DSI4	41490	2680	22.67	24.00	1.358	62.9	1.006	0.02	1.080	1.476
	LTE Band 41	20M	QPSK	50	24	Front	0mm	Ant 1	DSI4	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.15	0.829	1.040
	LTE Band 41	20M	QPSK	50	24	Back	0mm	Ant 1	DSI4	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.03	0.885	1.111
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI4	40185	2549.5	22.04	23.00	1.247	62.9	1.006	0.13	1.230	1.543
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI4	39750	2506	22.02	23.00	1.253	62.9	1.006	0.09	1.200	1.513
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI4	40620	2593	21.81	23.00	1.315	62.9	1.006	0.01	0.972	1.286
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI4	41055	2636.5	21.86	23.00	1.300	62.9	1.006	0.05	0.864	1.130
	LTE Band 41	20M	QPSK	50	24	Bottom Side	0mm	Ant 1	DSI4	41490	2680	21.83	23.00	1.309	62.9	1.006	0.01	0.893	1.176
	LTE Band 41	20M	QPSK	100	0	Back	0mm	Ant 1	DSI4	40185	2549.5	22.10	23.00	1.230	62.9	1.006	0.12	0.871	1.078
	LTE Band 41	20M	QPSK	100	0	Bottom Side	0mm	Ant 1	DSI4	40185	2549.5	22.10	23.00	1.230	62.9	1.006	0.06	1.160	1.436
	LTE Band 42	20M	QPSK	1	49	Back	0mm	Ant 4	DSI 6	42190	3460	17.75	18.50	1.189	62.9	1.006	0.03	1.550	1.853
	LTE Band 42	20M	QPSK	1	49	Back	0mm	Ant 4	DSI 6	42590	3500	17.45	18.50	1.274	62.9	1.006	0.14	1.230	1.576
	LTE Band 42	20M	QPSK	1	49	Back	0mm	Ant 4	DSI 6	42990	3540	17.35	18.50	1.303	62.9	1.006	0.04	1.090	1.429
	LTE Band 42	20M	QPSK	1	49	Left Side	0mm	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	0.05	1.840	2.077
	LTE Band 42	20M	QPSK	1	49	Left Side	0mm	Ant 4	DSI4	42590	3500	23.26	24.00	1.186	62.9	1.006	0.04	1.200	1.431
	LTE Band 42	20M	QPSK	1	49	Left Side	0mm	Ant 4	DSI4	42990	3540	23.35	24.00	1.161	62.9	1.006	-0.06	0.961	1.123
79	LTE Band 42	20M	QPSK	1	49	Back	8mm	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	-0.1	2.370	**2.675**
	LTE Band 42	20M	QPSK	50	24	Back	0mm	Ant 4	DSI 6	42190	3460	17.75	18.50	1.189	62.9	1.006	-0.15	1.650	1.973
	LTE Band 42	20M	QPSK	50	24	Left Side	0mm	Ant 4	DSI4	42190	3460	22.60	23.00	1.096	62.9	1.006	0.05	1.050	1.158
	LTE Band 42	20M	QPSK	50	24	Back	8mm	Ant 4	DSI4	42190	3460	22.60	23.00	1.096	62.9	1.006	0.09	2.290	2.526
	LTE Band 42	20M	QPSK	100	0	Left Side	0mm	Ant 4	DSI4	42190	3460	22.49	23.00	1.125	62.9	1.006	0.08	1.060	1.199
	LTE Band 42	20M	QPSK	100	0	Back	0mm	Ant 4	DSI 6	42190	3460	17.72	18.50	1.197	62.9	1.006	-0.03	1.620	1.950

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	N66	20M	BPSK	1	53	DFT-15	Front	0mm	ANT2	DSI 6	349000	1745	18.96	20.00	1.271	-0.19	1.420	1.804
	N66	20M	BPSK	1	53	DFT-15	Back	0mm	ANT2	DSI 6	349000	1745	18.96	20.00	1.271	-0.04	0.766	0.973
	N66	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	349000	1745	18.96	20.00	1.271	0.18	1.650	2.096
	N66	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	344000	1720	18.76	20.00	1.330	-0.15	1.210	1.610
	N66	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	354000	1770	18.71	20.00	1.346	-0.12	1.870	2.517
	N66	20M	BPSK	1	53	DFT-15	Front	5mm	ANT2	DSI4	349000	1745	23.10	24.00	1.230	0.06	1.050	1.292
	N66	20M	BPSK	1	53	DFT-15	Back	7mm	ANT2	DSI4	349000	1745	23.10	24.00	1.230	0.01	0.890	1.095
	N66	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI4	354000	1770	22.89	24.00	1.291	0.09	1.750	2.260
	N66	20M	BPSK	50	28	DFT-15	Front	0mm	ANT2	DSI 6	349000	1745	18.95	20.00	1.274	-0.16	1.370	1.745
	N66	20M	BPSK	50	28	DFT-15	Back	0mm	ANT2	DSI 6	349000	1745	18.95	20.00	1.274	0.02	0.684	0.871
	N66	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	349000	1745	18.95	20.00	1.274	-0.13	1.580	2.012
	N66	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	344000	1720	18.74	20.00	1.337	0.02	1.170	1.564
80	N66	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	354000	1770	18.66	20.00	1.361	0.01	1.970	**2.682**
	N66	20M	BPSK	50	28	DFT-15	Front	5mm	ANT2	DSI4	349000	1745	22.91	24.00	1.285	0.01	0.965	1.240
	N66	20M	BPSK	50	28	DFT-15	Back	7mm	ANT2	DSI4	349000	1745	22.91	24.00	1.285	0.09	0.890	1.144
	N66	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI4	354000	1770	22.82	24.00	1.312	0.02	1.620	2.126
	N66	20M	BPSK	100	0	DFT-15	Top Side	0mm	ANT2	DSI 6	349000	1745	18.83	20.00	1.309	0.17	1.350	1.767
	N7	20M	BPSK	1	53	DFT-15	Front	0mm	ANT2	DSI 6	512000	2560	18.26	19.00	1.186	-0.03	0.824	0.977
	N7	20M	BPSK	1	53	DFT-15	Back	0mm	ANT2	DSI 6	512000	2560	18.26	19.00	1.186	-0.15	0.471	0.558
	N7	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	512000	2560	18.26	19.00	1.186	0.05	1.690	2.004
	N7	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	502000	2510	18.01	19.00	1.256	0.08	1.920	2.412
	N7	20M	BPSK	1	53	DFT-15	Top Side	0mm	ANT2	DSI 6	507000	2535	18.09	19.00	1.233	0.09	1.240	1.529
	N7	20M	BPSK	1	53	DFT-15	Front	5mm	ANT2	DSI4	512000	2560	23.21	24.00	1.199	-0.04	0.688	0.825
	N7	20M	BPSK	1	53	DFT-15	Back	7mm	ANT2	DSI4	512000	2560	23.21	24.00	1.199	0.02	0.584	0.701
	N7	20M	BPSK	1	53	DFT-15	Top Side	5mm	ANT2	DSI4	502000	2510	23.06	24.00	1.242	0.06	1.390	1.726
	N7	20M	BPSK	50	28	DFT-15	Front	0mm	ANT2	DSI 6	512000	2560	18.01	19.00	1.256	0.09	0.862	1.083
	N7	20M	BPSK	50	28	DFT-15	Back	0mm	ANT2	DSI 6	512000	2560	18.01	19.00	1.256	0.08	0.480	0.603
	N7	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	512000	2560	18.01	19.00	1.256	-0.09	1.720	2.160
81	N7	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	502000	2510	17.99	19.00	1.262	0.07	2.010	**2.536**
	N7	20M	BPSK	50	28	DFT-15	Top Side	0mm	ANT2	DSI 6	507000	2535	18.00	19.00	1.259	0.04	1.370	1.725
	N7	20M	BPSK	50	28	DFT-15	Front	5mm	ANT2	DSI4	512000	2560	23.15	24.00	1.216	0.09	0.609	0.741
	N7	20M	BPSK	50	28	DFT-15	Back	7mm	ANT2	DSI4	512000	2560	23.15	24.00	1.216	0.04	0.481	0.585
	N7	20M	BPSK	50	28	DFT-15	Top Side	5mm	ANT2	DSI4	502000	2510	22.91	24.00	1.285	0.06	1.270	1.632
	N7	20M	BPSK	100	0	DFT-15	Top Side	0mm	ANT2	DSI 6	512000	2560	17.96	19.00	1.271	-0.07	1.460	1.855
	N77	100M	BPSK	1	1	DFT-30	Back	0mm	ANT4	DSI 6	656000	3840	15.99	17.00	1.262	-0.16	0.793	1.001
	N77	100M	BPSK	1	1	DFT-30	Back	8mm	ANT4	DSI4	656000	3840	22.28	23.00	1.180	0.01	0.179	0.211
	N77	100M	BPSK	135	69	DFT-30	Back	0mm	ANT4	DSI 6	656000	3840	15.96	17.00	1.271	0.18	0.740	0.940
	N77	100M	BPSK	1	271	DFT-30	Back	0mm	ANT4	DSI 6	633334	3500.01	15.89	17.00	1.291	0.01	0.940	1.214
	N77	100M	BPSK	1	271	DFT-30	Back	8mm	ANT4	DSI4	633334	3500.01	22.30	23.00	1.175	0.01	0.537	0.631
82	N77	100M	BPSK	135	69	DFT-30	Back	0mm	ANT4	DSI 6	633334	3500.01	15.87	17.00	1.297	0.03	1.140	**1.479**
	N77	100M	BPSK	135	69	DFT-30	Back	8mm	ANT4	DSI4	633334	3500.01	22.21	23.00	1.199	0.01	0.544	0.653
	N78	100M	BPSK	1	1	DFT-30	Back	0mm	ANT4	DSI 6	650000	3750	16.31	17.00	1.172	0.15	0.781	0.915
	N78	100M	BPSK	1	1	DFT-30	Back	8mm	ANT4	DSI4	650000	3750	22.29	23.00	1.178	0.09	0.086	0.101
	N78	100M	BPSK	135	0	DFT-30	Back	0mm	ANT4	DSI 6	650000	3750	16.27	17.00	1.183	-0.1	0.580	0.686
	N78	100M	BPSK	1	271	DFT-30	Back	0mm	ANT4	DSI 6	633334	3500.01	16.39	17.00	1.151	0.09	1.210	1.392
	N78	100M	BPSK	1	271	DFT-30	Back	8mm	ANT4	DSI4	633334	3500.01	22.39	23.00	1.151	0.07	0.668	0.769
83	N78	100M	BPSK	135	0	DFT-30	Back	0mm	ANT4	DSI 6	633334	3500.01	16.33	17.00	1.167	0.06	1.360	**1.587**
	N78	100M	BPSK	135	0	DFT-30	Back	8mm	ANT4	DSI4	633334	3500.01	22.18	22.50	1.076	0.05	0.654	0.704

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
84	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	ANT3+6	Full/DBS	1	2412	21.67	23.00	1.358	98.29	1.017	-0.16	1.270	**1.754**
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	ANT3+6	Simultaneous_2Tx	1	2412	19.90	21.00	1.288	98.29	1.017	0.06	0.792	1.038
	WLAN2.4GHz	802.11b 1Mbps	Back	6mm	ANT3+6	Simultaneous_2Tx	1	2412	19.90	21.00	1.288	98.29	1.017	-0.05	0.229	0.300
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	ANT3+6	Simultaneous_3Tx	1	2412	13.12	14.50	1.374	98.29	1.017	-0.11	0.177	0.247

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
85	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	46	5230	17.70	19.00	1.349	100	1.000	0.12	2.010	**2.711**
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	38	5190	17.42	19.00	1.439	100	1.000	0.13	1.500	2.158
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_2Tx	42	5210	14.65	16.00	1.365	100	1.000	0.19	0.749	1.022
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	DBS	42	5210	16.48	18.00	1.418	100	1.000	0.06	1.460	2.071
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	6mm	ANT5+6	Simultaneous_2Tx	42	5210	14.65	16.00	1.365	100	1.000	0.15	0.190	0.259
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_3Tx	42	5210	12.33	14.00	1.469	100	1.000	0.09	0.530	0.779
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	ANT5+6	Full	44	5220	18.80	20.00	1.317	99.27	1.007	-0.05	0.518	0.687
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.03	0.007	0.009
86	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	54	5270	17.87	19.00	1.297	100	1.000	-0.02	2.110	**2.737**
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	62	5310	17.38	19.00	1.452	100	1.000	0.06	1.340	1.946
	WLAN5.3GHz	802.11a 6Mbps	Left Side	0mm	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	-0.17	0.102	0.129
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.1	0.010	0.013
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.1	0.130	0.164
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	DBS	58	5290	16.45	18.00	1.429	100	1.000	-0.09	1.400	2.001
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_2Tx	58	5290	14.93	16.00	1.279	100	1.000	-0.06	0.810	1.036
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	6mm	ANT5+6	Simultaneous_2Tx	58	5290	14.93	16.00	1.279	100	1.000	0.15	0.212	0.271
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_3Tx	58	5290	12.44	14.00	1.432	100	1.000	-0.11	0.518	0.742
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	ANT5+6	Full	60	5300	19.01	20.00	1.257	99.27	1.007	0.05	0.673	0.852
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.07	0.036	0.043
87	WLAN5.5GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	134	5670	18.43	19.50	1.279	100	1.000	0.14	2.260	**2.891**
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	110	5550	18.13	19.50	1.371	100	1.000	-0.18	1.760	2.413
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	0mm	ANT5+6	DBS	134	5670	17.19	18.00	1.205	100	1.000	0.06	1.800	2.169
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	0.04	0.154	0.183
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	-0.16	0.016	0.019
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	-0.04	0.261	0.310
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_2Tx	106	5530	12.99	14.00	1.262	100	1.000	0.17	0.822	1.037
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	6mm	ANT5+6	Simultaneous_2Tx	106	5530	12.99	14.00	1.262	100	1.000	0.18	0.289	0.365
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_3Tx	106	5530	11.72	13.00	1.343	100	1.000	-0.16	0.581	0.780
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	ANT5+6	Full	132	5660	19.28	20.00	1.180	99.27	1.007	-0.04	1.130	1.342
88	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Standalone	155	5775	18.96	20.00	1.271	100	1.000	0.1	2.290	**2.910**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	DBS	155	5775	18.20	19.50	1.349	100	1.000	0.02	1.550	2.091
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_2Tx	155	5775	14.85	16.00	1.303	100	1.000	0.01	0.760	0.990
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	6mm	ANT5+6	Simultaneous_2Tx	155	5775	14.85	16.00	1.303	100	1.000	0.16	0.256	0.334
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Simultaneous_3Tx	155	5775	13.02	14.00	1.253	100	1.000	0.08	0.620	0.777
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	ANT5+6	Full	155	5775	19.54	20.50	1.247	100	1.000	-0.08	1.040	1.297

16.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Headset	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA V					RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI4	4182	836.4	22.83	24.00	1.309		1.000	0.04	1.020	1	1.335
2nd	WCDMA V					RMC 12.2Kbps	Back	5mm	-	Ant 1	DSI4	4182	836.4	22.83	24.00	1.309		1.000	0.09	0.994	1.026	1.301
1st	WCDMA II					RMC 12.2Kbps	Bottom Side	5mm	-	Ant 1	DSI 7	9262	1852.4	16.66	17.50	1.213		1.000	-0.04	1.010	1	1.226
2nd	WCDMA II					RMC 12.2Kbps	Bottom Side	5mm	-	Ant 1	DSI 7	9262	1852.4	16.66	17.50	1.213		1.000	0.04	0.998	1.012	1.211
1st	LTE Band 66	20M	QPSK	50	24	-	Bottom Side	5mm	-	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225		1.000	0.02	1.120	1	1.372
2nd	LTE Band 66	20M	QPSK	50	24	-	Bottom Side	5mm	-	Ant 1	DSI 7	132322	1745	15.62	16.50	1.225		1.000	0.09	1.080	1.037	1.323
1st	LTE Band 41	20M	QPSK	50	24	-	Bottom Side	5mm	-	Ant 1	DSI 7	39750	2506	21.23	22.00	1.194	62.9	1.006	-0.13	1.080	1	1.297
2nd	LTE Band 41	20M	QPSK	50	24	-	Bottom Side	5mm	-	Ant 1	DSI 7	39750	2506	21.23	22.00	1.194	62.9	1.006	0.05	1.060	1.019	1.273
1st	LTE Band 42	20M	QPSK	50	24	-	Back	5mm	-	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	-0.1	0.818	1	0.940
2nd	LTE Band 42	20M	QPSK	50	24	-	Back	5mm	-	Ant 4	DSI 7	42190	3460	10.92	11.50	1.143	62.9	1.006	0.04	0.808	1.012	0.929
1st	WLAN5.5GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	106	5530	11.73	13.00	1.340	100	1.000	0.05	0.883	1	1.183
2nd	WLAN5.5GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	106	5530	11.73	13.00	1.340	100	1.000	0.06	0.878	1.006	1.176
1st	WLAN5.8GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	155	5775	13.02	14.00	1.253	100	1.000	0.09	0.872	1	1.093
2nd	WLAN5.8GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	5mm	-	ANT5+6	Standalone	155	5775	13.02	14.00	1.253	100	1.000	0.09	0.867	1.005	1.086

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA IV					RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	1513	1752.6	20.92	22.00	1.282		1.000	0.09	2.220	1	2.847
2nd	WCDMA IV					RMC 12.2Kbps	Back	0mm	Ant 1	DSI 6	1513	1752.6	20.92	22.00	1.282		1.000	0.02	2.170	1.023	2.783
1st	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 1	DSI 6	19100	1900	21.77	22.50	1.183		1.000	0.13	2.380	1	2.816
2nd	LTE Band 2	20M	QPSK	1	49	-	Back	0mm	Ant 1	DSI 6	19100	1900	21.77	22.50	1.183		1.000	0.05	2.330	1.021	2.756
1st	LTE Band 7	20M	QPSK	50	24	-	Bottom Side	0mm	Ant 1	DSI6	20850	2510	21.86	23.00	1.300		1.000	-0.19	2.280	1	2.964
2nd	LTE Band 7	20M	QPSK	50	24	-	Bottom Side	0mm	Ant 1	DSI6	20850	2510	21.86	23.00	1.300		1.000	0.04	2.160	1.056	2.808
1st	LTE Band 42	20M	QPSK	1	49	-	Back	8mm	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	-0.1	2.370	1	2.675
2nd	LTE Band 42	20M	QPSK	1	49	-	Back	8mm	Ant 4	DSI4	42190	3460	23.50	24.00	1.122	62.9	1.006	-0.1	2.290	1.035	2.585
1st	WLAN5.3GHz	-	-	-	-	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	54	5270	17.87	19.00	1.297	100	1.000	-0.02	2.110	1	2.737
2nd	WLAN5.3GHz	-	-	-	-	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	54	5270	17.87	19.00	1.297	100	1.000	0.06	2.060	1.024	2.672
1st	WLAN5.5GHz	-	-	-	-	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	134	5670	18.43	19.50	1.279	100	1.000	0.14	2.260	1	2.891
2nd	WLAN5.5GHz	-	-	-	-	802.11n-HT40 MCS0	Back	0mm	ANT5+6	Standalone	134	5670	18.43	19.50	1.279	100	1.000	0.08	2.200	1.027	2.815
1st	WLAN5.8GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Standalone	155	5775	18.96	20.00	1.271	100	1.000	0.1	2.290	1	2.910
2nd	WLAN5.8GHz	-	-	-	-	802.11ac-VHT80 MCS0	Back	0mm	ANT5+6	Standalone	155	5775	18.96	20.00	1.271	100	1.000	0.05	2.230	1.027	2.833

General Note:

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

17. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WLAN 5GHz + BT ANT3	Yes	Yes	Yes	Yes
2.	WLAN 2.4GHz + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WWAN + WLAN 5GHz + BT ANT3	Yes	Yes	Yes	Yes
4.	WWAN + WLAN 2.4GHz + WLAN 5GHz	Yes	Yes	Yes	Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. WWAN above includes 5G NR bands.
3. EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. 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. In this Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
5. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
6. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
7. The 2.4GHz/5GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.
8. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
9. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
10. According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
11. According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz can transmit simultaneously.
12. The maximum SAR summation is calculated based on the same configuration and test position.
13. 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. 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 ≤ 0.04 for 1g SAR and SPLSR≤ 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 17.5.

17.1 5G NR + LTE + WLAN + BT Sim-Tx analysis

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

Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT 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 ≤ 1.0; B is normalized reported time-averaged exposure ratio from 5G NR (i.e. SAR exposure for 5G FR1), and B ≤1.0.

Let C = normalized reported SAR exposure ratio from WLAN+BT, then for compliance,

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

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

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

if A + C ≤ 1.0 and B + C ≤ 1.0 can be proven, then “x% * A + (100-x)% * B + C ≤ 1.0”. Therefore simultaneous transmission analysis for 5G NR + LTE + WLAN + BT can be performed in two steps

Step 1: Prove total exposure ratio (TER) of LTE + WLAN + BT < 1

Step 2: Prove total exposure ratio (TER) of 5G NR + WLAN + BT < 1

Above analysis is also apply to LTE inter band uplink, LTE + LTE + WLAN + BT simultaneous transmission, So inter band CA uplink no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of LTE + WLAN + BT < 1.

17.2 Head Exposure Conditions

Exposure Position	3	6	3+6
	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Right Cheek	1.174	0.097	1.27
Right Tilted	0.588	0.141	0.73
Left Cheek	0.293	0.126	0.42
Left Tilted	0.332	0.167	0.50

WWAN Band		Exposure Position	1	6	9	1+9	6+9
			WWAN	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.408	0.097	0.236	0.64	0.33
		Right Tilted	0.206	0.141	0.166	0.37	0.31
		Left Cheek	0.342	0.126	0.102	0.44	0.23
		Left Tilted	0.164	0.167	0.126	0.29	0.29
	GSM1900	Right Cheek	0.062	0.097	0.236	0.30	0.33
		Right Tilted	0.074	0.141	0.166	0.24	0.31
		Left Cheek	0.114	0.126	0.102	0.22	0.23
		Left Tilted	0.039	0.167	0.126	0.17	0.29
WCDMA	WCDMA V	Right Cheek	0.366	0.097	0.236	0.60	0.33
		Right Tilted	0.172	0.141	0.166	0.34	0.31
		Left Cheek	0.285	0.126	0.102	0.39	0.23
		Left Tilted	0.135	0.167	0.126	0.26	0.29
	WCDMA IV	Right Cheek	0.106	0.097	0.236	0.34	0.33
		Right Tilted	0.060	0.141	0.166	0.23	0.31
		Left Cheek	0.164	0.126	0.102	0.27	0.23
		Left Tilted	0.056	0.167	0.126	0.18	0.29
	WCDMA II	Right Cheek	0.043	0.097	0.236	0.28	0.33
		Right Tilted	0.040	0.141	0.166	0.21	0.31
		Left Cheek	0.066	0.126	0.102	0.17	0.23
		Left Tilted	0.023	0.167	0.126	0.15	0.29
LTE	LTE Band 12	Right Cheek	0.252	0.097	0.236	0.49	0.33
		Right Tilted	0.136	0.141	0.166	0.30	0.31
		Left Cheek	0.195	0.126	0.102	0.30	0.23
		Left Tilted	0.095	0.167	0.126	0.22	0.29
	LTE Band 13	Right Cheek	0.339	0.097	0.236	0.58	0.33
		Right Tilted	0.161	0.141	0.166	0.33	0.31
		Left Cheek	0.277	0.126	0.102	0.38	0.23
		Left Tilted	0.140	0.167	0.126	0.27	0.29
	LTE Band 26	Right Cheek	0.437	0.097	0.236	0.67	0.33
		Right Tilted	0.205	0.141	0.166	0.37	0.31
		Left Cheek	0.346	0.126	0.102	0.45	0.23
		Left Tilted	0.205	0.167	0.126	0.33	0.29
	LTE Band 66	Right Cheek	0.140	0.097	0.236	0.38	0.33
		Right Tilted	0.117	0.141	0.166	0.28	0.31
		Left Cheek	0.236	0.126	0.102	0.34	0.23
		Left Tilted	0.106	0.167	0.126	0.23	0.29
	LTE Band 2	Right Cheek	0.151	0.097	0.236	0.39	0.33
		Right Tilted	0.216	0.141	0.166	0.38	0.31
		Left Cheek	0.309	0.126	0.102	0.41	0.23
		Left Tilted	0.109	0.167	0.126	0.24	0.29
	LTE Band 7	Right Cheek	0.432	0.097	0.236	0.67	0.33

		Right Tilted	0.162	0.141	0.166	0.33	0.31
		Left Cheek	0.214	0.126	0.102	0.32	0.23
		Left Tilted	0.169	0.167	0.126	0.30	0.29
	LTE Band 41	Right Cheek	0.154	0.097	0.236	0.39	0.33
		Right Tilted	0.064	0.141	0.166	0.23	0.31
		Left Cheek	0.079	0.126	0.102	0.18	0.23
		Left Tilted	0.067	0.167	0.126	0.19	0.29
	LTE Band 42	Right Cheek	0.116	0.097	0.236	0.35	0.33
		Right Tilted	0.078	0.141	0.166	0.24	0.31
		Left Cheek	0.111	0.126	0.102	0.21	0.23
		Left Tilted	0.035	0.167	0.126	0.16	0.29
NR	N5	Right Cheek	0.451	0.097	0.236	0.69	0.33
		Right Tilted	0.438	0.141	0.166	0.60	0.31
		Left Cheek	0.777	0.126	0.102	0.88	0.23
		Left Tilted	0.695	0.167	0.126	0.82	0.29
	N66	Right Cheek	0.281	0.097	0.236	0.52	0.33
		Right Tilted	0.261	0.141	0.166	0.43	0.31
		Left Cheek	0.596	0.126	0.102	0.70	0.23
		Left Tilted	0.926	0.167	0.126	1.05	0.29
	N7	Right Cheek	0.229	0.097	0.236	0.47	0.33
		Right Tilted	0.279	0.141	0.166	0.45	0.31
		Left Cheek	0.535	0.126	0.102	0.64	0.23
		Left Tilted	0.812	0.167	0.126	0.94	0.29
	N77	Right Cheek	0.024	0.097	0.236	0.26	0.33
		Right Tilted	0.061	0.141	0.166	0.23	0.31
		Left Cheek		0.126	0.102	0.10	0.23
		Left Tilted	0.012	0.167	0.126	0.14	0.29
	N78	Right Cheek		0.097	0.236	0.24	0.33
		Right Tilted	0.028	0.141	0.166	0.19	0.31
		Left Cheek		0.126	0.102	0.10	0.23
		Left Tilted	0.003	0.167	0.126	0.13	0.29

WWAN Band		Exposure Position	1	3	6	9	1+3	1+6	1+6+9
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.408	0.387	0.097	0.236	0.80	0.51	0.74
		Right Tilted	0.206	0.387	0.141	0.166	0.59	0.35	0.51
		Left Cheek	0.342	0.387	0.126	0.102	0.73	0.47	0.57
		Left Tilted	0.164	0.387	0.167	0.126	0.55	0.33	0.46
	GSM1900	Right Cheek	0.062	0.387	0.097	0.236	0.45	0.16	0.40
		Right Tilted	0.074	0.387	0.141	0.166	0.46	0.22	0.38
		Left Cheek	0.114	0.387	0.126	0.102	0.50	0.24	0.34
		Left Tilted	0.039	0.387	0.167	0.126	0.43	0.21	0.33
WCDMA	WCDMA V	Right Cheek	0.366	0.387	0.097	0.236	0.75	0.46	0.70
		Right Tilted	0.172	0.387	0.141	0.166	0.56	0.31	0.48
		Left Cheek	0.285	0.387	0.126	0.102	0.67	0.41	0.51
		Left Tilted	0.135	0.387	0.167	0.126	0.52	0.30	0.43
	WCDMA IV	Right Cheek	0.106	0.387	0.097	0.236	0.49	0.20	0.44
		Right Tilted	0.060	0.387	0.141	0.166	0.45	0.20	0.37
		Left Cheek	0.164	0.387	0.126	0.102	0.55	0.29	0.39
		Left Tilted	0.056	0.387	0.167	0.126	0.44	0.22	0.35
	WCDMA II	Right Cheek	0.043	0.387	0.097	0.236	0.43	0.14	0.38
		Right Tilted	0.040	0.387	0.141	0.166	0.43	0.18	0.35
		Left Cheek	0.066	0.387	0.126	0.102	0.45	0.19	0.29
		Left Tilted	0.023	0.387	0.167	0.126	0.41	0.19	0.32
LTE	LTE Band 12	Right Cheek	0.252	0.387	0.097	0.236	0.64	0.35	0.59
		Right Tilted	0.136	0.387	0.141	0.166	0.52	0.28	0.44
		Left Cheek	0.195	0.387	0.126	0.102	0.58	0.32	0.42
		Left Tilted	0.095	0.387	0.167	0.126	0.48	0.26	0.39
	LTE Band 13	Right Cheek	0.339	0.387	0.097	0.236	0.73	0.44	0.67
		Right Tilted	0.161	0.387	0.141	0.166	0.55	0.30	0.47
		Left Cheek	0.277	0.387	0.126	0.102	0.66	0.40	0.51
		Left Tilted	0.140	0.387	0.167	0.126	0.53	0.31	0.43
	LTE Band 26	Right Cheek	0.437	0.387	0.097	0.236	0.82	0.53	0.77
		Right Tilted	0.205	0.387	0.141	0.166	0.59	0.35	0.51
		Left Cheek	0.346	0.387	0.126	0.102	0.73	0.47	0.57
		Left Tilted	0.205	0.387	0.167	0.126	0.59	0.37	0.50
	LTE Band 66	Right Cheek	0.140	0.387	0.097	0.236	0.53	0.24	0.47
		Right Tilted	0.117	0.387	0.141	0.166	0.50	0.26	0.42
		Left Cheek	0.236	0.387	0.126	0.102	0.62	0.36	0.46
		Left Tilted	0.106	0.387	0.167	0.126	0.49	0.27	0.40
	LTE Band 2	Right Cheek	0.151	0.387	0.097	0.236	0.54	0.25	0.48
		Right Tilted	0.216	0.387	0.141	0.166	0.60	0.36	0.52
		Left Cheek	0.309	0.387	0.126	0.102	0.70	0.44	0.54
		Left Tilted	0.109	0.387	0.167	0.126	0.50	0.28	0.40
	LTE Band 7	Right Cheek	0.432	0.387	0.097	0.236	0.82	0.53	0.77
		Right Tilted	0.162	0.387	0.141	0.166	0.55	0.30	0.47
		Left Cheek	0.214	0.387	0.126	0.102	0.60	0.34	0.44
		Left Tilted	0.169	0.387	0.167	0.126	0.56	0.34	0.46
	LTE Band 41	Right Cheek	0.154	0.387	0.097	0.236	0.54	0.25	0.49
		Right Tilted	0.064	0.387	0.141	0.166	0.45	0.21	0.37
		Left Cheek	0.079	0.387	0.126	0.102	0.47	0.21	0.31
		Left Tilted	0.067	0.387	0.167	0.126	0.45	0.23	0.36
	LTE Band 42	Right Cheek	0.116	0.387	0.097	0.236	0.50	0.21	0.45
		Right Tilted	0.078	0.387	0.141	0.166	0.47	0.22	0.39
		Left Cheek	0.111	0.387	0.126	0.102	0.50	0.24	0.34

		Left Tilted	0.035	0.387	0.167	0.126	0.42	0.20	0.33
NR	N5	Right Cheek	0.451	0.387	0.097	0.236	0.84	0.55	0.78
		Right Tilted	0.438	0.387	0.141	0.166	0.83	0.58	0.75
		Left Cheek	0.777	0.387	0.126	0.102	1.16	0.90	1.01
		Left Tilted	0.695	0.387	0.167	0.126	1.08	0.86	0.99
	N66	Right Cheek	0.281	0.387	0.097	0.236	0.67	0.38	0.61
		Right Tilted	0.261	0.387	0.141	0.166	0.65	0.40	0.57
		Left Cheek	0.596	0.387	0.126	0.102	0.98	0.72	0.82
		Left Tilted	0.926	0.387	0.167	0.126	1.31	1.09	1.22
	N7	Right Cheek	0.229	0.387	0.097	0.236	0.62	0.33	0.56
		Right Tilted	0.279	0.387	0.141	0.166	0.67	0.42	0.59
		Left Cheek	0.535	0.387	0.126	0.102	0.92	0.66	0.76
		Left Tilted	0.812	0.387	0.167	0.126	1.20	0.98	1.11
	N77	Right Cheek	0.024	0.387	0.097	0.236	0.41	0.12	0.36
		Right Tilted	0.061	0.387	0.141	0.166	0.45	0.20	0.37
		Left Cheek		0.387	0.126	0.102	0.39	0.13	0.23
		Left Tilted	0.012	0.387	0.167	0.126	0.40	0.18	0.31
	N78	Right Cheek		0.387	0.097	0.236	0.39	0.10	0.33
		Right Tilted	0.028	0.387	0.141	0.166	0.42	0.17	0.34
		Left Cheek		0.387	0.126	0.102	0.39	0.13	0.23
		Left Tilted	0.003	0.387	0.167	0.126	0.39	0.17	0.30

WWAN Band		Exposure Position	1	3	6	3+6	1+3+6
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.408	0.254	0.095	0.35	0.76
		Right Tilted	0.206	0.254	0.095	0.35	0.56
		Left Cheek	0.342	0.254	0.095	0.35	0.69
		Left Tilted	0.164	0.254	0.095	0.35	0.51
	GSM1900	Right Cheek	0.062	0.254	0.095	0.35	0.41
		Right Tilted	0.074	0.254	0.095	0.35	0.42
		Left Cheek	0.114	0.254	0.095	0.35	0.46
		Left Tilted	0.039	0.254	0.095	0.35	0.39
WCDMA	WCDMA V	Right Cheek	0.366	0.254	0.095	0.35	0.72
		Right Tilted	0.172	0.254	0.095	0.35	0.52
		Left Cheek	0.285	0.254	0.095	0.35	0.63
		Left Tilted	0.135	0.254	0.095	0.35	0.48
	WCDMA IV	Right Cheek	0.106	0.254	0.095	0.35	0.46
		Right Tilted	0.060	0.254	0.095	0.35	0.41
		Left Cheek	0.164	0.254	0.095	0.35	0.51
		Left Tilted	0.056	0.254	0.095	0.35	0.41
	WCDMA II	Right Cheek	0.043	0.254	0.095	0.35	0.39
		Right Tilted	0.040	0.254	0.095	0.35	0.39
		Left Cheek	0.066	0.254	0.095	0.35	0.42
		Left Tilted	0.023	0.254	0.095	0.35	0.37
LTE	LTE Band 12	Right Cheek	0.252	0.254	0.095	0.35	0.60
		Right Tilted	0.136	0.254	0.095	0.35	0.49
		Left Cheek	0.195	0.254	0.095	0.35	0.54
		Left Tilted	0.095	0.254	0.095	0.35	0.44
	LTE Band 13	Right Cheek	0.339	0.254	0.095	0.35	0.69
		Right Tilted	0.161	0.254	0.095	0.35	0.51
		Left Cheek	0.277	0.254	0.095	0.35	0.63
		Left Tilted	0.140	0.254	0.095	0.35	0.49
	LTE Band 26	Right Cheek	0.437	0.254	0.095	0.35	0.79
		Right Tilted	0.205	0.254	0.095	0.35	0.55
		Left Cheek	0.346	0.254	0.095	0.35	0.70
		Left Tilted	0.205	0.254	0.095	0.35	0.55
	LTE Band 66	Right Cheek	0.140	0.254	0.095	0.35	0.49
		Right Tilted	0.117	0.254	0.095	0.35	0.47
		Left Cheek	0.236	0.254	0.095	0.35	0.59
		Left Tilted	0.106	0.254	0.095	0.35	0.46
	LTE Band 2	Right Cheek	0.151	0.254	0.095	0.35	0.50
		Right Tilted	0.216	0.254	0.095	0.35	0.57
		Left Cheek	0.309	0.254	0.095	0.35	0.66
		Left Tilted	0.109	0.254	0.095	0.35	0.46
	LTE Band 7	Right Cheek	0.432	0.254	0.095	0.35	0.78
		Right Tilted	0.162	0.254	0.095	0.35	0.51
		Left Cheek	0.214	0.254	0.095	0.35	0.56
		Left Tilted	0.169	0.254	0.095	0.35	0.52
	LTE Band 41	Right Cheek	0.154	0.254	0.095	0.35	0.50
		Right Tilted	0.064	0.254	0.095	0.35	0.41
		Left Cheek	0.079	0.254	0.095	0.35	0.43
		Left Tilted	0.067	0.254	0.095	0.35	0.42
	LTE Band 42	Right Cheek	0.116	0.254	0.095	0.35	0.47
		Right Tilted	0.078	0.254	0.095	0.35	0.43
		Left Cheek	0.111	0.254	0.095	0.35	0.46

		Left Tilted	0.035	0.254	0.095	0.35	0.38
NR	N5	Right Cheek	0.451	0.254	0.095	0.35	0.80
		Right Tilted	0.438	0.254	0.095	0.35	0.79
		Left Cheek	0.777	0.254	0.095	0.35	1.13
		Left Tilted	0.695	0.254	0.095	0.35	1.04
	N66	Right Cheek	0.281	0.254	0.095	0.35	0.63
		Right Tilted	0.261	0.254	0.095	0.35	0.61
		Left Cheek	0.596	0.254	0.095	0.35	0.95
		Left Tilted	0.926	0.254	0.095	0.35	1.28
	N7	Right Cheek	0.229	0.254	0.095	0.35	0.58
		Right Tilted	0.279	0.254	0.095	0.35	0.63
		Left Cheek	0.535	0.254	0.095	0.35	0.88
		Left Tilted	0.812	0.254	0.095	0.35	1.16
	N77	Right Cheek	0.024	0.254	0.095	0.35	0.37
		Right Tilted	0.061	0.254	0.095	0.35	0.41
		Left Cheek		0.254	0.095	0.35	0.35
		Left Tilted	0.012	0.254	0.095	0.35	0.36
	N78	Right Cheek		0.254	0.095	0.35	0.35
		Right Tilted	0.028	0.254	0.095	0.35	0.38
		Left Cheek		0.254	0.095	0.35	0.35
		Left Tilted	0.003	0.254	0.095	0.35	0.35

17.3 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1	6	9	1+9	6+9
			WWAN	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Front	1.003		0.086	1.09	0.09
		Back	1.271	0.367	0.101	1.37	0.47
		Left side	0.224	0.027	0.034	0.26	0.06
		Right side	0.332		0.011	0.34	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.513			0.51	0.00
	GSM1900	Front	0.712		0.086	0.80	0.09
		Back	0.966	0.367	0.101	1.07	0.47
		Left side	0.103	0.027	0.034	0.14	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	1.372			1.37	0.00
WCDMA	WCDMA V	Front	1.003		0.086	1.09	0.09
		Back	1.335	0.367	0.101	1.44	0.47
		Left side	0.248	0.027	0.034	0.28	0.06
		Right side	0.387		0.011	0.40	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.508			0.51	0.00
	WCDMA IV	Front	0.462		0.086	0.55	0.09
		Back	0.547	0.367	0.101	0.65	0.47
		Left side	0.058	0.027	0.034	0.09	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.924			0.92	0.00
	WCDMA II	Front	0.652		0.086	0.74	0.09
		Back	0.898	0.367	0.101	1.00	0.47
		Left side	0.100	0.027	0.034	0.13	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	1.226			1.23	0.00
LTE	LTE Band 12	Front	0.597		0.086	0.68	0.09
		Back	0.770	0.367	0.101	0.87	0.47
		Left side	0.327	0.027	0.034	0.36	0.06
		Right side	0.330		0.011	0.34	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.467			0.47	0.00
	LTE Band 13	Front	0.820		0.086	0.91	0.09
		Back	1.037	0.367	0.101	1.14	0.47
		Left side	0.273	0.027	0.034	0.31	0.06
		Right side	0.364		0.011	0.38	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.460			0.46	0.00
	LTE Band 26	Front	1.050		0.086	1.14	0.09
		Back	1.285	0.367	0.101	1.39	0.47
		Left side	0.247	0.027	0.034	0.28	0.06
		Right side	0.343		0.011	0.35	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	0.580			0.58	0.00
	LTE Band 66	Front	0.649		0.086	0.74	0.09
		Back	0.989	0.367	0.101	1.09	0.47
		Left side	0.092	0.027	0.034	0.13	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16

		Bottom side	1.372			1.37	0.00
	LTE Band 2	Front	0.590		0.086	0.68	0.09
		Back	0.872	0.367	0.101	0.97	0.47
		Left side	0.102	0.027	0.034	0.14	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	1.232			1.23	0.00
	LTE Band 7	Front	0.712		0.086	0.80	0.09
		Back	1.106	0.367	0.101	1.21	0.47
		Left side	0.490	0.027	0.034	0.52	0.06
		Right side	0.178		0.011	0.19	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	1.389			1.39	0.00
	LTE Band 41	Front	0.762		0.086	0.85	0.09
		Back	1.100	0.367	0.101	1.20	0.47
		Left side	0.465	0.027	0.034	0.50	0.06
		Right side	0.169		0.011	0.18	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side	1.297			1.30	0.00
	LTE Band 42	Front			0.086	0.09	0.09
		Back	0.940	0.367	0.101	1.04	0.47
		Left side	0.130	0.027	0.034	0.16	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side				0.00	0.00
NR	N5	Front	0.641		0.086	0.73	0.09
		Back	0.667	0.367	0.101	0.77	0.47
		Left side	0.209	0.027	0.034	0.24	0.06
		Right side	0.385		0.011	0.40	0.01
		Top side	0.930	0.050	0.114	1.04	0.16
		Bottom side				0.00	0.00
	N66	Front	0.431		0.086	0.52	0.09
		Back	0.443	0.367	0.101	0.54	0.47
		Left side		0.027	0.034	0.03	0.06
		Right side	0.149		0.011	0.16	0.01
		Top side	0.867	0.050	0.114	0.98	0.16
		Bottom side				0.00	0.00
	N7	Front	0.365		0.086	0.45	0.09
		Back	0.461	0.367	0.101	0.56	0.47
		Left side		0.027	0.034	0.03	0.06
		Right side	0.096		0.011	0.11	0.01
		Top side	0.878	0.050	0.114	0.99	0.16
		Bottom side				0.00	0.00
	N77	Front	0.055		0.086	0.14	0.09
		Back	0.905	0.367	0.101	1.01	0.47
		Left side	0.101	0.027	0.034	0.14	0.06
		Right side			0.011	0.01	0.01
		Top side		0.050	0.114	0.11	0.16
		Bottom side				0.00	0.00
	N78	Front			0.086	0.09	0.09
		Back	0.938	0.367	0.101	1.04	0.47
		Left side	0.094	0.027	0.034	0.13	0.06
		Right side			0.011	0.01	0.01
		Top side	0.020	0.050	0.114	0.13	0.16
		Bottom side				0.00	0.00

WWAN Band		Exposure Position	1	3	6	9	1+3	SPLSR	Case No	1+6	1+6+9	SPLSR	Case No
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed			Summed	Summed		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Front	1.003	0.160		0.086	1.16			1.00	1.09		
		Back	1.271	0.377	0.367	0.101	**1.65**	**0.02**	**#01**	**1.64***	**1.74**	**0.02**	**#02**
		Left side	0.224	0.139	0.027	0.034	0.36			0.25	0.29		
		Right side	0.332			0.011	0.33			0.33	0.34		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.513				0.51			0.51	0.51		
	GSM1900	Front	0.712	0.160		0.086	0.87			0.71	0.80		
		Back	0.966	0.377	0.367	0.101	1.34			1.33	1.43		
		Left side	0.103	0.139	0.027	0.034	0.24			0.13	0.16		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	1.372				1.37			1.37	1.37		
WCDMA	WCDMA V	Front	1.003	0.160		0.086	1.16			1.00	1.09		
		Back	1.335	0.377	0.367	0.101	**1.71**	**0.03**	**#03**	**1.70***	**1.80**	**0.02**	**#04**
		Left side	0.248	0.139	0.027	0.034	0.39			0.28	0.31		
		Right side	0.387			0.011	0.39			0.39	0.40		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.508				0.51			0.51	0.51		
	WCDMA IV	Front	0.462	0.160		0.086	0.62			0.46	0.55		
		Back	0.547	0.377	0.367	0.101	0.92			0.91	1.02		
		Left side	0.058	0.139	0.027	0.034	0.20			0.09	0.12		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.924				0.92			0.92	0.92		
	WCDMA II	Front	0.652	0.160		0.086	0.81			0.65	0.74		
		Back	0.898	0.377	0.367	0.101	1.28			1.27	1.37		
		Left side	0.100	0.139	0.027	0.034	0.24			0.13	0.16		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	1.226				1.23			1.23	1.23		
LTE	LTE Band 12	Front	0.597	0.160		0.086	0.76			0.60	0.68		
		Back	0.770	0.377	0.367	0.101	1.15			1.14	1.24		
		Left side	0.327	0.139	0.027	0.034	0.47			0.35	0.39		
		Right side	0.330			0.011	0.33			0.33	0.34		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.467				0.47			0.47	0.47		
	LTE Band 13	Front	0.820	0.160		0.086	0.98			0.82	0.91		
		Back	1.037	0.377	0.367	0.101	1.41			1.40	1.51		
		Left side	0.273	0.139	0.027	0.034	0.41			0.30	0.33		
		Right side	0.364			0.011	0.36			0.36	0.38		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.460				0.46			0.46	0.46		
	LTE Band 26	Front	1.050	0.160		0.086	1.21			1.05	1.14		
		Back	1.285	0.377	0.367	0.101	**1.66**	**0.02**	**#05**	**1.65***	**1.75**	**0.02**	**#06**
		Left side	0.247	0.139	0.027	0.034	0.39			0.27	0.31		
		Right side	0.343			0.011	0.34			0.34	0.35		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	0.580				0.58			0.58	0.58		
	LTE Band 66	Front	0.649	0.160		0.086	0.81			0.65	0.74		
		Back	0.989	0.377	0.367	0.101	1.37			1.36	1.46		
		Left side	0.092	0.139	0.027	0.034	0.23			0.12	0.15		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		

		Bottom side	1.372				1.37			1.37	1.37		
	LTE Band 2	Front	0.590	0.160		0.086	0.75			0.59	0.68		
		Back	0.872	0.377	0.367	0.101	1.25			1.24	1.34		
		Left side	0.102	0.139	0.027	0.034	0.24			0.13	0.16		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	1.232				1.23			1.23	1.23		
	LTE Band 7	Front	0.712	0.160		0.086	0.87			0.71	0.80		
		Back	1.106	0.377	0.367	0.101	1.48			1.47	1.57		
		Left side	0.490	0.139	0.027	0.034	0.63			0.52	0.55		
		Right side	0.178			0.011	0.18			0.18	0.19		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	1.389				1.39			1.39	1.39		
	LTE Band 41	Front	0.762	0.160		0.086	0.92			0.76	0.85		
		Back	1.100	0.377	0.367	0.101	1.48			1.47	1.57		
		Left side	0.465	0.139	0.027	0.034	0.60			0.49	0.53		
		Right side	0.169			0.011	0.17			0.17	0.18		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side	1.297				1.30			1.30	1.30		
	LTE Band 42	Front		0.160		0.086	0.16			0.00	0.09		
		Back	0.940	0.377	0.367	0.101	1.32			1.31	1.41		
		Left side	0.130	0.139	0.027	0.034	0.27			0.16	0.19		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side					0.00			0.00	0.00		
NR	N5	Front	0.641	0.160		0.086	0.80			0.64	0.73		
		Back	0.667	0.377	0.367	0.101	1.04			1.03	1.14		
		Left side	0.209	0.139	0.027	0.034	0.35			0.24	0.27		
		Right side	0.385			0.011	0.39			0.39	0.40		
		Top side	0.930	0.214	0.050	0.114	1.14			0.98	1.09		
		Bottom side					0.00			0.00	0.00		
	N66	Front	0.431	0.160		0.086	0.59			0.43	0.52		
		Back	0.443	0.377	0.367	0.101	0.82			0.81	0.91		
		Left side		0.139	0.027	0.034	0.14			0.03	0.06		
		Right side	0.149			0.011	0.15			0.15	0.16		
		Top side	0.867	0.214	0.050	0.114	1.08			0.92	1.03		
		Bottom side					0.00			0.00	0.00		
	N7	Front	0.365	0.160		0.086	0.53			0.37	0.45		
		Back	0.461	0.377	0.367	0.101	0.84			0.83	0.93		
		Left side		0.139	0.027	0.034	0.14			0.03	0.06		
		Right side	0.096			0.011	0.10			0.10	0.11		
		Top side	0.878	0.214	0.050	0.114	1.09			0.93	1.04		
		Bottom side					0.00			0.00	0.00		
	N77	Front	0.055	0.160		0.086	0.22			0.06	0.14		
		Back	0.905	0.377	0.367	0.101	1.28			1.27	1.37		
		Left side	0.101	0.139	0.027	0.034	0.24			0.13	0.16		
		Right side				0.011	0.00			0.00	0.01		
		Top side		0.214	0.050	0.114	0.21			0.05	0.16		
		Bottom side					0.00			0.00	0.00		
	N78	Front		0.160		0.086	0.16			0.00	0.09		
		Back	0.938	0.377	0.367	0.101	1.32			1.31	1.41		
		Left side	0.094	0.139	0.027	0.034	0.23			0.12	0.16		
		Right side				0.011	0.00			0.00	0.01		
		Top side	0.020	0.214	0.050	0.114	0.23			0.07	0.18		
		Bottom side					0.00			0.00	0.00		

Note：* means summed SAR value higher than 1.6W/kg was covered by 3 transmitters.

WWAN Band		Exposure Position	1	3	6	3+6	1+3+6	SPLSR	Case No
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Front	1.003	0.039	0.277	0.32	1.32		
		Back	1.271	0.089	0.277	0.37	**1.64**	**0.01**	**#07**
		Left side	0.224	0.036	0.277	0.31	0.54		
		Right side	0.332		0.277	0.28	0.61		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.513			0.00	0.51		
	GSM1900	Front	0.712	0.039	0.277	0.32	1.03		
		Back	0.966	0.089	0.277	0.37	1.33		
		Left side	0.103	0.036	0.277	0.31	0.42		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.372			0.00	1.37		
WCDMA	WCDMA V	Front	1.003	0.039	0.277	0.32	1.32		
		Back	1.335	0.089	0.277	0.37	**1.70**	**0.02**	**#08**
		Left side	0.248	0.036	0.277	0.31	0.56		
		Right side	0.387		0.277	0.28	0.66		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.508			0.00	0.51		
	WCDMA IV	Front	0.462	0.039	0.277	0.32	0.78		
		Back	0.547	0.089	0.277	0.37	0.91		
		Left side	0.058	0.036	0.277	0.31	0.37		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.924			0.00	0.92		
	WCDMA II	Front	0.652	0.039	0.277	0.32	0.97		
		Back	0.898	0.089	0.277	0.37	1.26		
		Left side	0.100	0.036	0.277	0.31	0.41		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.226			0.00	1.23		
LTE	LTE Band 12	Front	0.597	0.039	0.277	0.32	0.91		
		Back	0.770	0.089	0.277	0.37	1.14		
		Left side	0.327	0.036	0.277	0.31	0.64		
		Right side	0.330		0.277	0.28	0.61		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.467			0.00	0.47		
	LTE Band 13	Front	0.820	0.039	0.277	0.32	1.14		
		Back	1.037	0.089	0.277	0.37	1.40		
		Left side	0.273	0.036	0.277	0.31	0.59		
		Right side	0.364		0.277	0.28	0.64		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.460			0.00	0.46		
	LTE Band 26	Front	1.050	0.039	0.277	0.32	1.37		
		Back	1.285	0.089	0.277	0.37	**1.65**	**0.02**	**#09**
		Left side	0.247	0.036	0.277	0.31	0.56		
		Right side	0.343		0.277	0.28	0.62		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	0.580			0.00	0.58		
	LTE Band 66	Front	0.649	0.039	0.277	0.32	0.97		
		Back	0.989	0.089	0.277	0.37	1.36		
		Left side	0.092	0.036	0.277	0.31	0.41		
		Right side			0.277	0.28	0.28		

		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.372			0.00	1.37		
	LTE Band 2	Front	0.590	0.039	0.277	0.32	0.91		
		Back	0.872	0.089	0.277	0.37	1.24		
		Left side	0.102	0.036	0.277	0.31	0.42		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.232			0.00	1.23		
	LTE Band 7	Front	0.712	0.039	0.277	0.32	1.03		
		Back	1.106	0.089	0.277	0.37	1.47		
		Left side	0.490	0.036	0.277	0.31	0.80		
		Right side	0.178		0.277	0.28	0.46		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.389			0.00	1.39		
	LTE Band 41	Front	0.762	0.039	0.277	0.32	1.08		
		Back	1.100	0.089	0.277	0.37	1.47		
		Left side	0.465	0.036	0.277	0.31	0.78		
		Right side	0.169		0.277	0.28	0.45		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side	1.297			0.00	1.30		
	LTE Band 42	Front		0.039	0.277	0.32	0.32		
		Back	0.940	0.089	0.277	0.37	1.31		
		Left side	0.130	0.036	0.277	0.31	0.44		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side				0.00	0.00		
NR	N5	Front	0.641	0.039	0.277	0.32	0.96		
		Back	0.667	0.089	0.277	0.37	1.03		
		Left side	0.209	0.036	0.277	0.31	0.52		
		Right side	0.385		0.277	0.28	0.66		
		Top side	0.930	0.056	0.277	0.33	1.26		
		Bottom side				0.00	0.00		
	N66	Front	0.431	0.039	0.277	0.32	0.75		
		Back	0.443	0.089	0.277	0.37	0.81		
		Left side		0.036	0.277	0.31	0.31		
		Right side	0.149		0.277	0.28	0.43		
		Top side	0.867	0.056	0.277	0.33	1.20		
		Bottom side				0.00	0.00		
	N7	Front	0.365	0.039	0.277	0.32	0.68		
		Back	0.461	0.089	0.277	0.37	0.83		
		Left side		0.036	0.277	0.31	0.31		
		Right side	0.096		0.277	0.28	0.37		
		Top side	0.878	0.056	0.277	0.33	1.21		
		Bottom side				0.00	0.00		
	N77	Front	0.055	0.039	0.277	0.32	0.37		
		Back	0.905	0.089	0.277	0.37	1.27		
		Left side	0.101	0.036	0.277	0.31	0.41		
		Right side			0.277	0.28	0.28		
		Top side		0.056	0.277	0.33	0.33		
		Bottom side				0.00	0.00		
	N78	Front		0.039	0.277	0.32	0.32		
		Back	0.938	0.089	0.277	0.37	1.30		
		Left side	0.094	0.036	0.277	0.31	0.41		
		Right side			0.277	0.28	0.28		
		Top side	0.020	0.056	0.277	0.33	0.35		
		Bottom side				0.00	0.00		

17.4 Body-Worn Accessory Exposure Conditions

Exposure Position	3	6	3+6
	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
Front	0.791	0.717	1.51
Back	0.791	0.717	1.51

WWAN Band		Exposure Position	1	6	9	1+9	6+9
			WWAN	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Front	1.003	0.083	0.086	1.09	0.17
		Back	1.271	1.183	0.101	1.37	1.28
		Front with Headset				0.00	0.00
		Back with Headset	0.672			0.67	0.00
	GSM1900	Front	0.712	0.083	0.086	0.80	0.17
		Back	0.966	1.183	0.101	1.07	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
WCDMA	WCDMA V	Front	1.003	0.083	0.086	1.09	0.17
		Back	1.335	1.183	0.101	1.44	1.28
		Front with Headset				0.00	0.00
		Back with Headset	0.495			0.50	0.00
	WCDMA IV	Front	0.462	0.083	0.086	0.55	0.17
		Back	0.547	1.183	0.101	0.65	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	WCDMA II	Front	0.652	0.083	0.086	0.74	0.17
		Back	0.898	1.183	0.101	1.00	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
LTE	LTE Band 12	Front	0.597	0.083	0.086	0.68	0.17
		Back	0.770	1.183	0.101	0.87	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 13	Front	0.820	0.083	0.086	0.91	0.17
		Back	1.037	1.183	0.101	1.14	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 26	Front	1.050	0.083	0.086	1.14	0.17
		Back	1.285	1.183	0.101	1.39	1.28
		Front with Headset				0.00	0.00
		Back with Headset	0.380			0.38	0.00
	LTE Band 66	Front	0.649	0.083	0.086	0.74	0.17
		Back	0.989	1.183	0.101	1.09	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 2	Front	0.590	0.083	0.086	0.68	0.17
		Back	0.872	1.183	0.101	0.97	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 7	Front	0.712	0.083	0.086	0.80	0.17

		Back	1.106	1.183	0.101	1.21	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 41	Front	0.762	0.083	0.086	0.85	0.17
		Back	1.100	1.183	0.101	1.20	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	LTE Band 42	Front		0.083	0.086	0.09	0.17
		Back	0.940	1.183	0.101	1.04	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
NR	N5	Front	0.641	0.083	0.086	0.73	0.17
		Back	0.667	1.183	0.101	0.77	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	N66	Front	0.431	0.083	0.086	0.52	0.17
		Back	0.443	1.183	0.101	0.54	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	N7	Front	0.365	0.083	0.086	0.45	0.17
		Back	0.461	1.183	0.101	0.56	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	N77	Front	0.055	0.083	0.086	0.14	0.17
		Back	0.905	1.183	0.101	1.01	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00
	N78	Front		0.083	0.086	0.09	0.17
		Back	0.938	1.183	0.101	1.04	1.28
		Front with Headset				0.00	0.00
		Back with Headset				0.00	0.00

WWAN Band		Exposure Position	1	3	6	9	1+3	SPLSR	Case No	1+6	1+6+9	SPLSR	Case No
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Bluetooth Ant 3	Summed			Summed	Summed		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Front	1.003	0.160	0.083	0.086	1.16			1.09	1.17		
		Back	1.271	0.377	0.360	0.101	**1.65**	**0.02**	**#01**	**1.63***	**1.73**	**0.02**	**#22**
		Front with Headset					0.00			0.00	0.00		
		Back with Headset	0.672				0.67			0.67	0.67		
	GSM1900	Front	0.712	0.160	0.083	0.086	0.87			0.80	0.88		
		Back	0.966	0.377	0.360	0.101	1.34			1.33	1.43		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
WCDMA	WCDMA V	Front	1.003	0.160	0.083	0.086	1.16			1.09	1.17		
		Back	1.335	0.377	0.360	0.101	**1.71**	**0.03**	**#03**	**1.70***	**1.80**	**0.02**	**#23**
		Front with Headset					0.00			0.00	0.00		
		Back with Headset	0.495				0.50			0.50	0.50		
	WCDMA IV	Front	0.462	0.160	0.083	0.086	0.62			0.55	0.63		
		Back	0.547	0.377	0.360	0.101	0.92			0.91	1.01		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	WCDMA II	Front	0.652	0.160	0.083	0.086	0.81			0.74	0.82		
		Back	0.898	0.377	0.360	0.101	1.28			1.26	1.36		

		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
LTE	LTE Band 12	Front	0.597	0.160	0.083	0.086	0.76			0.68	0.77		
		Back	0.770	0.377	0.360	0.101	1.15			1.13	1.23		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 13	Front	0.820	0.160	0.083	0.086	0.98			0.90	0.99		
		Back	1.037	0.377	0.360	0.101	1.41			1.40	1.50		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 26	Front	1.050	0.160	0.083	0.086	1.21			1.13	1.22		
		Back	1.285	0.377	0.360	0.101	**1.66**	**0.02**	**#05**	**1.65***	**1.75**	**0.02**	**#24**
		Front with Headset					0.00			0.00	0.00		
		Back with Headset	0.380				0.38			0.38	0.38		
	LTE Band 66	Front	0.649	0.160	0.083	0.086	0.81			0.73	0.82		
		Back	0.989	0.377	0.360	0.101	1.37			1.35	1.45		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 2	Front	0.590	0.160	0.083	0.086	0.75			0.67	0.76		
		Back	0.872	0.377	0.360	0.101	1.25			1.23	1.33		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 7	Front	0.712	0.160	0.083	0.086	0.87			0.80	0.88		
		Back	1.106	0.377	0.360	0.101	1.48			1.47	1.57		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 41	Front	0.762	0.160	0.083	0.086	0.92			0.85	0.93		
		Back	1.100	0.377	0.360	0.101	1.48			1.46	1.56		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	LTE Band 42	Front		0.160	0.083	0.086	0.16			0.08	0.17		
		Back	0.940	0.377	0.360	0.101	1.32			1.30	1.40		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
NR	N5	Front	0.641	0.160	0.083	0.086	0.80			0.72	0.81		
		Back	0.667	0.377	0.360	0.101	1.04			1.03	1.13		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	N66	Front	0.431	0.160	0.083	0.086	0.59			0.51	0.60		
		Back	0.443	0.377	0.360	0.101	0.82			0.80	0.90		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	N7	Front	0.365	0.160	0.083	0.086	0.53			0.45	0.53		
		Back	0.461	0.377	0.360	0.101	0.84			0.82	0.92		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	N77	Front	0.055	0.160	0.083	0.086	0.22			0.14	0.22		
		Back	0.905	0.377	0.360	0.101	1.28			1.27	1.37		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		
	N78	Front		0.160	0.083	0.086	0.16			0.08	0.17		
		Back	0.938	0.377	0.360	0.101	1.32			1.30	1.40		
		Front with Headset					0.00			0.00	0.00		
		Back with Headset					0.00			0.00	0.00		

Note：* means summed SAR value higher than 1.6W/kg was covered by 3 transmitters.

WWAN Band		Exposure Position	1	3	6	3+6	1+3+6	SPLSR	Case No
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM850	Front	1.003	0.039	0.293	0.33	1.34		
		Back	1.271	0.089	0.293	0.38	**1.65**	**0.03**	**#18**
		Front with Headset				0.00	0.00		
		Back with Headset	0.672			0.00	0.67		
	GSM1900	Front	0.712	0.039	0.293	0.33	1.04		
		Back	0.966	0.089	0.293	0.38	1.35		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
WCDMA	WCDMA V	Front	1.003	0.039	0.293	0.33	1.34		
		Back	1.335	0.089	0.293	0.38	**1.72**	**0.03**	**#19**
		Front with Headset				0.00	0.00		
		Back with Headset	0.495			0.00	0.50		
	WCDMA IV	Front	0.462	0.039	0.293	0.33	0.79		
		Back	0.547	0.089	0.293	0.38	0.93		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	WCDMA II	Front	0.652	0.039	0.293	0.33	0.98		
		Back	0.898	0.089	0.293	0.38	1.28		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
LTE	LTE Band 12	Front	0.597	0.039	0.293	0.33	0.93		
		Back	0.770	0.089	0.293	0.38	1.15		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 13	Front	0.820	0.039	0.293	0.33	1.15		
		Back	1.037	0.089	0.293	0.38	1.42		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 26	Front	1.050	0.039	0.293	0.33	1.38		
		Back	1.285	0.089	0.293	0.38	**1.67**	**0.03**	**#20**
		Front with Headset				0.00	0.00		
		Back with Headset	0.380			0.00	0.38		
	LTE Band 66	Front	0.649	0.039	0.293	0.33	0.98		
		Back	0.989	0.089	0.293	0.38	1.37		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 2	Front	0.590	0.039	0.293	0.33	0.92		
		Back	0.872	0.089	0.293	0.38	1.25		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 7	Front	0.712	0.039	0.293	0.33	1.04		
		Back	1.106	0.089	0.293	0.38	1.49		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 41	Front	0.762	0.039	0.293	0.33	1.09		
		Back	1.100	0.089	0.293	0.38	**1.48**		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	LTE Band 42	Front		0.039	0.293	0.33	0.33		
		Back	0.940	0.089	0.293	0.38	1.32		
		Front with Headset				0.00	0.00		

		Back with Headset				0.00	0.00		
NR	N5	Front	0.641	0.039	0.293	0.33	0.97		
		Back	0.667	0.089	0.293	0.38	1.05		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	N66	Front	0.431	0.039	0.293	0.33	0.76		
		Back	0.443	0.089	0.293	0.38	0.83		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	N7	Front	0.365	0.039	0.293	0.33	0.70		
		Back	0.461	0.089	0.293	0.38	0.84		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	N77	Front	0.055	0.039	0.293	0.33	0.39		
		Back	0.905	0.089	0.293	0.38	1.29		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		
	N78	Front		0.039	0.293	0.33	0.33		
		Back	0.938	0.089	0.293	0.38	1.32		
		Front with Headset				0.00	0.00		
		Back with Headset				0.00	0.00		

Sensor off

WWAN Band		Exposure Position	1	3	6	3+6	1+3+6
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Front at 16mm	0.271	0.167		0.17	0.44
		Back at 25mm	0.239	0.155	0.409	0.56	0.80
	GSM1900	Front at 16mm	0.341	0.167		0.17	0.51
		Back at 25mm	0.272	0.155	0.409	0.56	0.84
WCDMA	WCDMA IV	Front at 16mm	0.710	0.167		0.17	0.88
		Back at 25mm	0.483	0.155	0.409	0.56	1.05
	WCDMA II	Front at 16mm	0.699	0.167		0.17	0.87
		Back at 25mm	0.461	0.155	0.409	0.56	1.03
LTE	LTE Band 66	Front at 16mm	0.943	0.167		0.17	1.11
		Back at 25mm	0.542	0.155	0.409	0.56	1.11
	LTE Band 2	Front at 16mm	0.848	0.167		0.17	1.02
		Back at 25mm	0.585	0.155	0.409	0.56	1.15
	LTE Band 7	Front at 16mm	0.863	0.167		0.17	1.03
		Back at 25mm	0.479	0.155	0.409	0.56	1.04
	LTE Band 41	Front at 16mm	0.358	0.167		0.17	0.53
		Back at 25mm	0.158	0.155	0.409	0.56	0.72
	LTE Band 42	Front at 16mm	0.044	0.167		0.17	0.21
		Back at 25mm	0.694	0.155	0.409	0.56	1.26
NR	N66	Front at 16mm	0.520	0.167		0.17	0.69
		Back at 25mm	0.170	0.155	0.409	0.56	0.73
	N7	Front at 16mm	0.434	0.167		0.17	0.60
		Back at 25mm	0.145	0.155	0.409	0.56	0.71
	N77	Front at 16mm		0.167		0.17	0.17
		Back at 25mm	0.238	0.155	0.409	0.56	0.80
	N78	Front at 16mm		0.167		0.17	0.17
		Back at 25mm	0.297	0.155	0.409	0.56	0.86

17.5 Product specific 10g SAR Exposure Conditions

Exposure Position	2	5	2+5
	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
Back	1.754	2.169	3.92

WWAN Band		Exposure Position	1	2	5	1+2	1+5
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
GSM	GSM850	Front	2.484	1.038	1.037	3.52	3.52
		Back	2.525	1.038	1.037	3.56	3.56
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	1.386			1.39	1.39
	GSM1900	Front	2.229	1.038	1.037	3.27	3.27
		Back	2.948	1.038	1.037	3.99	3.99
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.858			2.86	2.86
WCDMA	WCDMA V	Front	1.303	1.038	1.037	2.34	2.34
		Back	1.328	1.038	1.037	2.37	2.37
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side				0.00	0.00
	WCDMA IV	Front	1.892	1.038	1.037	2.93	2.93
		Back	2.847	1.038	1.037	3.89	3.88
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	1.591			1.59	1.59
	WCDMA II	Front	2.198	1.038	1.037	3.24	3.24
		Back	2.924	1.038	1.037	3.96	3.96
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.306			2.31	2.31
LTE	LTE Band 26	Front		1.038	1.037	1.04	1.04
		Back	2.023	1.038	1.037	3.06	3.06
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side				0.00	0.00
	LTE Band 66	Front	2.509	1.038	1.037	3.55	3.55
		Back	2.954	1.038	1.037	3.99	3.99
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.187			2.19	2.19

	LTE Band 2	Front	2.351	1.038	1.037	3.39	3.39
		Back	2.921	1.038	1.037	3.96	3.96
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.101			2.10	2.10
	LTE Band 7	Front	1.799	1.038	1.037	2.84	2.84
		Back	2.717	1.038	1.037	3.76	3.75
		Left side	1.397	1.038	1.037	2.44	2.43
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.964			2.96	2.96
	LTE Band 41	Front	1.318	1.038	1.037	2.36	2.36
		Back	1.749	1.038	1.037	2.79	2.79
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side	2.062			2.06	2.06
	LTE Band 42	Front		1.038	1.037	1.04	1.04
		Back	1.973	1.038	1.037	3.01	3.01
		Left side	2.077	1.038	1.037	3.12	3.11
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side				0.00	0.00
NR	N66	Front	1.804	1.038	1.037	2.84	2.84
		Back	0.973	1.038	1.037	2.01	2.01
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side	2.682	1.038	1.037	3.72	3.72
		Bottom side				0.00	0.00
	N7	Front	1.083	1.038	1.037	2.12	2.12
		Back	0.603	1.038	1.037	1.64	1.64
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side	2.536	1.038	1.037	3.57	3.57
		Bottom side				0.00	0.00
	N77	Front		1.038	1.037	1.04	1.04
		Back	1.479	1.038	1.037	2.52	2.52
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side				0.00	0.00
	N78	Front		1.038	1.037	1.04	1.04
		Back	1.587	1.038	1.037	2.63	2.62
		Left side		1.038	1.037	1.04	1.04
		Right side		1.038	1.037	1.04	1.04
		Top side		1.038	1.037	1.04	1.04
		Bottom side				0.00	0.00

WWAN Band		Exposure Position	1	2	5	2+5	1+2+5
			WWAN	2.4GHz WLAN Ant 3+6	5GHz WLAN Ant 5+6	Summed	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
GSM	GSM850	Front	2.484	0.247	0.780	1.03	3.51
		Back	2.525	0.247	0.780	1.03	3.55
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	1.386			0.00	1.39
	GSM1900	Front	2.229	0.247	0.780	1.03	3.26
		Back	2.948	0.247	0.780	1.03	3.98
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.858			0.00	2.86
WCDMA	WCDMA V	Front	1.303	0.247	0.780	1.03	2.33
		Back	1.328	0.247	0.780	1.03	2.36
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side				0.00	0.00
	WCDMA IV	Front	1.892	0.247	0.780	1.03	2.92
		Back	2.847	0.247	0.780	1.03	3.87
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	1.591			0.00	1.59
	WCDMA II	Front	2.198	0.247	0.780	1.03	3.23
		Back	2.924	0.247	0.780	1.03	3.95
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.306			0.00	2.31
LTE	LTE Band 26	Front		0.247	0.780	1.03	1.03
		Back	2.023	0.247	0.780	1.03	3.05
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side				0.00	0.00
	LTE Band 66	Front	2.509	0.247	0.780	1.03	3.54
		Back	2.954	0.247	0.780	1.03	3.98
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.187			0.00	2.19
	LTE Band 2	Front	2.351	0.247	0.780	1.03	3.38
		Back	2.921	0.247	0.780	1.03	3.95
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.101			0.00	2.10
	LTE Band 7	Front	1.799	0.247	0.780	1.03	2.83
		Back	2.717	0.247	0.780	1.03	3.74
		Left side	1.397	0.247	0.780	1.03	2.42
		Right side		0.247	0.780	1.03	1.03

		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.964			0.00	2.96
	LTE Band 41	Front	1.318	0.247	0.780	1.03	2.35
		Back	1.749	0.247	0.780	1.03	2.78
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side	2.062			0.00	2.06
	LTE Band 42	Front		0.247	0.780	1.03	1.03
		Back	1.973	0.247	0.780	1.03	3.00
		Left side	2.077	0.247	0.780	1.03	3.10
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side				0.00	0.00
NR	N66	Front	1.804	0.247	0.780	1.03	2.83
		Back	0.973	0.247	0.780	1.03	2.00
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side	2.682	0.247	0.780	1.03	3.71
		Bottom side				0.00	0.00
	N7	Front	1.083	0.247	0.780	1.03	2.11
		Back	0.603	0.247	0.780	1.03	1.63
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side	2.536	0.247	0.780	1.03	3.56
		Bottom side				0.00	0.00
	N77	Front		0.247	0.780	1.03	1.03
		Back	1.479	0.247	0.780	1.03	2.51
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side				0.00	0.00
	N78	Front		0.247	0.780	1.03	1.03
		Back	1.587	0.247	0.780	1.03	2.61
		Left side		0.247	0.780	1.03	1.03
		Right side		0.247	0.780	1.03	1.03
		Top side		0.247	0.780	1.03	1.03
		Bottom side				0.00	0.00