FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2149-1
FCC ID	:	IHDT56ZW1
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

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

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

Reviewed by: Nick Hu / Supervisor

Approved by: Kat Yin / Manager

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA141508	Rev. 01	Initial issue of report.	Jun. 07, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2149-1,** 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	0.46	1.30	1.30	1.58
		GSM1900	0.15	1.29	1.29	
	WCDMA	Band II	0.37	**1.37**	**1.37**	
		Band IV	0.39	1.32	1.32	
		Band V	0.43	1.33	1.33	
	LTE	Band 2	0.30	1.28	1.28	
		Band 7	0.60	**1.37**	**1.37**	
		Band 12/Band 17	0.27	0.97	0.97	
		Band 13	0.38	**1.37**	**1.37**	
		Band 26/ Band5	0.39	1.32	1.32	
		Band 66/Band 4	0.35	1.29	1.29	
		Band 41/Band 38	0.16	1.30	1.05	
	5G NR	n5	0.26	0.55	0.55	
		n7	0.57	0.57	0.57	
		n66	0.19	0.56	0.56	
		n77/n78	0.52	0.59	0.59	
DTS	WLAN	2.4GHz WLAN	**1.44**	0.36	1.33	1.50
NII		5GHz WLAN	1.10	0.38	1.11	1.58
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	<0.10	<0.10	1.44

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	3.05	3.96
		GSM1900	**3.52**	
	WCDMA	Band II	3.41	
		Band IV	3.47	
		Band V	2.37	
	LTE	Band 2	3.32	
		Band 7	3.01	
		Band 13	2.08	
		Band 26/Band5	2.04	
		Band 66/Band 4	3.29	
		Band 41/Band 38	2.16	
	5G NR	n5	1.30	
		n7	1.40	
		n66	1.45	
		n77/n78	1.32	
DTS	WLAN	2.4GHz WLAN	1.82	3.36
NII		5GHz WLAN	1.56	3.96
Date of Testing:			2021/4/24~ 2021/6/2	

Remark:

1. This device supports LTE B4 / B5 / B17 / B38 and B66 / B26 / B12 / B41. Since the supported frequency span for LTE B4 / B5 / B17 / B38 falls completely within the supports frequency span for LTE B66 / B26 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B26 / B12 / B41.
2. This device supports 5GNR n77 and n78. Since the supported frequency span for 5GNR n78 falls completely within the supports frequency span for 5GNR n77, both 5GNR bands have the same target power, and the same transmission path; therefore, SAR was only assessed for 5GNR n77.

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

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

2. Administration Data

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

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

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

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

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2149-1
FCC ID	IHDT56ZW1
IMEI Code	Sample 1(Ant5-1st): SIM1: 358869830032070 SIM2: 358869830032088 Sample 1(Ant5-2nd): SIM1: 358869830031379 SIM2: 358869830031387 Sample 2: SIM1: 358869830053035 SIM2: 358869830053043
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: 2535 MHz ~ 2655 MHz 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: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.5GHz Band: 5470 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5735 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink) LTE: QPSK, 16QAM, 64QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
SW Version	RRS31.Q2

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 2.4GHz WLAN.
2. WLAN operation in 5600 MHz ~ 5650 MHz is notched.
3. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
4. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
5. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
6. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
7. There are two different types of EUT. For model change note, please refer the product equality declaration exhibit submitted. According to the difference, we choose the sample 1 with Ant5-1st to full test, and choose the sample 2 with Ant5-1st to verify worse of the Sample 1. For Ant5-2nd, we choose the worse of sample 1 and 2 to full test FR1 n77/n78.
8. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). 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.
9. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E power table.
10. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
11. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head / hotspot/ extremity. For WLAN when transmit simultaneous with WWAN and proximity sensors trigger, power reduction will be activated to body-worn.
12. There are three headsets, only supplier different, so only chose one headset to perform SAR testing.
13. The device has two batteries with the same battery capacity, only Manufacturer is different. We only chose battery 1 to perform full SAR testing.
14. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
15. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
16. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
17. 5G NR NSA EN-DC mode, standalone SAR performed for 5GNR band with the maximum power, EN-DC SAR summed 5GNR standalone SAR and LTE standalone SAR , the result of EN-DC SAR is more conservatively.
18. This device supports 5GNR FR1 bands as following table and limited to NSA mode.

<5G NR>

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

4.2 General LTE SAR Test and Reporting Considerations

<table>
<tr><th colspan="2">Summarized necessary items addressed in KDB 941225 D05 v02r05</th></tr>
<tr><td>FCC ID</td><td>IHDT56ZW1</td></tr>
<tr><td>Equipment Name</td><td>Mobile Cellular Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>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: 2535 MHz ~ 2655 MHz
LTE Band 66: 1710 MHz ~ 1780 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>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 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R18, Cat13</td></tr>
<tr><td>CA Support</td><td>Supported, Uplink and Downlink</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table>
</td></tr>
<tr><td>LTE A-MPR</td><td>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)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>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.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, head/body-worn/hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 14.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>1. This device supports LTE Carrier Aggregation (CA) in the uplink for 7C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance.
2. This device supports maximum of 2 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

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	40065	2537.5	40090	2540	40115	2542.5	40140	2545
LM	40385	2569.5	40390	2570	40395	2570.5	40400	2571
HM	40705	2601.5	40690	2600	40685	2599.5	40670	2598
H	41215	2652.5	41190	2650	41165	2647.5	41140	2645

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

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: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
Channel Bandwidth	5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz, 40MHz 5G NR n77: 10MHz, 15MHz, 20MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n78: 10MHz, 15MHz, 20MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n7	LTE B5/66
LTE Anchor Bands for n66	LTE B7
LTE Anchor Bands for n77	LTE B41
LTE Anchor Bands for n78	LTE B5/7/38/66

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		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	346000	1730
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	352000	1760

NR Band 77

	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664834	3972.51	664668	3970.02	664000	3960	663668	3955.02	663334	3950.01	663000	3954	662668	3940.02	662334	3935.01	662000	3930

NR Band 78

	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	648000	3720	648334	3725.01	648668	3730.02	64900	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652834	3792.51	652668	3790.02	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		

5. Maximum Tune-up Limit

<WWAN Tune-up Limit>

1. For each cellular band, the device has four WWAN Tx antennas, the antenna selection is based on the connection quality condition, and only one antenna will transmit at a time.
2. The device implements the power management and sensor detection for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the device 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.
3. Below table shows maximum tune up output power configured for this EUT for various transmit conditions by manufacturer, and the detail power measurement and tune-up limit refer to appendix E.

TX. freq.	Ant	Default	Head		Body worn		Hotspot		Handheld	
		max. tune up limit	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)
GSM850 GSM 1 Tx slot	Ant 0	33.50	33.50		31.00	2.50	31.00	2.50	33.50	
GSM850 GPRS 1 Tx slot	Ant 0	33.50	33.50		31.00	2.50	31.00	2.50	33.50	
GSM850 GPRS 2 Tx slots	Ant 0	32.50	32.50		30.00	2.50	30.00	2.50	32.50	
GSM850 GPRS 3 Tx slots	Ant 0	31.00	31.00		28.50	2.50	28.50	2.50	31.00	
GSM850 GPRS 4 Tx slots	Ant 0	30.00	30.00		27.50	2.50	27.50	2.50	30.00	
GSM850 EDGE 1 Tx slot	Ant 0	28.00	28.00		25.50	2.50	25.50	2.50	28.00	
GSM850 EDGE 2 Tx slots	Ant 0	27.00	27.00		24.50	2.50	24.50	2.50	27.00	
GSM850 EDGE 3 Tx slots	Ant 0	25.00	25.00		22.50	2.50	22.50	2.50	25.00	
GSM850 EDGE 4 Tx slots	Ant 0	24.00	24.00		21.50	2.50	21.50	2.50	24.00	
GSM1900 GSM 1 Tx slot	Ant 1	30.50	30.50		30.00	0.50	30.00	0.50	30.50	
GSM1900 GPRS 1 Tx slot	Ant 1	30.50	30.50		30.00	0.50	30.00	0.50	30.50	
GSM1900 GPRS 2 Tx slots	Ant 1	29.50	29.50		29.00	0.50	29.00	0.50	29.50	
GSM1900 GPRS 3 Tx slots	Ant 1	28.00	28.00		27.50	0.50	27.50	0.50	28.00	
GSM1900 GPRS 4 Tx slots	Ant 1	27.00	27.00		26.50	0.50	26.50	0.50	27.00	
GSM1900 EDGE 1 Tx slot	Ant 1	26.00	26.00		25.50	0.50	25.50	0.50	26.00	
GSM1900 EDGE 2 Tx slots	Ant 1	25.00	25.00		24.50	0.50	24.50	0.50	25.00	
GSM1900 EDGE 3 Tx slots	Ant 1	22.50	22.50		22.00	0.50	22.00	0.50	22.50	
GSM1900 EDGE 4 Tx slots	Ant 1	21.50	21.50		21.00	0.50	21.00	0.50	21.50	
WCDMA II	Ant 1	24.00	24.00		20.00	4.00	20.00	4.00	21.00	3.00
WCDMA IV	Ant 1	24.00	24.00		21.00	3.00	21.00	3.00	22.00	2.00
WCDMA V	Ant 0	24.00	24.00		22.00	2.00	22.00	2.00	24.00	
LTE Band2	Ant 1	24.00	24.00		20.00	4.00	20.00	4.00	22.00	2.00
LTE Band7	Ant 0	24.00	24.00		21.00	3.00	19.00	5.00	23.00	1.00
LTE Band12/17	Ant 0	24.00	24.00		24.00		24.00		24.00	
LTE Band26/5	Ant 0	24.00	24.00		22.50	1.50	22.50	1.50	24.00	
LTE Band13	Ant 0	24.00	24.00		24.00		24.00		24.00	
LTE Band66/4	Ant 1	24.00	24.00		21.00	3.00	21.00	3.00	23.00	1.00
LTE Band41/38	Ant 0	24.00	24.00		24.00		23.50	0.50	24.00	
LTE Band5_Only For ENDC	Ant 0	24.00	24.00		19.00	5.00	19.00	5.00	23.00	1.00
LTE Band66_Only For ENDC	Ant 1	24.00	24.00		17.50	6.50	17.50	6.50	18.00	6.00
LTE Band41(38)_Only For ENDC	Ant 0	24.00	24.00		20.50	3.50	19.00	5.00	22.50	1.50
LTE Band7_Only For ENDC	Ant 0	24.00	24.00		17.50	6.50	15.50	8.50	19.50	4.50
LTE Band7_Only For ENDC	Ant 4	24.00	14.50	9.50	18.50	5.50	15.00	9.00	19.50	4.50
FR1_N5-Only For ENDC	Ant 0	24.00	24.00		20.00	4.00	20.00	4.00	24.00	
FR1_N7-Only For ENDC	Ant 4	24.00	15.00	9.00	18.50	5.50	15.50	8.50	20.00	4.00
FR1_N66-Only For ENDC	Ant 1	24.00	24.00		19.50	4.50	19.50	4.50	20.00	4.00
FR1_N77-Only For ENDC	Ant 5	24.00	14.00	10.00	17.00	7.00	16.50	7.50	18.50	5.50
FR1_N78-Only For ENDC	Ant 5	24.00	14.00	10.00	17.00	7.00	16.50	7.50	18.50	5.50

< Bluetooth and WLAN Tune-up Limit>

General Note:

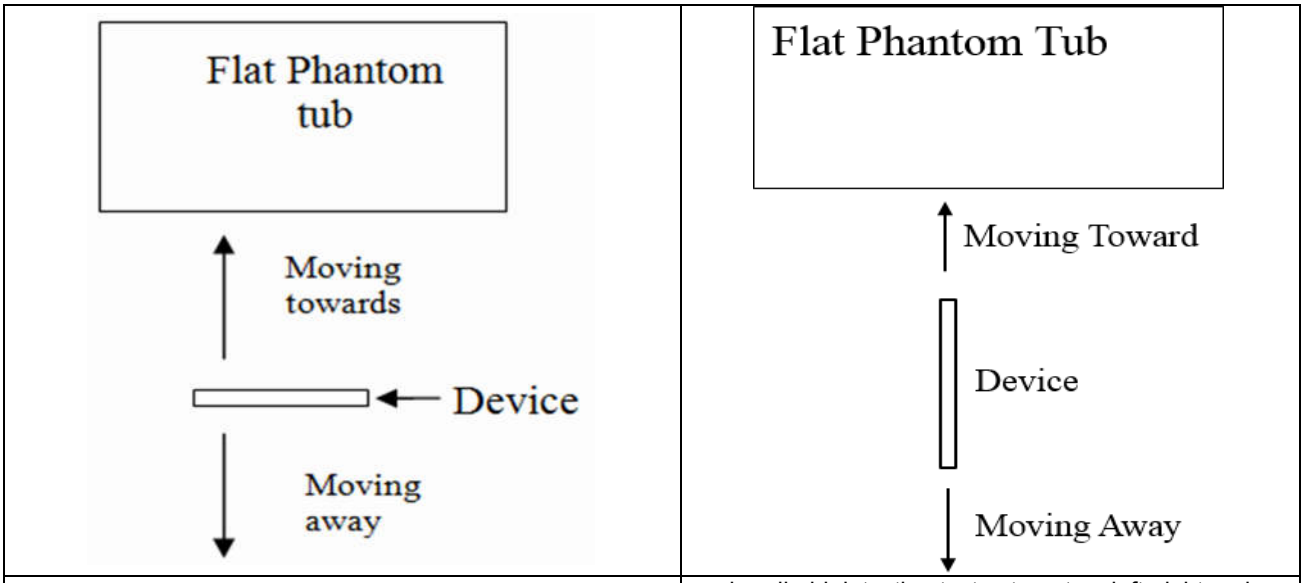
1. The device implements the power management for WLAN SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The control logic about the power management decision is provided in the operational description.

TX. freq.	FCC-WLAN															
	Ant	Default	Head (Standalone)		Head (Simultaneous)		Body Worn (Standalone)		Body Worn (Simultaneous)		Hotspot		Handheld (Standalone)		Handheld (Simultaneous)	
		max. tune up limit	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)	max. tune up limit	power reduction (dB)
WLAN2.4GHz	Ant 6	20.50	20.50		16.00	4.50	20.50		15.00	5.50	15.00	5.50	20.50		18.00	2.50
WLAN5.2GHz	Ant 6	19.00	15.00	4.00	11.00	8.00	16.50	2.50	11.50	7.50	11.50	7.50	19.00		17.00	2.00
WLAN5.3GHz	Ant 6	19.00	15.00	4.00	11.00	8.00	17.00	2.00	12.00	7.00			19.00		17.00	2.00
WLAN5.5GHz	Ant 6	19.00	17.50	1.50	12.50	6.50	19.00		14.50	4.50			19.00		18.00	1.00
WLAN5.8GHz	Ant 6	19.00	17.00	2.00	13.50	5.50	19.00		15.00	4.00	13.00	6.00	19.00		17.00	2.00
BT	Ant 6	11.00	11.00		11.00		11.00		11.00		11.00		11.00		11.00	

6. Proximity Sensor Triggering Test

6.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5825MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensor placed coincident with antenna elements at the bottom end of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back or bottom side surface of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
3. When the proximity sensor is active, GSM850/1900, WCDMA band II/IV/V, LTE band 2/4/5/7/26/66/38/41, 5GNR n5/n7/n66 /n77/n78 and WLAN2.4GHz/5.2GHz/5.3GHz/5.5GHz/5.8GHz reduced power will be active for front or back body worn SAR.
4. P-sensor can detect handheld state, WCDMA II/IV, LTE band 2/4/5/7/66/38/41, 5GNR n7/n66/n77/78 for front/back/bottom/top/right/left sides of product specific 10g SAR condition reduced powers will be active for handheld SAR.
5. The proximity sensors used to detect the proximity of the user's body at the front or back or bottom side surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:
   Front: 13 mm
   Back: 19 mm
7. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for handheld:
   For ANT0
   Front: 10 mm
   Back: 16 mm
   Bottom side: 13 mm
   For ANT1
   Front: 6 mm
   Back: 14 mm
   For ANT4
   Top side: 14 mm
   For ANT5
   Top side: 7 mm



Sensor/handheld detection test set-up, front and back faces	handheld detection test set-up, top, left, right and bottom side

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	14	16	20	26

<Handheld for ANT0>

Position	Front		Back		Bottom Side		Right Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	11	13	17	19	14	19	5	8

<Handheld for ANT1>

Position	Front		Back		Bottom Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	7	11	15	19	11	15	11	16

<Handheld for ANT4>

Position	Front		Back		Top Side		Left Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	10	12	14	17	15	19	5	9

<Handheld for ANT5>

Position	Front		Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	8	6	9	8	10

<Handheld for ANT6>

Position	Front		Back		Top Side		Right Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	10	12	11	16	14	17	8	12

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:

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

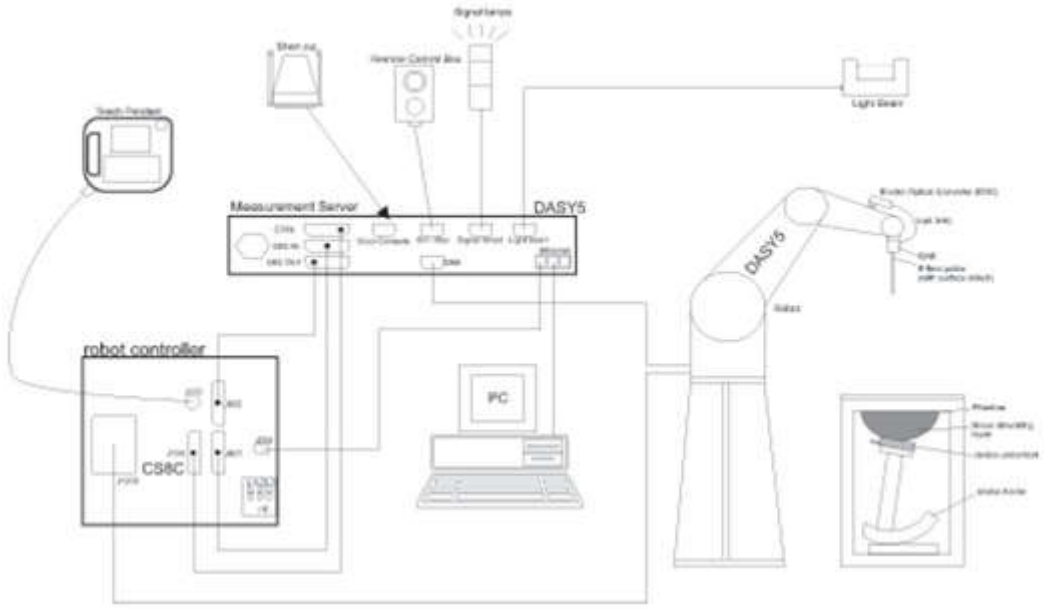
SAR is expressed in units of Watts per kilogram (W/kg)

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

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: 2.5mm (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

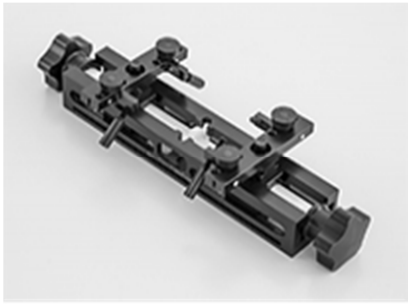
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
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	1087	2019/3/27	2022/3/24
SPEAG	835MHz System Validation Kit	D835V2	4d258	2020/5/7	2021/5/6
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/25
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/24
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2022/3/23
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2021/11/25
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2021/11/24
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/13
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/23
SPEAG	Data Acquisition Electronics	DAE4	1338	2020/11/27	2021/11/26
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	2020/9/25	2021/9/24
SPEAG	SAM Twin Phantom	SAM Twin	TP-1503	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2021/4/13	2022/4/12
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2020/8/1	2021/7/31
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2020/12/2	2021/12/1
Anritsu	Vector Signal Generator	MG3710A	6201682672	2021/1/7	2022/1/6
Rohde & Schwarz	Power Meter	NRVD	102081	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2020/8/13	2021/8/12
R&S	CBT BLUETOOTH TESTER	CBT	101246	2021/4/12	2022/4/11
EXA	Spectrum Analyzer	FSV7	101632	2021/1/7	2022/1/6
Testo	Hygrometer	608-H1	1241332088	2021/1/7	2022/1/6
FLUKE	DIGITAC THERMOMETER	51II	97240029	2020/8/14	2021/8/13
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	

Note:

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

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.

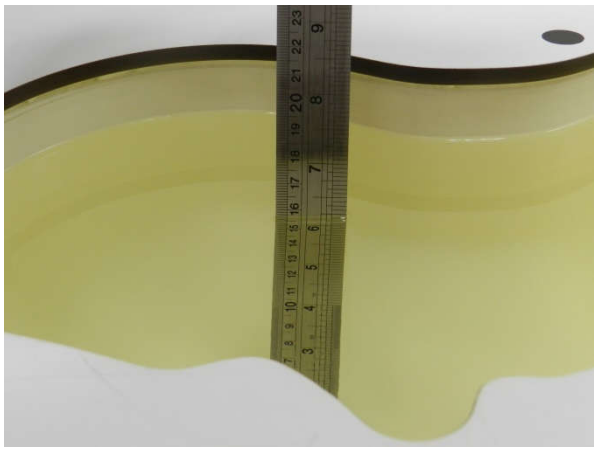


Fig 11.1 Photo of Liquid Height for Head SAR

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	22.6	0.893	41.112	0.89	41.90	0.34	-1.88	±5	2021/4/25
835	Head	22.7	0.922	40.880	0.90	41.50	2.44	-1.49	±5	2021/4/24
1750	Head	22.6	1.342	39.559	1.37	40.10	-2.04	-1.35	±5	2021/4/27
1900	Head	22.7	1.422	39.310	1.40	40.00	1.57	-1.72	±5	2021/5/3
2450	Head	22.8	1.768	39.330	1.80	39.20	-1.78	0.33	±5	2021/5/6
2600	Head	22.7	1.881	39.126	1.96	39.00	-4.03	0.32	±5	2021/5/28
3700	Head	22.8	2.992	38.678	3.12	37.70	-4.10	2.59	±5	2021/6/2
3900	Head	22.6	3.193	38.383	3.32	37.50	-3.83	2.35	±5	2021/6/2
5250	Head	22.7	4.649	36.233	4.71	35.90	-1.30	0.93	±5	2021/5/16
5600	Head	22.7	4.995	35.613	5.07	35.50	-1.48	0.32	±5	2021/5/18
5750	Head	22.7	5.226	35.309	5.22	35.40	0.11	-0.26	±5	2021/5/20
750	Head	22.7	0.924	42.063	0.89	41.90	3.82	0.39	±5	2021/5/7
835	Head	22.7	0.915	41.263	0.90	41.50	1.67	-0.57	±5	2021/4/30
1750	Head	22.6	1.351	40.380	1.37	40.10	-1.39	0.70	±5	2021/5/3
1900	Head	22.6	1.451	39.472	1.40	40.00	3.64	-1.32	±5	2021/5/4
2450	Head	22.6	1.857	39.174	1.80	39.20	3.17	-0.07	±5	2021/5/23
2600	Head	22.7	1.978	39.040	1.96	39.00	0.92	0.10	±5	2021/5/29

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 (%)
2021/4/25	750	Head	50	1087	3857	1338	0.418	8.36	8.36	0.00
2021/4/24	835	Head	50	4d258	3857	1338	0.507	9.44	10.14	7.42
2021/4/27	1750	Head	50	1090	3857	1338	1.810	36.40	36.20	-0.55
2021/5/3	1900	Head	50	5d170	3857	1338	2.040	39.00	40.80	4.62
2021/5/6	2450	Head	50	908	3857	1338	2.550	52.80	51.00	-3.41
2021/5/28	2600	Head	50	1061	3857	1338	2.590	56.60	51.80	-8.48
2021/6/2	3700	Head	50	1008	3857	1338	3.370	67.60	67.40	-0.30
2021/6/2	3900	Head	50	1048	3857	1338	3.330	70.20	66.60	-5.13
2021/5/16	5250	Head	50	1113	3857	1338	3.890	80.50	77.80	-3.35
2021/5/18	5600	Head	50	1113	3857	1338	3.990	83.40	79.80	-4.32
2021/5/20	5750	Head	50	1113	3857	1338	3.680	80.00	73.60	-8.00
2021/5/7	750	Head	50	1087	3857	1338	0.432	8.36	8.64	3.35
2021/4/30	835	Head	50	4d258	3857	1338	0.505	9.44	10.10	6.99
2021/5/3	1750	Head	50	1090	3857	1338	1.850	36.40	37.00	1.65
2021/5/4	1900	Head	50	5d170	3857	1338	2.080	39.00	41.60	6.67
2021/5/23	2450	Head	50	908	3857	1338	2.680	52.80	53.60	1.52
2021/5/29	2600	Head	50	1061	3857	1338	2.700	56.60	54.00	-4.59

<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 (%)
2021/4/25	750	Head	50	1087	3857	1338	0.278	5.65	5.56	-1.59
2021/4/24	835	Head	50	4d258	3857	1338	0.337	6.13	6.74	9.95
2021/4/27	1750	Head	50	1090	3857	1338	0.981	19.20	19.62	2.19
2021/5/3	1900	Head	50	5d170	3857	1338	1.070	20.30	21.40	5.42
2021/5/6	2450	Head	50	908	3857	1338	1.210	24.20	24.20	0.00
2021/5/28	2600	Head	50	1061	3857	1338	1.170	25.10	23.40	-6.77
2021/6/2	3700	Head	50	1008	3857	1338	1.280	24.40	25.60	4.92
2021/6/2	3900	Head	50	1048	3857	1338	1.130	24.40	22.60	-7.38
2021/5/16	5250	Head	50	1113	3857	1338	1.120	23.10	22.40	-3.03
2021/5/18	5600	Head	50	1113	3857	1338	1.150	23.80	23.00	-3.36
2021/5/20	5750	Head	50	1113	3857	1338	1.030	22.80	20.60	-9.65
2021/5/7	750	Head	50	1087	3857	1338	0.288	5.65	5.76	1.95
2021/4/30	835	Head	50	4d258	3857	1338	0.302	6.13	6.04	-1.47
2021/5/3	1750	Head	50	1090	3857	1338	1.000	19.20	20.00	4.17
2021/5/4	1900	Head	50	5d170	3857	1338	1.090	20.30	21.80	7.39
2021/5/23	2450	Head	50	908	3857	1338	1.270	24.20	25.40	4.96
2021/5/29	2600	Head	50	1061	3857	1338	1.230	25.10	24.60	-1.99

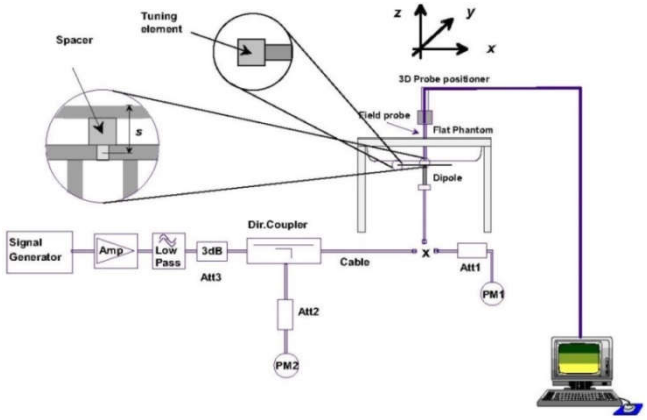


Fig 11.3.1 System Performance Check Setup

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 15mm 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.

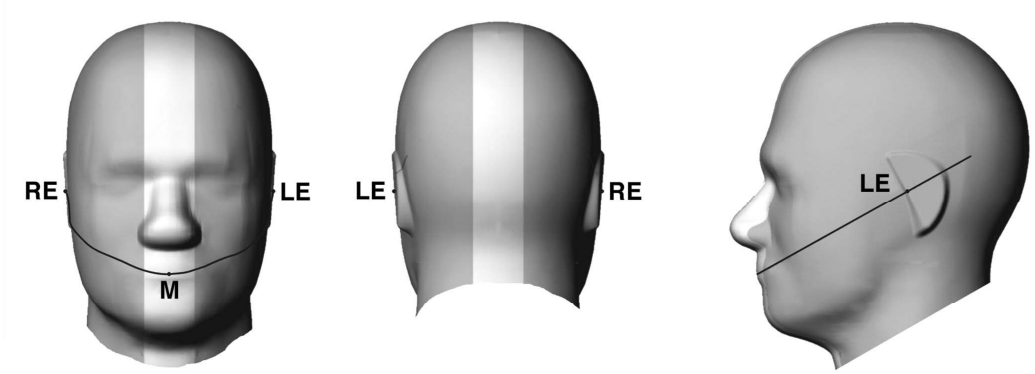


Fig 12.1.1 Front, back, and side views of SAM twin phantom

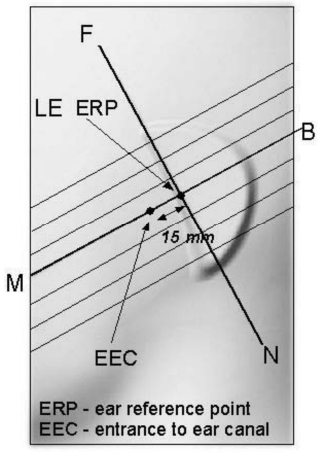


Fig 12.1.2 Close-up side view of phantom showing the ear region.

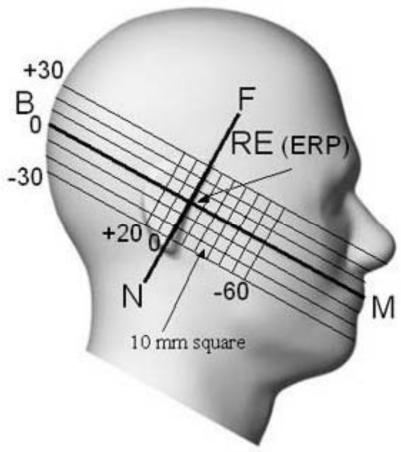


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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.

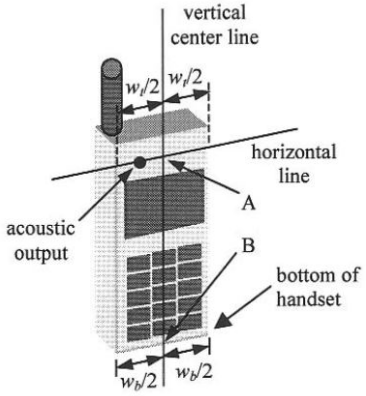


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

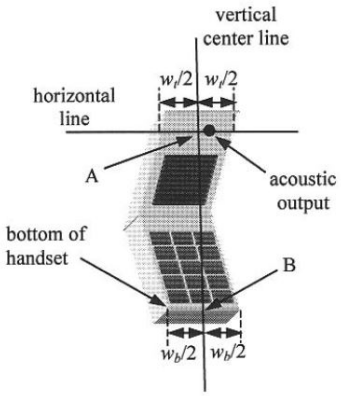


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

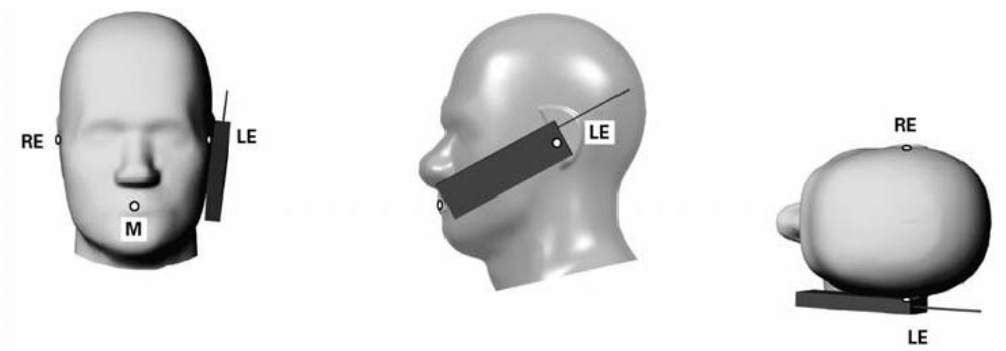


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

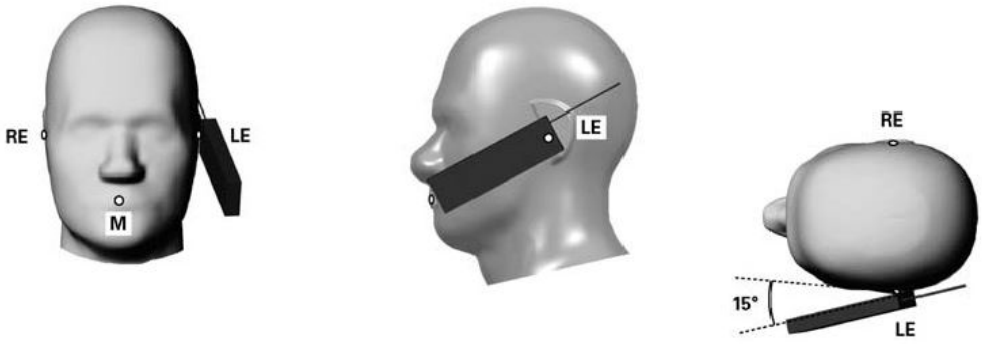


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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.

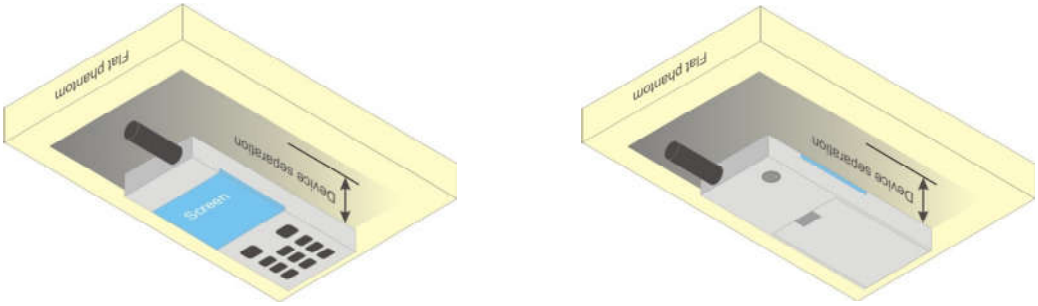


Fig 12.4 Body Worn Position

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 ≤ 25mm 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 5mm 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 4Tx slots for GSM850/GSM1900 is 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 HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. 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	Proces ses	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.		

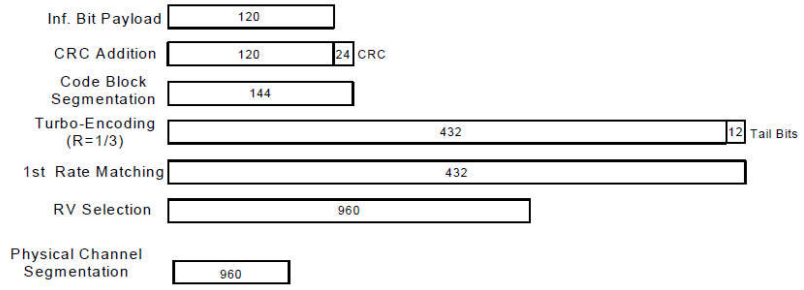


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

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

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

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.
Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration

<WCDMA Conducted Power>

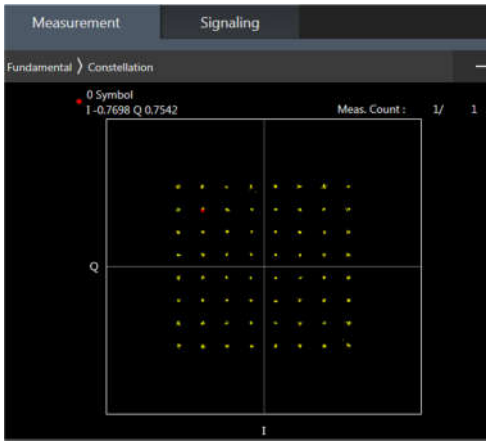
General Note:

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

<LTE Conducted Power>

General Note:

1. Anritsu MT8821C 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.

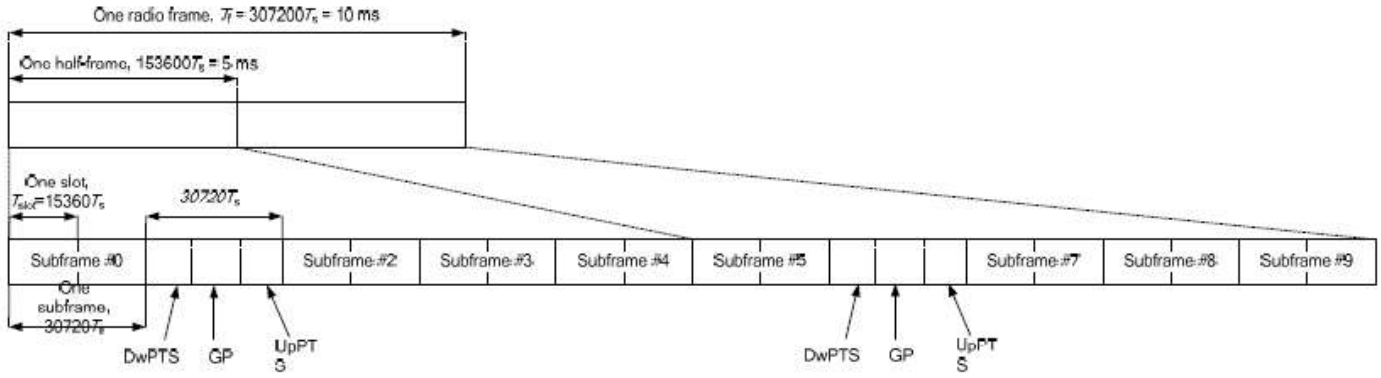


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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:

For LTE Band 41 Power class 3

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> (Downlink)

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		
Number	Combination	Covered by Measurement Superset
2CC #1	CA_2A_4A	
2CC #2	CA_2A_5A	
2CC #3	CA_2A_7A	
2CC #4	CA_4A_4A	
2CC #5	CA_4A_5A	
2CC #6	CA_4A_7A	
2CC #7	CA_4A_12A	
2CC #8	CA_4A_17A	
2CC #9	CA_5A_7A	
2CC #10	CA_5A_38A	
2CC #11	CA_5A_41A	
2CC #12	CA_5A_66A	
2CC #13	CA_7A_7A	
2CC #14	CA_12A_66A	
2CC #15	CA_26A_41A	
2CC #16	CA_41A_41A	
2CC #17	CA_66A_66A	
2CC #18	CA_38C	
2CC #19	CA_41C	
2CC #20	CA_7B	
2CC #21	CA_7C	
2CC #22	CA_66C	
2CC #23	CA_66B	

LTE 4x4 MIMO (Downlink)

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

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

4X4 MIMO	Band
	LTE Band4/7/38/41

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 two 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.

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

LTE Carrier Aggregation Conducted Power (Uplink)

1. This device supports uplink carrier aggregation for LTE CA_7C 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. Following 5G NR n5/n7 support SCS 15KHz DFT/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM, Bandwidth 5M/10M/15M/20M.
2. Following 5G NR n66 support SCS 15KHz DFT/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM, Bandwidth 5M/10M/15M/20M/40M.
3. Following 5G NR n77/n78 support SCS 30KHz DFT/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM, Bandwidth 10M/15M/20M/40M/50M/60M/70M/80M/90M/100M.
4. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
   b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QMA/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
   c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
   d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
   f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
5. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
6. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
7. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
8. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
9. 5G NR NSA EN-DC mode, standalone SAR performed for 5GNR band with the maximum power, EN-DC SAR summed 5GNR standalone SAR and LTE standalone SAR , the result of EN-DC SAR is more conservatively.

<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		

FCC EN-DC	UL LTE LTE TX Ant	UL NR NR Ant
DC_7A_n5A	ANT_4	ANT_0
DC_5A_n7A	ANT_0	ANT_4
DC_66A_n7A	ANT_1	ANT_4
DC_7A_n66A	ANT_4	ANT_1
DC_5A_n78A	ANT_0	ANT_5
DC_7A_n78A	ANT_0	ANT_5
DC_38A_n78A	ANT_0	ANT_5
DC_66A_n78A	ANT_1	ANT_5
DC_41A_n77A	ANT_0	ANT_5
DC_7C_n5A	ANT_4	ANT_0
DC_7C_n78A	ANT_0	ANT_5
DC_41C_n77A	ANT_0	ANT_5

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

<WLAN Conducted Power>

General Note:

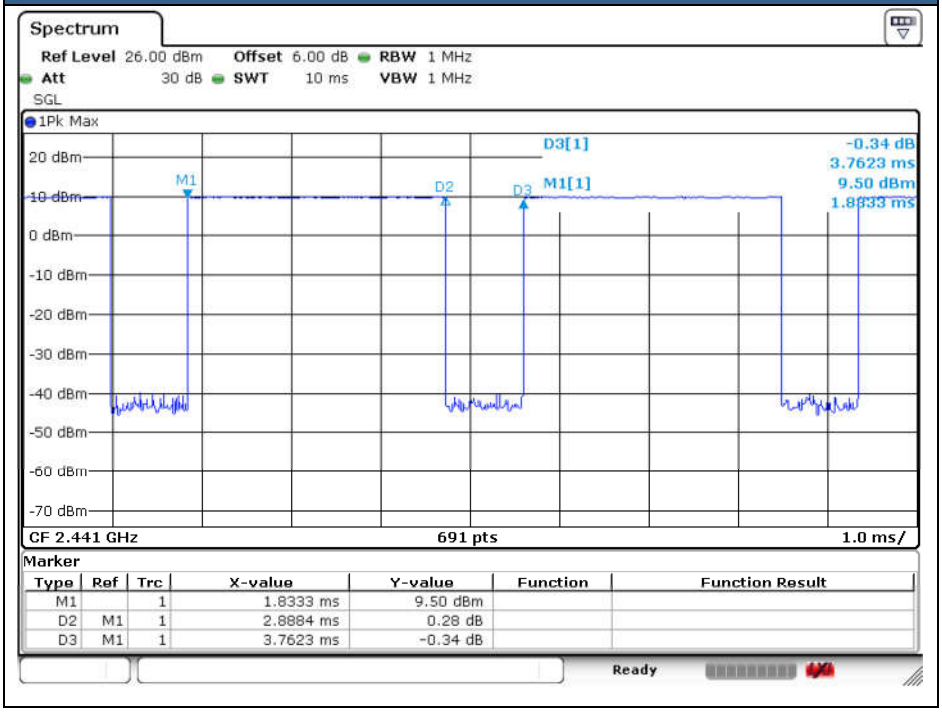
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements.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

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.77 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to the theoretical value of 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 WLAN/Bluetooth 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. Pre KDB648474 D04v01r03, when the reported SAR for a 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 headset attached to the handset. When headset SAR is less than or equal than without headset SAR, no need to verify the remaining channels for headset SAR.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity).
6. The device will invoke corresponding work scenarios power level, which are provided in the operational description.
7. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
8. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head / hotspot/ extremity. For WLAN when transmit simultaneous with WWAN and proximity sensors trigger, power reduction will be activated to body-worn.
9. 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 (for handheld on state, the maximum full power means reduced 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 2/4/5/7/13/26/38/41/66, 5GNR n5/n7/n66/n77/n78 and WLAN 2.4GHz /WLAN 5.2/5.8GHz 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.
8. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:
   Front: 13 mm
   Back: 19 mm
9. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed as followings. When located the same antenna, the worst SAR base on the same frequency bands chose to verify the full power distance SAR. These bands also with the same maximum full power(sensor off power level) and no need to do each band separately when located the same WWAN antenna and same proximity sensor triggered distance.
   ANT0
   Front: 10 mm
   Back: 16 mm
   Bottom side: 13 mm

ANT1
Front: 6 mm
Back: 14 mm
ANT4
Top side: 14 mm
ANT5
Top side: 7 mm

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 4Tx slots for GSM850/GSM1900 is 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/HSPA+ 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/HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA/HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA/HSPA+) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA/HSPA+.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 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
   c. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   d. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
8. LTE band 7 located WWAN Ant4 only worked when EN-DC mode active, LTE band 7 can’t transmit standalone. So tested those bands located WWAN ant4 in order to sum with 5GNR SAR as EN-DC SAR. LTE band 38 with the same power level as LTE band 41, so power table only show one time. LTE band 41 SAR can represent LTE band 38 SAR and sum with 5GNR as final EN-DC SAR.

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
   b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   d. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not 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/n66/n77 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.

16.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																		
01	LTE Band 12	10M	QPSK	1	0	Right Cheek	0mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	0.04	0.202	**0.267**
	LTE Band 12	10M	QPSK	25	0	Right Cheek	0mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.02	0.160	0.221
	LTE Band 12	10M	QPSK	1	0	Right Tilted	0mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	-0.01	0.095	0.126
	LTE Band 12	10M	QPSK	25	0	Right Tilted	0mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.03	0.075	0.104
	LTE Band 12	10M	QPSK	1	0	Left Cheek	0mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	-0.02	0.185	0.244
	LTE Band 12	10M	QPSK	25	0	Left Cheek	0mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.04	0.145	0.201
	LTE Band 12	10M	QPSK	1	0	Left Tilted	0mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	-0.01	0.094	0.124
	LTE Band 12	10M	QPSK	25	0	Left Tilted	0mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.03	0.074	0.102
02	LTE Band 13	10M	QPSK	1	0	Right Cheek	0mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	-0.03	0.277	**0.376**
	LTE Band 13	10M	QPSK	25	0	Right Cheek	0mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	0.05	0.227	0.321
	LTE Band 13	10M	QPSK	1	0	Right Tilted	0mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.01	0.124	0.168
	LTE Band 13	10M	QPSK	25	0	Right Tilted	0mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	0.03	0.104	0.147
	LTE Band 13	10M	QPSK	1	0	Left Cheek	0mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.02	0.235	0.319
	LTE Band 13	10M	QPSK	25	0	Left Cheek	0mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	-0.07	0.193	0.273
	LTE Band 13	10M	QPSK	1	0	Left Tilted	0mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.05	0.122	0.166
	LTE Band 13	10M	QPSK	25	0	Left Tilted	0mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	-0.02	0.101	0.143

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																			
03	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 0	1	Full	189	836.4	29.16	30.00	1.213	-0.02	0.379	**0.460**
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 0	1	Full	189	836.4	29.16	30.00	1.213	0.01	0.177	0.215
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 0	1	Full	189	836.4	29.16	30.00	1.213	0.04	0.317	0.385
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 0	1	Full	189	836.4	29.16	30.00	1.213	-0.03	0.163	0.198
04	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	-0.19	0.295	**0.427**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	0.01	0.110	0.159
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	0.04	0.236	0.342
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	-0.03	0.116	0.168
05	LTE Band 26_ENDC	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	-0.02	0.284	**0.386**
	LTE Band 26_ENDC	15M	QPSK	36	0	-	Right Cheek	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	-0.01	0.235	0.329
	LTE Band 26_ENDC	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	0.03	0.138	0.187
	LTE Band 26_ENDC	15M	QPSK	36	0	-	Right Tilted	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	0.04	0.109	0.153
	LTE Band 26_ENDC	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	0.03	0.240	0.326
	LTE Band 26_ENDC	15M	QPSK	36	0	-	Left Cheek	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	-0.01	0.196	0.274
	LTE Band 26_ENDC	15M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	0.08	0.129	0.175
	LTE Band 26_ENDC	15M	QPSK	36	0	-	Left Tilted	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	0.04	0.105	0.147
	FR1 n5	20M	QPSK	1	1	DFT-SCS 15KHz	Right Cheek	0mm	Ant 0	1	Full	167300	836.5	22.99	24.00	1.262	-0.01	0.181	0.228
06	FR1 n5	20M	QPSK	50	28	DFT-SCS 15KHz	Right Cheek	0mm	Ant 0	1	Full	167300	836.5	22.68	24.00	1.355	-0.09	0.194	**0.263**
	FR1 n5	20M	QPSK	1	1	DFT-SCS 15KHz	Right Tilted	0mm	Ant 0	1	Full	167300	836.5	22.99	24.00	1.262	-0.08	0.089	0.112
	FR1 n5	20M	QPSK	50	28	DFT-SCS 15KHz	Right Tilted	0mm	Ant 0	1	Full	167300	836.5	22.68	24.00	1.355	0.05	0.096	0.130
	FR1 n5	20M	QPSK	1	1	DFT-SCS 15KHz	Left Cheek	0mm	Ant 0	1	Full	167300	836.5	22.99	24.00	1.262	0.01	0.160	0.202
	FR1 n5	20M	QPSK	50	28	DFT-SCS 15KHz	Left Cheek	0mm	Ant 0	1	Full	167300	836.5	22.68	24.00	1.355	0.03	0.174	0.236
	FR1 n5	20M	QPSK	1	1	DFT-SCS 15KHz	Left Tilted	0mm	Ant 0	1	Full	167300	836.5	22.99	24.00	1.262	0.04	0.095	0.120
	FR1 n5	20M	QPSK	50	28	DFT-SCS 15KHz	Left Tilted	0mm	Ant 0	1	Full	167300	836.5	22.68	24.00	1.355	0.08	0.099	0.134

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	0.03	0.149	0.224
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	-0.01	0.143	0.215
07	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	-0.02	0.260	**0.392**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	0.04	0.143	0.215
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.03	0.138	0.198
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	1	Full	132322	1745	21.39	23.00	1.449	-0.04	0.108	0.156
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.01	0.155	0.222
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	1	Full	132322	1745	21.39	23.00	1.449	0.05	0.119	0.172
08	LTE Band 66_ENDC	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.08	0.247	**0.354**
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	1	Full	132322	1745	21.39	23.00	1.449	-0.02	0.194	0.281
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.04	0.149	0.213
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	1	Full	132322	1745	21.39	23.00	1.449	0.02	0.119	0.172
	FR1 n66	40M	QPSK	1	1	DFT-SCS 15KHz	Right Cheek	0mm	Ant 1	1	Full	349000	1745	23.22	24.00	1.197	0.05	0.087	0.104
	FR1 n66	40M	QPSK	108	54	DFT-SCS 15KHz	Right Cheek	0mm	Ant 1	1	Full	349000	1745	23.13	24.00	1.222	-0.06	0.099	0.121
	FR1 n66	40M	QPSK	1	1	DFT-SCS 15KHz	Right Tilted	0mm	Ant 1	1	Full	349000	1745	23.22	24.00	1.197	0.02	0.095	0.114
	FR1 n66	40M	QPSK	108	54	DFT-SCS 15KHz	Right Tilted	0mm	Ant 1	1	Full	349000	1745	23.13	24.00	1.222	0.01	0.104	0.127
	FR1 n66	40M	QPSK	1	1	DFT-SCS 15KHz	Left Cheek	0mm	Ant 1	1	Full	349000	1745	23.22	24.00	1.197	-0.03	0.147	0.176
09	FR1 n66	40M	QPSK	108	54	DFT-SCS 15KHz	Left Cheek	0mm	Ant 1	1	Full	349000	1745	23.13	24.00	1.222	-0.04	0.157	**0.192**
	FR1 n66	40M	QPSK	1	1	DFT-SCS 15KHz	Left Tilted	0mm	Ant 1	1	Full	349000	1745	23.22	24.00	1.197	0.01	0.114	0.136
	FR1 n66	40M	QPSK	108	54	DFT-SCS 15KHz	Left Tilted	0mm	Ant 1	1	Full	349000	1745	23.13	24.00	1.222	0.04	0.116	0.142

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Cheek	0mm	Ant 1	1	Full	661	1880	26.02	27.00	1.253	0.01	0.066	0.083
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Right Tilted	0mm	Ant 1	1	Full	661	1880	26.02	27.00	1.253	0.03	0.059	0.074
10	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Cheek	0mm	Ant 1	1	Full	661	1880	26.02	27.00	1.253	-0.07	0.122	**0.153**
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Tilted	0mm	Ant 1	1	Full	661	1880	26.02	27.00	1.253	0.04	0.051	0.064
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	1	Full	9400	1880	22.30	24.00	1.479	0.01	0.151	0.223
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	1	Full	9400	1880	22.30	24.00	1.479	-0.02	0.126	0.186
11	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	1	Full	9400	1880	22.30	24.00	1.479	0.07	0.248	**0.367**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	1	Full	9400	1880	22.30	24.00	1.479	-0.05	0.113	0.167
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	0.03	0.132	0.186
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	1	Full	18900	1880	21.58	23.00	1.387	-0.01	0.106	0.147
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	0.02	0.131	0.185
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	1	Full	18900	1880	21.58	23.00	1.387	0.04	0.105	0.146
12	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	0.01	0.214	**0.302**
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	1	Full	18900	1880	21.58	23.00	1.387	-0.01	0.172	0.239
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	0.03	0.101	0.143
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	1	Full	18900	1880	21.58	23.00	1.387	0.05	0.083	0.115

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																					
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306	-	1.000	0.01	0.220	0.287
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	1	Full	21100	2535	21.97	23.00	1.268	-	1.000	-0.06	0.157	0.199
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306	-	1.000	0.03	0.111	0.145
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	1	Full	21100	2535	21.97	23.00	1.268	-	1.000	0.07	0.089	0.113
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306	-	1.000	-0.02	0.265	0.346
	LTE Band 7 UL CA 7C	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	1	Full	21100+ 20902	2535+ 2515.2	22.52	24.00	1.406	-	1.000	0.09	0.203	0.285
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	1	Full	21100	2535	21.97	23.00	1.268	-	1.000	-0.01	0.213	0.270
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306	-	1.000	0.02	0.175	0.229
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	1	Full	21100	2535	21.97	23.00	1.268	-	1.000	0.04	0.153	0.194
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	1	Reduced	21100	2535	13.41	14.50	1.285	-	1.000	-0.03	0.415	0.533
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	1	Reduced	21100	2535	13.34	14.50	1.306	-	1.000	0.02	0.332	0.434
13	LTE Band 7_ENDC	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	1	Reduced	21100	2535	13.41	14.50	1.285	-	1.000	0.06	0.469	**0.603**
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	1	Reduced	21100	2535	13.34	14.50	1.306	-	1.000	-0.02	0.397	0.519
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	1	Reduced	21100	2535	13.41	14.50	1.285	-	1.000	0.01	0.149	0.192
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	1	Reduced	21100	2535	13.34	14.50	1.306	-	1.000	0.02	0.110	0.144
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	1	Reduced	21100	2535	13.41	14.50	1.285	-	1.000	0.06	0.184	0.236
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	1	Reduced	21100	2535	13.34	14.50	1.306	-	1.000	-0.03	0.151	0.197
	FR1 n7	20M	QPSK	1	1	DFT-SCS 15KHz	Right Cheek	0mm	Ant 4	1	Reduced	507000	2535	13.38	15.00	1.452	-	1.000	0.09	0.333	0.484
	FR1 n7	20M	QPSK	50	28	DFT-SCS 15KHz	Right Cheek	0mm	Ant 4	1	Reduced	507000	2535	13.37	15.00	1.455	-	1.000	0.02	0.271	0.394
	FR1 n7	20M	QPSK	1	1	DFT-SCS 15KHz	Right Tilted	0mm	Ant 4	1	Reduced	507000	2535	13.38	15.00	1.452	-	1.000	-0.06	0.369	0.536
14	FR1 n7	20M	QPSK	50	28	DFT-SCS 15KHz	Right Tilted	0mm	Ant 4	1	Reduced	507000	2535	13.37	15.00	1.455	-	1.000	0.01	0.392	**0.571**
	FR1 n7	20M	QPSK	1	1	DFT-SCS 15KHz	Left Cheek	0mm	Ant 4	1	Reduced	507000	2535	13.38	15.00	1.452	-	1.000	0.03	0.116	0.168
	FR1 n7	20M	QPSK	50	28	DFT-SCS 15KHz	Left Cheek	0mm	Ant 4	1	Reduced	507000	2535	13.37	15.00	1.455	-	1.000	0.05	0.125	0.182
	FR1 n7	20M	QPSK	1	1	DFT-SCS 15KHz	Left Tilted	0mm	Ant 4	1	Reduced	507000	2535	13.38	15.00	1.452	-	1.000	0.01	0.162	0.235
	FR1 n7	20M	QPSK	50	28	DFT-SCS 15KHz	Left Tilted	0mm	Ant 4	1	Reduced	507000	2535	13.37	15.00	1.455	-	1.000	0.02	0.171	0.249
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.03	0.086	0.106
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	-0.05	0.068	0.084
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.01	0.051	0.063
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.03	0.039	0.048
15	LTE Band 41_ENDC	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	-0.06	0.128	**0.158**
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	-0.09	0.102	0.126
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	-0.01	0.098	0.121
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.05	0.077	0.095

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
3500MHz																			
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Right Cheek	0mm	Ant 5-1st	1	Reduced	656000	3840	12.76	14.00	1.330	-0.03	0.283	0.377
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Right Cheek	0mm	Ant 5-1st	1	Reduced	656000	3840	12.68	14.00	1.355	0.05	0.268	0.363
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Right Tilted	0mm	Ant 5-1st	1	Reduced	656000	3840	12.76	14.00	1.330	0.06	0.294	0.391
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Right Tilted	0mm	Ant 5-1st	1	Reduced	656000	3840	12.68	14.00	1.355	-0.01	0.285	0.386
16	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Left Cheek	0mm	Ant 5-1st	1	Reduced	656000	3840	12.76	14.00	1.330	0.07	0.394	**0.524**
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Left Cheek	0mm	Ant 5-1st	1	Reduced	656000	3840	12.68	14.00	1.355	-0.17	0.356	0.482
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Left Tilted	0mm	Ant 5-1st	1	Reduced	656000	3840	12.76	14.00	1.330	-0.03	0.374	0.498
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Left Tilted	0mm	Ant 5-1st	1	Reduced	656000	3840	12.68	14.00	1.355	0.05	0.382	0.518
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Right Cheek	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.76	14.00	1.330	0.03	0.210	0.279
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Right Cheek	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.68	14.00	1.355	0.02	0.210	0.285
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Right Tilted	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.76	14.00	1.330	-0.05	0.256	0.341
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Right Tilted	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.68	14.00	1.355	0.07	0.263	0.356
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Left Cheek	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.76	14.00	1.330	0.09	0.288	0.383
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Left Cheek	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.68	14.00	1.355	0.13	0.329	0.446
	FR1 n77	100M	QPSK	1	137	DFT-SCS 30KHz	Left Tilted	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.76	14.00	1.330	-0.12	0.310	0.412
	FR1 n77	100M	QPSK	135	69	DFT-SCS 30KHz	Left Tilted	0mm	Ant 5-2nd	1	Reduced	656000	3840	12.68	14.00	1.355	0.04	0.368	0.499

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Sample	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	0mm	Ant 6	1	Full	11	2462	19.66	20.50	1.213	100	1.000	-0.06	0.481	0.584
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 6	1	Full	11	2462	19.66	20.50	1.213	100	1.000	-0.01	0.447	0.542
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	1	Full	11	2462	19.66	20.50	1.213	100	1.000	0.01	0.961	1.166
17	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	1	Full	1	2412	19.53	20.50	1.250	100	1.000	-0.07	1.150	**1.438**
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	2	Full	1	2412	19.53	20.50	1.250	100	1.000	0.06	1.130	1.413
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	1	Full	6	2437	19.38	20.50	1.294	100	1.000	-0.03	1.060	1.372
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 6	1	Full	11	2462	19.66	20.50	1.213	100	1.000	0.01	0.789	0.957
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 6	1	Full	1	2412	19.53	20.50	1.250	100	1.000	0.05	0.852	1.065
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	1	Reduced-simultaneous	1	2412	15.39	16.00	1.151	100	1.000	-0.11	0.444	0.511
18	Bluetooth	1Mbps	Left Cheek	0mm	Ant 6	1	Full	78	2480	10.28	11.00	1.180	76.77	1.303	0.02	0.022	**0.034**

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
							5GHz										
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 6	1	Reduced	54	5270	14.13	15.00	1.222	97.19	1.029	0.03	0.406	0.510
	WLAN5.3GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 6	1	Reduced	54	5270	14.13	15.00	1.222	97.19	1.029	0.01	0.438	0.551
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 6	1	Reduced	54	5270	14.13	15.00	1.222	97.19	1.029	-0.05	0.805	1.012
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 6	1	Reduced	62	5310	13.86	15.00	1.300	97.19	1.029	-0.1	0.721	0.965
19	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	1	Reduced	54	5270	14.13	15.00	1.222	97.19	1.029	-0.07	0.850	**1.069**
	WLAN5.3GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	1	Reduced	62	5310	13.86	15.00	1.300	97.19	1.029	0.11	0.787	1.053
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	1	Reduced-simultaneous	58	5290	9.91	11.00	1.285	94.53	1.058	0.05	0.377	0.513
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 6	1	Reduced	132	5660	16.89	17.50	1.151	97.47	1.026	0.01	0.603	0.712
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 6	1	Reduced	132	5660	16.89	17.50	1.151	97.47	1.026	0.03	0.719	0.849
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 6	1	Reduced	116	5580	16.72	17.50	1.197	97.47	1.026	0.02	0.592	0.727
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	1	Reduced	132	5660	16.89	17.50	1.151	97.47	1.026	0.08	0.856	1.011
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	1	Reduced	116	5580	16.72	17.50	1.197	97.47	1.026	0.01	0.595	0.731
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	1	Reduced	132	5660	16.89	17.50	1.151	97.47	1.026	0.03	0.649	0.766
20	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	1	Reduced	116	5580	16.72	17.50	1.197	97.47	1.026	-0.01	0.884	**1.085**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	1	Reduced-simultaneous	106	5530	11.37	12.50	1.297	94.53	1.058	0.04	0.360	0.494
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 6	1	Reduced	155	5775	15.90	17.00	1.288	94.53	1.058	0.02	0.550	0.750
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 6	1	Reduced	155	5775	15.90	17.00	1.288	94.53	1.058	0.01	0.647	0.882
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	1	Reduced	155	5775	15.90	17.00	1.288	94.53	1.058	-0.03	0.683	0.931
21	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	1	Reduced	155	5775	15.90	17.00	1.288	94.53	1.058	0.04	0.810	**1.104**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	1	Reduced-simultaneous	155	5775	11.95	13.50	1.429	94.53	1.058	0.07	0.324	0.490

16.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																		
	LTE Band 12	10M	QPSK	1	0	Front	5mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	0.01	0.331	0.437
	LTE Band 12	10M	QPSK	25	0	Front	5mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	-0.02	0.275	0.380
22	LTE Band 12	10M	QPSK	1	0	Back	5mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	0.03	0.735	**0.971**
	LTE Band 12	10M	QPSK	25	0	Back	5mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.07	0.591	0.818
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Ant 0	1	Full	23095	707.5	21.58	23.00	1.387	0.05	0.481	0.667
	LTE Band 12	10M	QPSK	1	0	Left Side	5mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	-0.01	0.174	0.230
	LTE Band 12	10M	QPSK	25	0	Left Side	5mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.03	0.132	0.183
	LTE Band 12	10M	QPSK	1	0	Right Side	5mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	0.06	0.417	0.551
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.07	0.329	0.455
	LTE Band 12	10M	QPSK	1	0	Bottom Side	5mm	Ant 0	1	Full	23095	707.5	22.79	24.00	1.321	0.01	0.525	0.694
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5mm	Ant 0	1	Full	23095	707.5	21.59	23.00	1.384	0.05	0.429	0.594
	LTE Band 13	10M	QPSK	1	0	Front	5mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.02	0.527	0.716
	LTE Band 13	10M	QPSK	25	0	Front	5mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	-0.04	0.441	0.623
23	LTE Band 13	10M	QPSK	1	0	Back	5mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	-0.06	1.010	**1.372**
	LTE Band 13	10M	QPSK	1	0	Back	5mm	Ant 0	2	Full	23230	782	22.67	24.00	1.358	-0.1	0.850	1.155
	LTE Band 13	10M	QPSK	25	0	Back	5mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	0.03	0.885	1.250
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 0	1	Full	23230	782	21.57	23.00	1.390	-0.01	0.891	1.238
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.01	0.180	0.244
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	-0.02	0.151	0.213
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.01	0.447	0.607
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	0.04	0.367	0.518
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	0.02	0.824	1.119
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	-0.04	0.622	0.879
	LTE Band 13	10M	QPSK	50	0	Bottom Side	5mm	Ant 0	1	Full	23230	782	21.57	23.00	1.390	-0.03	0.651	0.905

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	1	Reduced	189	836.4	26.09	27.50	1.384	-0.03	0.352	0.487
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	Reduced	189	836.4	26.09	27.50	1.384	0.01	0.886	1.226
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	Reduced	128	824.2	25.88	27.50	1.452	0.05	0.721	1.047
24	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	Reduced	251	848.8	26.07	27.50	1.390	-0.09	0.937	**1.302**
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 0	1	Reduced	189	836.4	26.09	27.50	1.384	-0.02	0.081	0.112
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Right Side	5mm	Ant 0	1	Reduced	189	836.4	26.09	27.50	1.384	0.01	0.189	0.261
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 0	1	Reduced	189	836.4	26.09	27.50	1.384	0.05	0.479	0.663
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	1	Reduced	4182	836.4	20.45	22.00	1.429	-0.03	0.507	0.724
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	Reduced	4182	836.4	20.45	22.00	1.429	-0.06	0.921	1.316
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	Reduced	4132	826.4	20.44	22.00	1.432	0.01	0.893	1.279
25	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	Reduced	4233	846.6	20.41	22.00	1.442	-0.01	0.922	**1.330**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 0	1	Reduced	4182	836.4	20.45	22.00	1.429	0.02	0.113	0.161
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	5mm	Ant 0	1	Reduced	4182	836.4	20.45	22.00	1.429	0.05	0.296	0.423
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	1	Reduced	4182	836.4	20.45	22.00	1.429	0.01	0.694	0.992
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	1	Reduced	4132	826.4	20.44	22.00	1.432	-0.03	0.641	0.918
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	1	Reduced	4233	846.6	20.41	22.00	1.442	0.05	0.726	1.047
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	26865	831.5	21.01	22.50	1.409	-0.03	0.520	0.733
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 0	1	Reduced	26865	831.5	19.99	21.50	1.416	0.05	0.435	0.616
26	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	26865	831.5	21.01	22.50	1.409	0.01	0.937	**1.321**
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 0	1	Reduced	26865	831.5	19.99	21.50	1.416	-0.03	0.769	1.089
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	1	Reduced	26865	831.5	19.97	21.50	1.422	0.02	0.857	1.219
	LTE Band 26	15M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	26865	831.5	21.01	22.50	1.409	-0.01	0.157	0.221
	LTE Band 26	15M	QPSK	36	0	-	Left Side	5mm	Ant 0	1	Reduced	26865	831.5	19.99	21.50	1.416	0.05	0.124	0.176
	LTE Band 26	15M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	26865	831.5	21.01	22.50	1.409	-0.03	0.391	0.551
	LTE Band 26	15M	QPSK	36	0	-	Right Side	5mm	Ant 0	1	Reduced	26865	831.5	19.99	21.50	1.416	0.01	0.312	0.442
	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	26865	831.5	21.01	22.50	1.409	0.01	0.625	0.881
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	5mm	Ant 0	1	Reduced	26865	831.5	19.99	21.50	1.416	0.05	0.589	0.834
	LTE Band 26	15M	QPSK	75	0	-	Bottom Side	5mm	Ant 0	1	Reduced	26865	831.5	19.97	21.50	1.422	-0.03	0.592	0.842
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	20525	836.5	17.53	19.00	1.403	-0.03	0.214	0.300
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Front	5mm	Ant 0	1	Reduced	20525	836.5	16.57	18.00	1.390	0.05	0.172	0.239
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	20525	836.5	17.53	19.00	1.403	-0.13	0.392	0.550
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Back	5mm	Ant 0	1	Reduced	20525	836.5	16.57	18.00	1.390	-0.08	0.319	0.443
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	20525	836.5	17.53	19.00	1.403	-0.01	0.047	0.066
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Left Side	5mm	Ant 0	1	Reduced	20525	836.5	16.57	18.00	1.390	0.02	0.039	0.054
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	20525	836.5	17.53	19.00	1.403	-0.03	0.113	0.159
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Right Side	5mm	Ant 0	1	Reduced	20525	836.5	16.57	18.00	1.390	0.01	0.090	0.125
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	20525	836.5	17.53	19.00	1.403	0.08	0.283	0.397
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 0	1	Reduced	20525	836.5	16.57	18.00	1.390	0.05	0.232	0.322
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 0	1	Reduced	167300	836.5	18.89	20.00	1.291	-0.05	0.222	0.287
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Front	5mm	Ant 0	1	Reduced	167300	836.5	18.77	20.00	1.327	0.01	0.215	0.285
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 0	1	Reduced	167300	836.5	18.89	20.00	1.291	-0.03	0.394	0.509
27	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Back	5mm	Ant 0	1	Reduced	167300	836.5	18.77	20.00	1.327	-0.08	0.413	**0.548**
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Left Side	5mm	Ant 0	1	Reduced	167300	836.5	18.89	20.00	1.291	0.05	0.061	0.079
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Left Sdie	5mm	Ant 0	1	Reduced	167300	836.5	18.77	20.00	1.327	0.01	0.029	0.038
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Right Side	5mm	Ant 0	1	Reduced	167300	836.5	18.89	20.00	1.291	-0.03	0.165	0.213
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Right Side	5mm	Ant 0	1	Reduced	167300	836.5	18.77	20.00	1.327	0.09	0.168	0.223
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Bottom Side	5mm	Ant 0	1	Reduced	167300	836.5	18.89	20.00	1.291	-0.05	0.227	0.293
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Bottom Side	5mm	Ant 0	1	Reduced	167300	836.5	18.77	20.00	1.327	0.1	0.233	0.309

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	Reduced	1413	1732.6	19.46	21.00	1.426	0.09	0.716	1.021
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	Reduced	1312	1712.4	19.44	21.00	1.432	0.11	0.678	0.971
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	Reduced	1513	1752.6	19.43	21.00	1.435	0.05	0.712	1.022
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	1413	1732.6	19.46	21.00	1.426	-0.03	0.860	1.226
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	1312	1712.4	19.44	21.00	1.432	-0.03	0.799	1.144
28	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	1513	1752.6	19.43	21.00	1.435	-0.13	0.919	**1.319**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	1	Reduced	1413	1732.6	19.46	21.00	1.426	-0.03	0.435	0.620
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	1	Reduced	1413	1732.6	19.46	21.00	1.426	-0.03	0.479	0.683
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	Reduced	132322	1745	19.60	21.00	1.380	0.01	0.679	0.937
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	Reduced	132072	1720	19.59	21.00	1.384	0.03	0.619	0.856
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	Reduced	132572	1770	19.45	21.00	1.429	0.05	0.695	0.993
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	Reduced	132322	1745	18.56	20.00	1.393	-0.01	0.603	0.840
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	Reduced	132072	1720	18.55	20.00	1.396	0.05	0.495	0.691
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	Reduced	132572	1770	18.45	20.00	1.429	0.02	0.534	0.763
	LTE Band 66	20M	QPSK	100	0	-	Front	5mm	Ant 1	1	Reduced	132322	1745	18.53	20.00	1.403	-0.03	0.560	0.786
29	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	132322	1745	19.60	21.00	1.380	-0.15	0.932	**1.287**
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	132072	1720	19.59	21.00	1.384	0.01	0.879	1.216
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	132572	1770	19.45	21.00	1.429	-0.05	0.879	1.256
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	132322	1745	18.56	20.00	1.393	0.01	0.766	1.067
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	132072	1720	18.55	20.00	1.396	-0.05	0.821	1.146
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	132572	1770	18.45	20.00	1.429	0.05	0.685	0.979
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 1	1	Reduced	132322	1745	18.53	20.00	1.403	-0.09	0.768	1.077
	LTE Band 66	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	1	Reduced	132322	1745	19.60	21.00	1.380	0.01	0.509	0.703
	LTE Band 66	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	1	Reduced	132322	1745	18.56	20.00	1.393	-0.03	0.407	0.567
	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	1	Reduced	132322	1745	19.60	21.00	1.380	-0.03	0.541	0.747
	LTE Band 66	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	1	Reduced	132322	1745	18.56	20.00	1.393	0.01	0.439	0.612
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	Reduced	132322	1745	15.96	17.50	1.426	-0.06	0.241	0.344
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	Reduced	132322	1745	14.95	16.50	1.429	0.01	0.207	0.296
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	132322	1745	15.96	17.50	1.426	-0.05	0.369	0.526
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	132322	1745	14.95	16.50	1.429	-0.05	0.314	0.449
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	1	Reduced	132322	1745	15.96	17.50	1.426	0.02	0.185	0.264
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	1	Reduced	132322	1745	14.95	16.50	1.429	0.01	0.158	0.226
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	1	Reduced	132322	1745	15.96	17.50	1.426	-0.09	0.255	0.364
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	1	Reduced	132322	1745	14.95	16.50	1.429	-0.03	0.199	0.284
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 1	1	Reduced	349000	1745	18.91	19.50	1.146	0.05	0.292	0.334
	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Front	5mm	Ant 1	1	Reduced	349000	1745	18.87	19.50	1.156	0.03	0.349	0.403
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 1	1	Reduced	349000	1745	18.91	19.50	1.146	-0.05	0.437	0.501
30	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Back	5mm	Ant 1	1	Reduced	349000	1745	18.87	19.50	1.156	-0.03	0.486	**0.562**
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Left Side	5mm	Ant 1	1	Reduced	349000	1745	18.91	19.50	1.146	0.01	0.288	0.330
	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Left Side	5mm	Ant 1	1	Reduced	349000	1745	18.87	19.50	1.156	0.05	0.351	0.406
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Bottom Side	5mm	Ant 1	1	Reduced	349000	1745	18.91	19.50	1.146	0.03	0.329	0.377
	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Bottom Side	5mm	Ant 1	1	Reduced	349000	1745	18.87	19.50	1.156	-0.09	0.365	0.422

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 1	1	Reduced	661	1880	25.75	26.50	1.189	-0.03	0.519	0.617
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	Reduced	661	1880	25.75	26.50	1.189	-0.02	0.903	1.073
31	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	Reduced	512	1850.2	25.74	26.50	1.191	-0.15	1.080	**1.287**
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	Reduced	810	1909.8	25.68	26.50	1.208	-0.03	0.935	1.129
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Left Side	5mm	Ant 1	1	Reduced	661	1880	25.75	26.50	1.189	0.05	0.318	0.378
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Bottom Side	5mm	Ant 1	1	Reduced	661	1880	25.75	26.50	1.189	0.08	0.469	0.557
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	Reduced	9400	1880	18.69	20.00	1.352	-0.06	0.540	0.730
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	9400	1880	18.69	20.00	1.352	-0.01	0.912	1.233
32	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	9262	1852.4	18.63	20.00	1.371	-0.09	1.000	**1.371**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Reduced	9538	1907.6	18.66	20.00	1.361	0.01	0.870	1.184
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	5mm	Ant 1	1	Reduced	9400	1880	18.69	20.00	1.352	0.01	0.370	0.500
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	1	Reduced	9400	1880	18.69	20.00	1.352	0.05	0.420	0.568
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	Reduced	18900	1880	18.77	20.00	1.327	0.04	0.589	0.782
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	Reduced	18900	1880	17.72	19.00	1.343	0.09	0.537	0.721
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	18900	1880	18.77	20.00	1.327	0.03	0.919	1.220
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	18700	1860	18.72	20.00	1.343	0.09	0.832	1.117
33	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Reduced	19100	1900	18.66	20.00	1.361	-0.11	0.941	**1.281**
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	18900	1880	17.72	19.00	1.343	0.04	0.767	1.030
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	18700	1860	17.69	19.00	1.352	0.06	0.649	0.877
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	Reduced	19100	1900	17.66	19.00	1.361	-0.05	0.731	0.995
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 1	1	Reduced	18900	1880	17.72	19.00	1.343	0.07	0.763	1.025
	LTE Band 2	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	1	Reduced	18900	1880	18.77	20.00	1.327	-0.03	0.393	0.522
	LTE Band 2	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	1	Reduced	18900	1880	17.72	19.00	1.343	0.04	0.312	0.419
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	1	Reduced	18900	1880	18.77	20.00	1.327	0.07	0.472	0.627
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	1	Reduced	18900	1880	17.72	19.00	1.343	0.08	0.379	0.509

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
2300MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	21100	2535	19.86	21.00	1.300	-	1.000	-0.07	0.786	1.022
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	20850	2510	19.85	21.00	1.303	-	1.000	-0.13	0.846	1.102
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	21350	2560	19.79	21.00	1.321	-	1.000	-0.09	0.838	1.107
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Reduced	21100	2535	18.78	20.00	1.324	-	1.000	-0.03	0.641	0.849
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Reduced	20850	2510	18.65	20.00	1.365	-	1.000	0.01	0.658	0.898
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Reduced	21350	2560	18.77	20.00	1.327	-	1.000	0.04	0.673	0.893
	LTE Band 7	20M	QPSK	100	0	-	Front	5mm	Ant 0	1	Reduced	21100	2535	18.84	20.00	1.306	-	1.000	0.01	0.650	0.849
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	21100	2535	19.86	21.00	1.300	-	1.000	0.09	0.964	1.253
34	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	20850	2510	19.85	21.00	1.303	-	1.000	-0.08	1.050	**1.368**
	LTE Band 7 UL CA 7C	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	20850+21048	2510+2529.8	19.69	21.00	1.352	-	1.000	0.02	0.879	1.188
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	21350	2560	19.79	21.00	1.321	-	1.000	-0.03	1.010	1.335
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Reduced	21100	2535	18.78	20.00	1.324	-	1.000	0.05	0.791	1.048
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Reduced	20850	2510	18.65	20.00	1.365	-	1.000	0.04	0.813	1.109
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Reduced	21350	2560	18.77	20.00	1.327	-	1.000	-0.07	0.856	1.136
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant 0	1	Reduced	21100	2535	18.84	20.00	1.306	-	1.000	-0.08	0.803	1.049
	LTE Band 7	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	21100	2535	17.45	19.00	1.429	-	1.000	-0.04	0.224	0.320
	LTE Band 7	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	1	Reduced	21100	2535	16.49	18.00	1.416	-	1.000	0.04	0.181	0.256
	LTE Band 7	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	21100	2535	17.45	19.00	1.429	-	1.000	0.07	0.155	0.221
	LTE Band 7	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	1	Reduced	21100	2535	16.49	18.00	1.416	-	1.000	0.02	0.121	0.171
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21100	2535	17.45	19.00	1.429	-	1.000	0.04	0.654	0.934
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	20850	2510	17.24	19.00	1.500	-	1.000	-0.08	0.860	1.290
	LTE Band 7 UL CA 7C	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	20850+21048	2510+2529.8	17.36	19.00	1.459	-	1.000	0.12	0.759	1.107
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21350	2560	17.42	19.00	1.439	-	1.000	-0.02	0.806	1.160
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21100	2535	16.49	18.00	1.416	-	1.000	-0.09	0.526	0.745
	LTE Band 7	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21100	2535	16.40	18.00	1.445	-	1.000	0.07	0.542	0.783
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	21100	2535	16.22	17.50	1.343	-	1.000	-0.02	0.315	0.423
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Reduced	21100	2535	15.17	16.50	1.358	-	1.000	-0.01	0.271	0.368
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	21100	2535	16.22	17.50	1.343	-	1.000	-0.17	0.380	0.510
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Reduced	21100	2535	15.17	16.50	1.358	-	1.000	0.04	0.324	0.440
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	21100	2535	14.02	15.50	1.406	-	1.000	0.08	0.080	0.112
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	1	Reduced	21100	2535	12.83	14.50	1.469	-	1.000	0.02	0.065	0.095
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	21100	2535	14.02	15.50	1.406	-	1.000	0.01	0.063	0.089
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	1	Reduced	21100	2535	12.83	14.50	1.469	-	1.000	0.06	0.050	0.073
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21100	2535	14.02	15.50	1.406	-	1.000	-0.01	0.360	0.506
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	21100	2535	12.83	14.50	1.469	-	1.000	0.05	0.262	0.385
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 4	1	Reduced	21100	2535	17.14	18.50	1.368	-	1.000	0.02	0.393	0.538
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 4	1	Reduced	21100	2535	16.99	18.50	1.416	-	1.000	0.01	0.313	0.443
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 4	1	Reduced	21100	2535	17.14	18.50	1.368	-	1.000	-0.02	0.396	0.542
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 4	1	Reduced	21100	2535	16.99	18.50	1.416	-	1.000	-0.05	0.320	0.453
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	1	Reduced	21100	2535	14.10	15.00	1.230	-	1.000	-0.11	0.188	0.231
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Left Side	5mm	Ant 4	1	Reduced	21100	2535	14.00	15.00	1.259	-	1.000	0.12	0.119	0.150
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	1	Reduced	21100	2535	14.10	15.00	1.230	-	1.000	-0.12	0.490	0.603
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Top Side	5mm	Ant 4	1	Reduced	21100	2535	14.00	15.00	1.259	-	1.000	0.03	0.455	0.573
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 4	1	Reduced	507000	2535	17.42	18.50	1.282	-	1.000	0.01	0.369	0.473
	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Front	5mm	Ant 4	1	Reduced	507000	2535	17.40	18.50	1.288	-	1.000	0.11	0.371	0.478
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 4	1	Reduced	507000	2535	17.42	18.50	1.282	-	1.000	0.12	0.390	0.500
35	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Back	5mm	Ant 4	1	Reduced	507000	2535	17.40	18.50	1.288	-	1.000	0.05	0.444	**0.572**
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Left Side	5mm	Ant 4	1	Reduced	507000	2535	14.45	15.50	1.274	-	1.000	0.08	0.170	0.216
	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Left Sdie	5mm	Ant 4	1	Reduced	507000	2535	14.42	15.50	1.282	-	1.000	0.04	0.150	0.192

	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Top Side	5mm	Ant 4	1	Reduced	507000	2535	14.45	15.50	1.274	-	1.000	0.07	0.420	0.535
	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Top Side	5mm	Ant 4	1	Reduced	507000	2535	14.42	15.50	1.282	-	1.000	-0.01	0.440	0.564
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.08	0.620	0.766
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Full	40140	2545	23.00	24.00	1.259	62.9	1.006	0.02	0.609	0.771
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Full	40400	2571	22.95	24.00	1.274	62.9	1.006	0.06	0.624	0.799
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Full	41140	2645	22.93	24.00	1.279	62.9	1.006	0.01	0.616	0.793
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.05	0.495	0.611
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Full	40140	2545	22.10	23.00	1.230	62.9	1.006	0.01	0.488	0.604
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Full	40400	2571	22.02	23.00	1.253	62.9	1.006	0.03	0.495	0.624
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Full	41140	2645	22.02	23.00	1.253	62.9	1.006	0.01	0.519	0.654
	LTE Band 41	20M	QPSK	100	0	-	Front	5mm	Ant 0	1	Full	40670	2598	22.06	23.00	1.242	62.9	1.006	0.08	0.511	0.638
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.03	0.819	1.011
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Full	40140	2545	23.00	24.00	1.259	62.9	1.006	0.05	0.761	0.964
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Full	40400	2571	22.95	24.00	1.274	62.9	1.006	-0.05	0.816	1.045
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Full	41140	2645	22.93	24.00	1.279	62.9	1.006	0.12	0.804	1.035
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.03	0.655	0.809
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Full	40140	2545	22.10	23.00	1.230	62.9	1.006	0.01	0.616	0.762
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Full	40400	2571	22.02	23.00	1.253	62.9	1.006	0.05	0.659	0.831
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Full	41140	2645	22.02	23.00	1.253	62.9	1.006	-0.02	0.663	0.836
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant 0	1	Full	40670	2598	22.06	23.00	1.242	62.9	1.006	0.02	0.652	0.814
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	40670	2598	22.48	23.50	1.265	62.9	1.006	-0.12	0.275	0.350
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	1	Reduced	40670	2598	21.43	22.50	1.279	62.9	1.006	0.01	0.229	0.295
	LTE Band 41	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	40670	2598	22.48	23.50	1.265	62.9	1.006	-0.01	0.168	0.214
	LTE Band 41	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	1	Reduced	40670	2598	21.43	22.50	1.279	62.9	1.006	0.03	0.129	0.166
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40670	2598	22.48	23.50	1.265	62.9	1.006	0.05	0.945	1.202
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40140	2545	22.47	23.50	1.268	62.9	1.006	0.01	0.998	1.273
36	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40400	2571	22.44	23.50	1.276	62.9	1.006	0.02	1.010	**1.297**
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	41140	2645	22.43	23.50	1.279	62.9	1.006	-0.12	0.823	1.059
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40670	2598	21.43	22.50	1.279	62.9	1.006	0.01	0.754	0.970
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40140	2545	21.30	22.50	1.318	62.9	1.006	-0.01	0.807	1.070
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40400	2571	21.39	22.50	1.291	62.9	1.006	0.03	0.810	1.052
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	41140	2645	21.39	22.50	1.291	62.9	1.006	0.05	0.651	0.846
	LTE Band 41	20M	QPSK	100	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40670	2598	21.49	22.50	1.262	62.9	1.006	0.01	0.736	0.934
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	Reduced	40670	2598	19.43	20.50	1.279	62.9	1.006	0.04	0.317	0.408
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	Reduced	40670	2598	18.39	19.50	1.291	62.9	1.006	-0.06	0.251	0.326
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Reduced	40670	2598	19.43	20.50	1.279	62.9	1.006	-0.07	0.396	0.510
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	Reduced	40670	2598	18.39	19.50	1.291	62.9	1.006	0.03	0.313	0.407
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Left Side	5mm	Ant 0	1	Reduced	40670	2598	17.94	19.00	1.276	62.9	1.006	0.01	0.101	0.130
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Left Side	5mm	Ant 0	1	Reduced	40670	2598	16.92	18.00	1.282	62.9	1.006	-0.02	0.079	0.102
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Right Side	5mm	Ant 0	1	Reduced	40670	2598	17.94	19.00	1.276	62.9	1.006	-0.03	0.064	0.082
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Right Side	5mm	Ant 0	1	Reduced	40670	2598	16.92	18.00	1.282	62.9	1.006	0.03	0.052	0.067
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40670	2598	17.94	19.00	1.276	62.9	1.006	-0.07	0.386	0.496
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 0	1	Reduced	40670	2598	16.92	18.00	1.282	62.9	1.006	0.06	0.319	0.412

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
3500MHz																			
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	17.00	1.374	0.05	0.292	0.401
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Front	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	17.00	1.409	0.03	0.295	0.416
37	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	17.00	1.374	-0.06	0.428	**0.588**
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Back	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	17.00	1.409	0.07	0.409	0.576
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Right Side	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	16.50	1.225	0.01	0.102	0.125
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Right Side	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	16.50	1.256	0.12	0.109	0.137
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Top Side	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	16.50	1.225	0.09	0.415	0.508
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	16.50	1.256	0.06	0.403	0.506
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	17.00	1.374	0.02	0.212	0.291
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Front	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	17.00	1.409	0.05	0.240	0.338
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	17.00	1.374	-0.03	0.309	0.425
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Back	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	17.00	1.409	0.07	0.358	0.505
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Right Side	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	16.50	1.225	0.01	0.073	0.089
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Right Side	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	16.50	1.256	0.08	0.081	0.102
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Top Side	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	16.50	1.225	0.02	0.367	0.449
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	16.50	1.256	-0.02	0.433	0.544

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
2450MHz																	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 6	1	Reduced	11	2462	14.53	15.00	1.114	100	1.000	-0.11	0.174	0.194
38	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	1	Reduced	11	2462	14.53	15.00	1.114	100	1.000	0.05	0.325	**0.362**
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 6	1	Reduced	11	2462	14.53	15.00	1.114	100	1.000	0.11	0.104	0.116
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 6	1	Reduced	11	2462	14.53	15.00	1.114	100	1.000	0.14	0.169	0.188
40	Bluetooth	1Mbps	Back	5mm	Ant 6	1	Full	78	2480	10.28	11.00	1.181	76.77	1.303	-0.06	0.047	**0.072**
5000MHz																	
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	1	Reduced	42	5210	10.72	11.50	1.197	94.53	1.058	0.09	0.108	0.137
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	1	Reduced	42	5210	10.72	11.50	1.197	94.53	1.058	-0.03	0.159	0.201
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	1	Reduced	42	5210	10.72	11.50	1.197	94.53	1.058	-0.14	0.070	0.089
41	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	1	Reduced	42	5210	10.72	11.50	1.197	94.53	1.058	0.04	0.299	**0.379**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	1	Reduced	155	5775	11.43	13.00	1.435	94.53	1.058	0.17	0.100	0.152
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	1	Reduced	155	5775	11.43	13.00	1.435	94.53	1.058	-0.02	0.166	0.252
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	1	Reduced	155	5775	11.43	13.00	1.435	94.53	1.058	0.03	0.071	0.108
42	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	1	Reduced	155	5775	11.43	13.00	1.435	94.53	1.058	0.05	0.240	**0.364**

16.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
750MHz																				
	LTE Band 12	10M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	23095	707.5	22.79	24.00	1.321	0.01	0.331	0.437
	LTE Band 12	10M	QPSK	25	0	-	Front	5mm	Ant 0	1	-	Full	23095	707.5	21.59	23.00	1.384	-0.02	0.275	0.380
43	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	23095	707.5	22.79	24.00	1.321	0.03	0.735	**0.971**
	LTE Band 12	10M	QPSK	25	0	-	Back	5mm	Ant 0	1	-	Full	23095	707.5	21.59	23.00	1.384	0.07	0.591	0.818
	LTE Band 12	10M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	23095	707.5	21.58	23.00	1.387	0.05	0.481	0.667
	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	23230	782	22.67	24.00	1.358	0.02	0.527	0.716
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 0	1	-	Full	23230	782	21.50	23.00	1.413	-0.04	0.441	0.623
44	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	23230	782	22.67	24.00	1.358	-0.06	1.010	**1.372**
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	2	-	Full	23230	782	22.67	24.00	1.358	-0.1	0.850	1.155
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 0	1	-	Full	23230	782	21.50	23.00	1.413	0.03	0.885	1.250
	LTE Band 13	10M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	23230	782	21.57	23.00	1.390	-0.01	0.891	1.238
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	1	Headset	Full	23230	782	22.67	24.00	1.358	-0.05	0.968	1.315
835MHz																				
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 0	1	-	Reduced	189	836.4	26.09	27.50	1.384	-0.03	0.352	0.487
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	-	Reduced	189	836.4	26.09	27.50	1.384	0.01	0.886	1.226
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	-	Reduced	128	824.2	25.88	27.50	1.452	0.05	0.721	1.047
45	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	-	Reduced	251	848.8	26.07	27.50	1.390	-0.09	0.937	**1.302**
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 0	1	Headset	Reduced	251	848.8	26.07	27.50	1.390	0.06	0.867	1.205
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Front	13mm	Ant 0	1	-	Full	189	836.4	29.16	30.00	1.213	-0.02	0.312	0.379
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	19mm	Ant 0	1	-	Full	189	836.4	29.16	30.00	1.213	0.01	0.242	0.294
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 0	1	-	Reduced	4182	836.4	20.45	22.00	1.429	-0.03	0.507	0.724
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	-	Reduced	4182	836.4	20.45	22.00	1.429	-0.06	0.921	1.316
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	-	Reduced	4132	826.4	20.44	22.00	1.432	0.01	0.893	1.279
46	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	-	Reduced	4233	846.6	20.41	22.00	1.442	-0.01	0.922	**1.330**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	1	Headset	Reduced	4233	846.6	20.41	22.00	1.442	-0.05	0.903	1.302
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	13mm	Ant 0	1	-	Full	4182	836.4	22.39	24.00	1.449	-0.01	0.284	0.411
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	19mm	Ant 0	1	-	Full	4182	836.4	22.39	24.00	1.449	0.01	0.187	0.271
	LTE Band 26	15M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	26865	831.5	21.01	22.50	1.409	-0.03	0.520	0.733
	LTE Band 26	15M	QPSK	36	0	-	Front	5mm	Ant 0	1	-	Reduced	26865	831.5	19.99	21.50	1.416	0.05	0.435	0.616
47	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	26865	831.5	21.01	22.50	1.409	0.01	0.937	**1.321**
	LTE Band 26	15M	QPSK	36	0	-	Back	5mm	Ant 0	1	-	Reduced	26865	831.5	19.99	21.50	1.416	-0.03	0.769	1.089
	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	1	-	Reduced	26865	831.5	19.97	21.50	1.422	0.02	0.857	1.219
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	1	Headset	Reduced	26865	831.5	21.01	22.50	1.409	0.05	0.921	1.298
	LTE Band 26	15M	QPSK	1	0	-	Front	13mm	Ant 0	1	-	Full	26865	831.5	22.67	24.00	1.358	0.01	0.287	0.390
	LTE Band 26	15M	QPSK	1	0	-	Back	19mm	Ant 0	1	-	Full	26865	831.5	22.67	24.00	1.358	-0.01	0.198	0.269
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	20525	836.5	17.53	19.00	1.403	-0.03	0.214	0.300
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Front	5mm	Ant 0	1	-	Reduced	20525	836.5	16.57	18.00	1.390	0.05	0.172	0.239
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	20525	836.5	17.53	19.00	1.403	-0.13	0.392	0.550
	LTE Band 5_ENDC	10M	QPSK	25	0	-	Back	5mm	Ant 0	1	-	Reduced	20525	836.5	16.57	18.00	1.390	-0.08	0.319	0.443
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Front	13mm	Ant 0	1	-	Full	20525	836.5	22.62	24.00	1.374	-0.02	0.217	0.298
	LTE Band 5_ENDC	10M	QPSK	1	0	-	Back	19mm	Ant 0	1	-	Full	20525	836.5	22.62	24.00	1.374	-0.07	0.177	0.243
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 0	1	-	Reduced	167300	836.5	18.89	20.00	1.291	-0.05	0.222	0.287
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Front	5mm	Ant 0	1	-	Reduced	167300	836.5	18.77	20.00	1.327	0.01	0.215	0.285
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 0	1	-	Reduced	167300	836.5	18.89	20.00	1.291	-0.03	0.394	0.509
48	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Back	5mm	Ant 0	1	-	Reduced	167300	836.5	18.77	20.00	1.327	-0.08	0.413	**0.548**
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Front	13mm	Ant 0	1	-	Full	167300	836.5	22.99	24.00	1.262	0.07	0.222	0.280
	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Back	19mm	Ant 0	1	-	Full	167300	836.5	22.99	24.00	1.262	-0.03	0.197	0.249

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1750MHz																				
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	-	Reduced	1413	1732.6	19.46	21.00	1.426	0.09	0.716	1.021
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	-	Reduced	1312	1712.4	19.44	21.00	1.432	0.11	0.678	0.971
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	-	Reduced	1513	1752.6	19.43	21.00	1.435	0.05	0.712	1.022
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	1413	1732.6	19.46	21.00	1.426	-0.03	0.860	1.226
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	1312	1712.4	19.44	21.00	1.432	-0.03	0.799	1.144
49	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	1513	1752.6	19.43	21.00	1.435	-0.13	0.919	**1.319**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Headset	Reduced	1513	1752.6	19.43	21.00	1.435	0.05	0.876	1.257
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	13mm	Ant 1	1	-	Full	1413	1732.6	22.22	24.00	1.507	0.05	0.351	0.529
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	19mm	Ant 1	1	-	Full	1413	1732.6	22.22	24.00	1.507	0.01	0.257	0.387
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	-	Reduced	132322	1745	19.60	21.00	1.380	0.01	0.679	0.937
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	-	Reduced	132072	1720	19.59	21.00	1.384	0.03	0.619	0.856
	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	-	Reduced	132572	1770	19.45	21.00	1.429	0.05	0.695	0.993
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	-	Reduced	132322	1745	18.56	20.00	1.393	-0.01	0.603	0.840
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	-	Reduced	132072	1720	18.55	20.00	1.396	0.05	0.495	0.691
	LTE Band 66	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	-	Reduced	132572	1770	18.45	20.00	1.429	0.02	0.534	0.763
	LTE Band 66	20M	QPSK	100	0	-	Front	5mm	Ant 1	1	-	Reduced	132322	1745	18.53	20.00	1.403	-0.03	0.560	0.786
50	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	132322	1745	19.60	21.00	1.380	-0.15	0.932	**1.287**
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	132072	1720	19.59	21.00	1.384	0.01	0.879	1.216
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	132572	1770	19.45	21.00	1.429	-0.05	0.879	1.256
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	132322	1745	18.56	20.00	1.393	0.01	0.766	1.067
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	132072	1720	18.55	20.00	1.396	-0.05	0.821	1.146
	LTE Band 66	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	132572	1770	18.45	20.00	1.429	0.05	0.685	0.979
	LTE Band 66	20M	QPSK	100	0	-	Back	5mm	Ant 1	1	-	Reduced	132322	1745	18.53	20.00	1.403	-0.09	0.768	1.077
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Headset	Reduced	132322	1745	19.60	21.00	1.380	0.05	0.784	1.082
	LTE Band 66	20M	QPSK	1	0	-	Front	13mm	Ant 1	1	-	Full	132322	1745	22.44	24.00	1.432	0.05	0.408	0.584
	LTE Band 66	20M	QPSK	1	0	-	Back	19mm	Ant 1	1	-	Full	132322	1745	22.44	24.00	1.432	0.03	0.174	0.249
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	-	Reduced	132322	1745	15.96	17.50	1.426	-0.06	0.241	0.344
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	-	Reduced	132322	1745	14.95	16.50	1.429	0.01	0.207	0.296
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	132322	1745	15.96	17.50	1.426	-0.05	0.369	0.526
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	132322	1745	14.95	16.50	1.429	-0.05	0.314	0.449
	LTE Band 66	20M	QPSK	1	0	-	Front	13mm	Ant 1	1	-	Full	132322	1745	22.44	24.00	1.432	0.05	0.408	0.584
	LTE Band 66	20M	QPSK	1	0	-	Back	19mm	Ant 1	1	-	Full	132322	1745	22.44	24.00	1.432	0.03	0.174	0.249
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 1	1	-	Reduced	349000	1745	18.91	19.50	1.146	0.05	0.292	0.334
	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Front	5mm	Ant 1	1	-	Reduced	349000	1745	18.87	19.50	1.156	0.03	0.349	0.403
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 1	1	-	Reduced	349000	1745	18.91	19.50	1.146	-0.05	0.437	0.501
51	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Back	5mm	Ant 1	1	-	Reduced	349000	1745	18.87	19.50	1.156	-0.03	0.486	**0.562**
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Front	13mm	Ant 1	1	-	Full	349000	1745	23.22	24.00	1.197	0.01	0.383	0.458
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Back	19mm	Ant 1	1	-	Full	349000	1745	23.22	24.00	1.197	0.05	0.173	0.207

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1900MHz																				
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	5mm	Ant 1	1	-	Reduced	661	1880	25.75	26.50	1.189	-0.03	0.519	0.617
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	-	Reduced	661	1880	25.75	26.50	1.189	-0.02	0.903	1.073
52	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	-	Reduced	512	1850.2	25.74	26.50	1.191	-0.15	1.080	**1.287**
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	Headset	Reduced	512	1850.2	25.74	26.50	1.191	0.01	0.712	0.848
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	1	-	Reduced	810	1909.8	25.68	26.50	1.208	-0.03	0.935	1.129
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Front	13mm	Ant 1	1	-	Full	661	1880	26.02	27.00	1.253	0.02	0.382	0.479
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	19mm	Ant 1	1	-	Full	661	1880	26.02	27.00	1.253	0.03	0.179	0.224
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 1	1	-	Reduced	9400	1880	18.69	20.00	1.352	-0.06	0.540	0.730
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	9400	1880	18.69	20.00	1.352	-0.01	0.912	1.233
53	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	9262	1852.4	18.63	20.00	1.371	-0.09	1.000	**1.371**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	-	Reduced	9538	1907.6	18.66	20.00	1.361	0.01	0.870	1.184
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	1	Headset	Reduced	9262	1852.4	18.63	20.00	1.371	0.05	0.559	0.766
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	13mm	Ant 1	1	-	Full	9400	1880	22.30	24.00	1.479	0.09	0.663	0.981
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	13mm	Ant 1	1	-	Full	9262	1852.4	22.24	24.00	1.500	-0.01	0.567	0.850
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	13mm	Ant 1	1	-	Full	9538	1907.6	22.21	24.00	1.510	0.06	0.639	0.965
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	19mm	Ant 1	1	-	Full	9400	1880	22.30	24.00	1.479	0.03	0.459	0.679
	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 1	1	-	Reduced	18900	1880	18.77	20.00	1.327	0.04	0.589	0.782
	LTE Band 2	20M	QPSK	50	0	-	Front	5mm	Ant 1	1	-	Reduced	18900	1880	17.72	19.00	1.343	0.09	0.537	0.721
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	18900	1880	18.77	20.00	1.327	0.03	0.919	1.220
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	18700	1860	18.72	20.00	1.343	0.09	0.832	1.117
54	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	-	Reduced	19100	1900	18.66	20.00	1.361	-0.11	0.941	**1.281**
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	18900	1880	17.72	19.00	1.343	0.04	0.767	1.030
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	18700	1860	17.69	19.00	1.352	0.06	0.649	0.877
	LTE Band 2	20M	QPSK	50	0	-	Back	5mm	Ant 1	1	-	Reduced	19100	1900	17.66	19.00	1.361	-0.05	0.731	0.995
	LTE Band 2	20M	QPSK	100	0	-	Back	5mm	Ant 1	1	-	Reduced	18900	1880	17.72	19.00	1.343	0.07	0.763	1.025
	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	1	Headset	Reduced	19100	1900	18.66	20.00	1.361	-0.17	0.537	0.731
	LTE Band 2	20M	QPSK	1	0	-	Front	13mm	Ant 1	1	-	Full	18900	1880	22.50	24.00	1.413	0.03	0.542	0.766
	LTE Band 2	20M	QPSK	1	0	-	Back	19mm	Ant 1	1	-	Full	18900	1880	22.50	24.00	1.413	-0.04	0.378	0.534

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2600MHz																						
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	21100	2535	19.86	21.00	1.300		1.000	-0.07	0.786	1.022
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	20850	2510	19.85	21.00	1.303		1.000	-0.13	0.846	1.102
	LTE Band 7	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	21350	2560	19.79	21.00	1.321		1.000	-0.09	0.838	1.107
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Reduced	21100	2535	18.78	20.00	1.324		1.000	-0.03	0.641	0.849
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Reduced	20850	2510	18.65	20.00	1.365		1.000	0.01	0.658	0.898
	LTE Band 7	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Reduced	21350	2560	18.77	20.00	1.327		1.000	0.04	0.673	0.893
	LTE Band 7	20M	QPSK	100	0	-	Front	5mm	Ant 0	1	-	Reduced	21100	2535	18.84	20.00	1.306		1.000	0.01	0.650	0.849
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	21100	2535	19.86	21.00	1.300		1.000	0.09	0.964	1.253
55	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	20850	2510	19.85	21.00	1.303		1.000	-0.08	1.050	**1.368**
	LTE Band 7 UL CA 7C	20M	QPSK	1	0	-	Back	5mm	Ant 0	1		Reduced	20850+21048	2510+2529.8	19.69	21.00	1.352		1.000	0.02	0.879	1.188
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	21350	2560	19.79	21.00	1.321		1.000	-0.03	1.010	1.335
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Reduced	21100	2535	18.78	20.00	1.324		1.000	0.05	0.791	1.048
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Reduced	20850	2510	18.65	20.00	1.365		1.000	0.04	0.813	1.109
	LTE Band 7	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Reduced	21350	2560	18.77	20.00	1.327		1.000	-0.07	0.856	1.136
	LTE Band 7	20M	QPSK	100	0	-	Back	5mm	Ant 0	1	-	Reduced	21100	2535	18.84	20.00	1.306		1.000	-0.08	0.803	1.049
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	Headset	Reduced	20850	2510	19.85	21.00	1.303		1.000	0.09	0.892	1.162
	LTE Band 7	20M	QPSK	1	0	-	Front	13mm	Ant 0	1	-	Full	21100	2535	22.84	24.00	1.306		1.000	-0.06	0.552	0.721
	LTE Band 7	20M	QPSK	1	0	-	Back	19mm	Ant 0	1	-	Full	21100	2535	22.84	24.00	1.306		1.000	-0.02	0.316	0.413
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	21100	2535	16.22	17.50	1.343		1.000	-0.02	0.315	0.423
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Reduced	21100	2535	15.17	16.50	1.358		1.000	-0.01	0.271	0.368
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	21100	2535	16.22	17.50	1.343		1.000	-0.17	0.380	0.510
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Reduced	21100	2535	15.17	16.50	1.358		1.000	0.04	0.324	0.440
	LTE Band 7	20M	QPSK	1	0	-	Front	13mm	Ant 0	1	-	Full	21100	2535	22.84	24.00	1.306		1.000	-0.06	0.552	0.721
	LTE Band 7	20M	QPSK	1	0	-	Back	19mm	Ant 0	1	-	Full	21100	2535	22.84	24.00	1.306		1.000	-0.02	0.316	0.413
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 4	1	-	Reduced	21100	2535	17.14	18.50	1.368		1.000	0.02	0.393	0.538
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 4	1	-	Reduced	21100	2535	16.99	18.50	1.416		1.000	0.01	0.313	0.443
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 4	1	-	Reduced	21100	2535	17.14	18.50	1.368		1.000	-0.02	0.396	0.542
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 4	1	-	Reduced	21100	2535	16.99	18.50	1.416		1.000	-0.05	0.320	0.453
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Front	13mm	Ant 4	1	-	Full	21100	2535	23.19	24.00	1.205		1.000	0.08	0.361	0.435
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	19mm	Ant 4	1	-	Full	21100	2535	23.19	24.00	1.205		1.000	-0.05	0.193	0.233
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Front	5mm	Ant 4	1	-	Reduced	507000	2535	17.42	18.50	1.282		1.000	0.01	0.369	0.473
	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Front	5mm	Ant 4	1	-	Reduced	507000	2535	17.40	18.50	1.288		1.000	0.11	0.371	0.478
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Back	5mm	Ant 4	1	-	Reduced	507000	2535	17.42	18.50	1.282		1.000	0.12	0.390	0.500
56	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Back	5mm	Ant 4	1	-	Reduced	507000	2535	17.40	18.50	1.288		1.000	0.05	0.444	**0.572**
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Front	13mm	Ant 4	1	-	Full	507000	2535	23.03	24.00	1.250		1.000	0.06	0.318	0.398
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Back	19mm	Ant 4	1	-	Full	507000	2535	23.03	24.00	1.250		1.000	-0.01	0.169	0.211
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.08	0.620	0.766
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	40140	2545	23.00	24.00	1.259	62.9	1.006	0.02	0.609	0.771
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	40400	2571	22.95	24.00	1.274	62.9	1.006	0.06	0.624	0.799
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Full	41140	2645	22.93	24.00	1.279	62.9	1.006	0.01	0.616	0.793
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.05	0.495	0.611
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Full	40140	2545	22.10	23.00	1.230	62.9	1.006	0.01	0.488	0.604
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Full	40400	2571	22.02	23.00	1.253	62.9	1.006	0.03	0.495	0.624
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Full	41140	2645	22.02	23.00	1.253	62.9	1.006	0.01	0.519	0.654
	LTE Band 41	20M	QPSK	100	0	-	Front	5mm	Ant 0	1	-	Full	40670	2598	22.06	23.00	1.242	62.9	1.006	0.08	0.511	0.638
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.03	0.819	1.011
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	40140	2545	23.00	24.00	1.259	62.9	1.006	0.05	0.761	0.964
57	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	40400	2571	22.95	24.00	1.274	62.9	1.006	-0.05	0.816	**1.045**
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Full	41140	2645	22.93	24.00	1.279	62.9	1.006	0.12	0.804	1.035

	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.03	0.655	0.809
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	40140	2545	22.10	23.00	1.230	62.9	1.006	0.01	0.616	0.762
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	40400	2571	22.02	23.00	1.253	62.9	1.006	0.05	0.659	0.831
	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Full	41140	2645	22.02	23.00	1.253	62.9	1.006	-0.02	0.663	0.836
	LTE Band 41	20M	QPSK	100	0	-	Back	5mm	Ant 0	1	-	Full	40670	2598	22.06	23.00	1.242	62.9	1.006	0.02	0.652	0.814
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Front	5mm	Ant 0	1	-	Reduced	40670	2598	19.43	20.50	1.279	62.9	1.006	0.04	0.317	0.408
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Front	5mm	Ant 0	1	-	Reduced	40670	2598	18.39	19.50	1.291	62.9	1.006	-0.06	0.251	0.326
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Back	5mm	Ant 0	1	-	Reduced	40670	2598	19.43	20.50	1.279	62.9	1.006	-0.07	0.396	0.510
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Back	5mm	Ant 0	1	-	Reduced	40670	2598	18.39	19.50	1.291	62.9	1.006	0.03	0.313	0.407
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Front	13mm	Ant 0	1	-	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.02	0.235	0.290
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Back	19mm	Ant 0	1	-	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.02	0.198	0.244

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
3500MHz																			
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	17.00	1.374	0.05	0.292	0.401
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Front	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	17.00	1.409	0.03	0.295	0.416
58	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	5mm	Ant 5-1st	1	Reduced	656000	3840	15.62	17.00	1.374	-0.06	0.428	**0.588**
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Back	5mm	Ant 5-1st	1	Reduced	656000	3840	15.51	17.00	1.409	0.07	0.409	0.576
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	13mm	Ant 5-1st	1	Full	656000	3840	22.59	24.00	1.384	-0.03	0.353	0.488
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	19mm	Ant 5-1st	1	Full	656000	3840	22.59	24.00	1.384	0.05	0.345	0.477
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	17.00	1.374	0.02	0.212	0.291
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Front	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	17.00	1.409	0.05	0.240	0.338
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.62	17.00	1.374	-0.03	0.309	0.425
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Back	5mm	Ant 5-2nd	1	Reduced	656000	3840	15.51	17.00	1.409	0.07	0.358	0.505
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Front	13mm	Ant 5-2nd	1	Full	656000	3840	22.59	24.00	1.384	0.06	0.188	0.260
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Back	19mm	Ant 5-2nd	1	Full	656000	3840	22.59	24.00	1.384	-0.13	0.164	0.227

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
2400MHz																	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 6	-	Full	11	2462	19.66	20.50	1.213	100	1.000	0.05	0.559	0.678
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Full	11	2462	19.66	20.50	1.213	100	1.000	0.05	0.946	1.148
59	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Full	1	2412	19.53	20.50	1.250	100	1.000	0.06	1.060	**1.325**
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Full	6	2437	19.38	20.50	1.294	100	1.000	0.07	0.983	1.272
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	Headset	Full	1	2412	19.53	20.50	1.250	100	1.000	-0.08	0.857	1.071
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Reduced _Simultaneous	11	2462	14.53	15.00	1.114	100	1.000	0.05	0.325	0.362
60	Bluetooth	1Mbps	Back	5mm	Ant 6	-	Full	78	2480	10.28	11.00	1.181	76.77	1.303	-0.06	0.047	**0.072**
5000MHz																	
	WLAN5.3GHz	802.11n-HT40 MCS0	Front	5mm	Ant 6	-	Reduced	54	5270	15.87	17.00	1.297	97.19	1.029	0.05	0.371	0.495
61	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 6	-	Reduced	54	5270	15.87	17.00	1.297	97.19	1.029	0.15	0.832	**1.111**
	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 6	-	Reduced	62	5310	13.86	15.00	1.299	97.19	1.029	0.02	0.471	0.630
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced _Simultaneous	58	5290	10.92	12.00	1.282	94.53	1.058	0.01	0.274	0.372
	WLAN5.3GHz	802.11a 6Mbps	Front	13mm	Ant 6	-	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.03	0.195	0.242
	WLAN5.3GHz	802.11a 6Mbps	Back	19mm	Ant 6	-	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.05	0.285	0.354
	WLAN5.5GHz	802.11a 6Mbps	Front	5mm	Ant 6	-	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.02	0.512	0.633
62	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant 6	-	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.01	0.744	**0.920**
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant 6	-	Full	116	5580	18.08	19.00	1.236	97.47	1.026	0.03	0.665	0.843
	WLAN5.5GHz	802.11n-HT40 MCS0	Back	5mm	Ant 6	-	Reduced _Simultaneous	110	5550	13.62	14.50	1.225	97.19	1.029	-0.03	0.308	0.388
	WLAN5.8GHz	802.11a 6Mbps	Front	5mm	Ant 6	-	Full	157	5785	18.25	19.00	1.188	97.47	1.026	0.04	0.535	0.652
63	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Ant 6	-	Full	157	5785	18.25	19.00	1.188	97.47	1.026	0.02	0.864	**1.053**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Reduced _Simultaneous	155	5775	13.51	15.00	1.409	94.53	1.058	0.07	0.257	0.383
	WLAN5.8GHz	802.11a 6Mbps	Front	13mm	Ant 6	-	Full	157	5785	18.25	19.00	1.188	97.47	1.026	-0.01	0.156	0.190
	WLAN5.8GHz	802.11a 6Mbps	Back	19mm	Ant 6	-	Full	157	5785	18.25	19.00	1.188	97.47	1.026	0.06	0.301	0.367

16.4 Product Specific SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
750MHz																			
64	LTE Band 13	10M	QPSK	1	0	-	Back	0mm	Ant 0	1	Full	23230	782	22.67	24.00	1.358	-0.03	1.530	**2.078**
	LTE Band 13	10M	QPSK	25	0	-	Back	0mm	Ant 0	1	Full	23230	782	21.50	23.00	1.413	0.03	1.180	1.667
	LTE Band 13	10M	QPSK	50	0	-	Back	0mm	Ant 0	1	Full	23230	782	21.57	23.00	1.390	0.01	1.150	1.598
835MHz																			
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	1	Full	189	836.4	29.16	30.00	1.213	0.02	2.410	2.924
65	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	1	Full	128	824.2	29.02	30.00	1.253	-0.05	2.430	**3.045**
	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	1	Full	251	848.8	29.15	30.00	1.216	0.01	2.250	2.736
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	-0.03	1.560	2.260
66	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	1	Full	4132	826.4	22.34	24.00	1.466	-0.01	1.620	**2.374**
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 0	1	Full	4233	846.6	22.36	24.00	1.459	0.01	1.550	2.261
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	1	Full	4182	836.4	22.39	24.00	1.449	0.05	1.340	1.941
	LTE Band 26	15M	QPSK	1	0	-	Back	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	0.05	1.400	1.902
	LTE Band 26	15M	QPSK	36	0	-	Back	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	-0.08	1.210	1.694
67	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Full	26865	831.5	22.67	24.00	1.358	0.06	1.500	**2.037**
	LTE Band 26	15M	QPSK	36	0	-	Bottom Side	0mm	Ant 0	1	Full	26865	831.5	21.54	23.00	1.400	0.01	1.220	1.707
	LTE Band 26	15M	QPSK	75	0	-	Bottom Side	0mm	Ant 0	1	Full	26865	831.5	21.51	23.00	1.409	-0.08	1.290	1.818
	LTE Band 5_ ENDC	10M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	20525	836.5	21.07	23.00	1.560	-0.01	0.909	1.418
	LTE Band 5_ ENDC	10M	QPSK	25	0	-	Back	0mm	Ant 0	1	Reduced	20525	836.5	20.05	22.00	1.567	-0.05	0.719	1.126
	LTE Band 5_ ENDC	10M	QPSK	1	0	-	Back	16mm	Ant 0	1	Full	20525	836.5	22.62	24.00	1.374	-0.06	0.151	0.207
68	FR1 n5	20M	QPSK	1	1	DFT_SCS 15KHz	Back	0mm	Ant 0	1	Full	167300	836.5	22.99	24.00	1.262	-0.17	1.030	**1.300**
	FR1 n5	20M	QPSK	50	28	DFT_SCS 15KHz	Back	0mm	Ant 0	1	Full	167300	836.5	22.68	24.00	1.355	-0.05	0.875	1.186

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
1750MHz																			
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	1	Reduced	1413	1732.6	20.43	22.00	1.435	-0.03	1.480	2.125
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	1	Reduced	1312	1712.4	20.41	22.00	1.442	0.05	1.390	2.005
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 1	1	Reduced	1513	1752.6	20.42	22.00	1.439	0.01	1.550	2.230
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	1413	1732.6	20.43	22.00	1.435	-0.05	2.280	3.273
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	1312	1712.4	20.41	22.00	1.442	0.02	2.210	3.187
69	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	1513	1752.6	20.42	22.00	1.439	-0.05	2.410	**3.468**
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	6mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	-0.03	0.626	0.943
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	14mm	Ant 1	1	Full	1413	1732.6	22.22	24.00	1.507	0.01	0.256	0.386
	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 1	1	Reduced	132322	1745	21.63	23.00	1.371	-0.03	1.000	1.371
	LTE Band 66	20M	QPSK	50	0	-	Front	0mm	Ant 1	1	Reduced	132322	1745	20.50	22.00	1.413	0.09	0.799	1.129
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	132322	1745	21.63	23.00	1.371	0.11	2.230	3.057
	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	132072	1720	21.54	23.00	1.400	0.13	2.090	2.925
70	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	132572	1770	21.50	23.00	1.413	0.11	2.330	**3.291**
	LTE Band 66	20M	QPSK	50	0	-	Back	0mm	Ant 1	1	Reduced	132322	1745	20.50	22.00	1.413	0.06	1.310	1.850
	LTE Band 66	20M	QPSK	100	0	-	Back	0mm	Ant 1	1	Reduced	132322	1745	20.46	22.00	1.426	0.02	1.310	1.868
	LTE Band 66	20M	QPSK	1	0	-	Front	6mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.09	0.615	0.881
	LTE Band 66	20M	QPSK	1	0	-	Back	14mm	Ant 1	1	Full	132322	1745	22.44	24.00	1.432	0.01	0.224	0.321
	LTE Band 66_ENDC	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	132322	1745	16.45	18.00	1.429	0.03	0.958	1.369
	LTE Band 66_ENDC	20M	QPSK	50	0	-	Back	0mm	Ant 1	1	Reduced	132322	1745	15.49	17.00	1.416	0.05	0.767	1.086
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Back	0mm	Ant 1	1	Reduced	349000	1745	19.21	20.00	1.199	0.01	1.080	1.295
71	FR1 n66	40M	QPSK	108	54	DFT_SCS 15KHz	Back	0mm	Ant 1	1	Reduced	349000	1745	19.14	20.00	1.219	-0.06	1.190	**1.451**
	FR1 n66	40M	QPSK	1	1	DFT_SCS 15KHz	Back	14mm	Ant 1	1	Full	349000	1745	23.22	24.00	1.197	0.05	0.188	0.225

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
1900MHz																			
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	1	Full	661	1880	26.02	27.00	1.253	0.05	2.110	2.644
72	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	1	Full	512	1850.2	26.01	27.00	1.256	-0.03	2.800	**3.517**
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	2	Full	512	1850.2	26.01	27.00	1.256	-0.05	2.680	3.366
	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	1	Full	810	1909.8	25.91	27.00	1.285	-0.01	2.570	3.303
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	9400	1880	19.41	21.00	1.442	0.09	1.720	2.480
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	9262	1852.4	19.36	21.00	1.459	-0.01	2.270	3.312
73	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	1	Reduced	9538	1907.6	19.40	21.00	1.445	-0.05	2.360	**3.411**
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	14mm	Ant 1	1	Full	9400	1880	22.30	24.00	1.479	0.01	0.441	0.652
	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 1	1	Reduced	18900	1880	20.73	22.00	1.340	0.08	1.460	1.956
	LTE Band 2	20M	QPSK	50	0	-	Front	0mm	Ant 1	1	Reduced	18900	1880	19.67	21.00	1.358	-0.05	1.230	1.671
	LTE Band 2	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	18900	1880	20.73	22.00	1.340	0.01	1.960	2.626
74	LTE Band 2	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	18700	1860	20.68	22.00	1.355	-0.03	2.450	**3.320**
	LTE Band 2	20M	QPSK	1	0	-	Back	0mm	Ant 1	1	Reduced	19100	1900	20.63	22.00	1.371	0.08	1.880	2.577
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	1	Reduced	18900	1880	19.67	21.00	1.358	0.06	1.680	2.282
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	1	Reduced	18700	1860	19.60	21.00	1.380	-0.05	2.020	2.788
	LTE Band 2	20M	QPSK	50	0	-	Back	0mm	Ant 1	1	Reduced	19100	1900	19.57	21.00	1.390	0.04	1.700	2.363
	LTE Band 2	20M	QPSK	100	0	-	Back	0mm	Ant 1	1	Reduced	18900	1880	19.65	21.00	1.365	-0.05	1.630	2.224
	LTE Band 2	20M	QPSK	1	0	-	Front	6mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	-0.03	0.845	1.194
	LTE Band 2	20M	QPSK	1	0	-	Back	14mm	Ant 1	1	Full	18900	1880	22.50	24.00	1.413	0.09	0.397	0.561

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
2600MHz																					
	LTE Band 7	20M	QPSK	1	0	-	Front	0mm	Ant 0	1	Reduced	21100	2535	21.25	23.00	1.496		1.000	0.08	1.270	1.900
	LTE Band 7	20M	QPSK	50	0	-	Front	0mm	Ant 0	1	Reduced	21100	2535	20.20	22.00	1.514		1.000	0.06	1.130	1.710
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	21100	2535	21.25	23.00	1.496		1.000	-0.08	1.890	2.828
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	20850	2510	21.11	23.00	1.545		1.000	0.07	1.920	2.967
75	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	21350	2560	21.14	23.00	1.535		1.000	-0.02	1.960	**3.008**
	LTE Band 7 UL CA 7C	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	21350+ 21152	2560+ 2540.2	21.21	23.00	1.510		1.000	0.05	1.750	2.643
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 0	1	Reduced	21100	2535	20.20	22.00	1.514		1.000	0.01	1.660	2.513
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 0	1	Reduced	20850	2510	20.04	22.00	1.570		1.000	-0.03	1.710	2.685
	LTE Band 7	20M	QPSK	50	0	-	Back	0mm	Ant 0	1	Reduced	21350	2560	20.14	22.00	1.535		1.000	-0.04	1.810	2.778
	LTE Band 7	20M	QPSK	100	0	-	Back	0mm	Ant 0	1	Reduced	21100	2535	20.15	22.00	1.531		1.000	0.04	1.690	2.588
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21100	2535	21.25	23.00	1.496		1.000	0.07	1.660	2.484
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Reduced	20850	2510	21.11	23.00	1.545		1.000	0.05	1.680	2.596
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21350	2560	21.14	23.00	1.535		1.000	0.04	1.740	2.670
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21100	2535	20.20	22.00	1.514		1.000	0.07	1.450	2.195
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Reduced	20850	2510	20.04	22.00	1.570		1.000	0.06	1.450	2.277
	LTE Band 7	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21350	2560	20.14	22.00	1.535		1.000	-0.09	1.540	2.363
	LTE Band 7	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21100	2535	20.15	22.00	1.531		1.000	0.07	1.480	2.266
	LTE Band 7	20M	QPSK	1	0	-	Front	10mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306		1.000	-0.04	0.467	0.610
	LTE Band 7	20M	QPSK	1	0	-	Back	16mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306		1.000	0.09	0.205	0.268
	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	13mm	Ant 0	1	Full	21100	2535	22.84	24.00	1.306		1.000	0.06	0.491	0.641
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	21100	2535	17.88	19.50	1.452		1.000	0.12	0.931	1.352
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Back	0mm	Ant 0	1	Reduced	21100	2535	16.94	18.50	1.432		1.000	-0.11	0.721	1.033
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21100	2535	17.88	19.50	1.452		1.000	0.05	0.805	1.169
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Reduced	21100	2535	16.94	18.50	1.432		1.000	0.03	0.711	1.018
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	1	Reduced	21100	2535	18.84	19.50	1.164		1.000	0.01	1.220	1.420
	LTE Band 7_ENDC	20M	QPSK	50	0	-	Top Side	0mm	Ant 4	1	Reduced	21100	2535	18.69	19.50	1.205		1.000	0.02	0.964	1.162
	LTE Band 7_ENDC	20M	QPSK	1	0	-	Top Side	14mm	Ant 4	1	Full	21100	2535	23.19	24.00	1.205		1.000	0.01	0.339	0.409
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Top Side	0mm	Ant 4	1	Reduced	507000	2535	19.41	20.00	1.146		1.000	0.03	1.110	1.272
76	FR1 n7	20M	QPSK	50	28	DFT_SCS 15KHz	Top Side	0mm	Ant 4	1	Reduced	507000	2535	19.38	20.00	1.153		1.000	0.02	1.210	**1.396**
	FR1 n7	20M	QPSK	1	1	DFT_SCS 15KHz	Top Side	14mm	Ant 4	1	Full	507000	2535	23.03	24.00	1.250		1.000	0.11	0.352	0.440
77	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	-0.03	1.750	**2.161**
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Full	40140	2545	23.00	24.00	1.259	62.9	1.006	0.09	1.440	1.824
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Full	40400	2571	22.95	24.00	1.274	62.9	1.006	-0.12	1.550	1.986
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Full	41140	2645	22.93	24.00	1.279	62.9	1.006	0.11	1.410	1.815
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Full	40670	2598	22.11	23.00	1.227	62.9	1.006	0.07	1.390	1.716
	LTE Band 41	20M	QPSK	100	0	-	Bottom Side	0mm	Ant 0	1	Full	40670	2598	22.06	23.00	1.242	62.9	1.006	0.06	1.340	1.674
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Back	0mm	Ant 0	1	Reduced	40670	2598	20.96	22.50	1.426	62.9	1.006	-0.03	0.932	1.337
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Back	0mm	Ant 0	1	Reduced	40670	2598	19.76	21.50	1.493	62.9	1.006	0.02	0.745	1.119
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	1	Reduced	40670	2598	20.96	22.50	1.426	62.9	1.006	-0.09	0.783	1.123
	LTE Band 41_ENDC	20M	QPSK	50	0	-	Bottom Side	0mm	Ant 0	1	Reduced	40670	2598	19.76	21.50	1.493	62.9	1.006	0.01	0.630	0.946
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Back	16mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.05	0.148	0.183
	LTE Band 41_ENDC	20M	QPSK	1	0	-	Bottom Side	13mm	Ant 0	1	Full	40670	2598	23.11	24.00	1.227	62.9	1.006	0.01	0.285	0.352

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Top Side	0mm	Ant 5-1st	1	Reduced	656000	3840	17.54	18.50	1.247	0.06	0.751	0.937
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	0mm	Ant 5-1st	1	Reduced	656000	3840	17.46	18.50	1.271	0.12	0.832	1.057
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	7mm	Ant 5-1st	1	Full	656000	3840	22.59	24.00	1.384	0.05	0.873	1.208
	FR1 n77	100M	QPSK	1	137	DFT_SCS 30KHz	Top Side	0mm	Ant 5-2nd	1	Reduced	656000	3840	17.54	18.50	1.247	-0.03	1.020	1.272
78	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	0mm	Ant 5-2nd	1	Reduced	656000	3840	17.46	18.50	1.271	-0.07	1.040	**1.321**
	FR1 n77	100M	QPSK	135	69	DFT_SCS 30KHz	Top Side	7mm	Ant 5-2nd	1	Full	656000	3840	22.59	24.00	1.384	-0.03	0.497	0.688

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Sample	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)
2450MHz																	
79	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 6	1	Full	11	2462	19.66	20.50	1.213	100	1.000	0.09	1.500	**1.820**
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant 6	1	Reduced-simultaneous	1	2412	17.36	18.00	1.159	100	1.000	0.04	0.852	0.987
5GHz																	
80	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	1	Full	48	5240	18.23	19.00	1.194	97.47	1.026	0.06	1.270	**1.555**
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	1	Reduced-simultaneous	46	5230	15.84	17.00	1.306	97.19	1.029	-0.02	0.585	0.786
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 6	1	Reduced-simultaneous	46	5230	15.84	17.00	1.306	97.19	1.029	0.02	0.716	0.962
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 6	1	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.01	0.803	0.997
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 6	1	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.05	1.010	1.254
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 6	1	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.06	0.313	0.389
81	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	1	Full	52	5260	18.17	19.00	1.210	97.47	1.026	0.04	1.150	**1.428**
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 6	1	Reduced-simultaneous	54	5270	15.87	17.00	1.297	97.19	1.029	-0.02	0.685	0.914
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 6	1	Reduced-simultaneous	54	5270	15.87	17.00	1.297	97.19	1.029	-0.09	0.750	1.001
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 6	1	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.06	0.378	0.467
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 6	1	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.04	0.682	0.843
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 6	1	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.02	0.165	0.204
82	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	1	Full	132	5660	18.19	19.00	1.205	97.47	1.026	0.03	1.050	**1.298**
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 6	1	Reduced-simultaneous	132	5660	17.26	18.00	1.186	97.47	1.026	-0.06	0.405	0.493
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	1	Reduced-simultaneous	132	5660	17.26	18.00	1.186	97.47	1.026	0.01	0.787	0.957
83	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	1	Full	157	5785	18.25	19.00	1.188	97.47	1.026	0.07	1.280	**1.560**
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant 6	1	Reduced-simultaneous	155	5775	15.90	17.00	1.288	94.53	1.058	-0.09	0.409	0.557
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 6	1	Reduced-simultaneous	155	5775	15.90	17.00	1.288	94.53	1.058	-0.1	0.656	0.894

16.5 Repeated SAR Measurement

<1g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Full	1	2412	19.53	20.50	1.250	100	1.000	-0.07	1.150	1	1.438
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Full	1	2412	19.53	20.50	1.250	100	1.000	-0.02	1.090	1.055	1.363
1st	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Reduced	116	5580	16.72	17.50	1.197	97.47	1.026	-0.01	0.884	1	1.085
2nd	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Reduced	116	5580	16.72	17.50	1.197	97.47	1.026	0.06	0.851	1.039	1.045
1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	Full	23230	782	22.67	24.00	1.358		1.000	-0.06	1.010	1	1.372
2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	Full	23230	782	22.67	24.00	1.358		1.000	-0.03	0.968	1.043	1.315
1st	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	26865	831.5	21.01	22.50	1.409		1.000	0.01	0.937	1	1.321
2nd	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	26865	831.5	21.01	22.50	1.409		1.000	0.06	0.921	1.017	1.298
1st	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	132322	1745	19.60	21.00	1.380		1.000	-0.15	0.932	1	1.287
2nd	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	Reduced	132322	1745	19.60	21.00	1.380		1.000	-0.06	0.921	1.012	1.271
1st	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	512	1850.2	25.74	26.50	1.191		1.000	-0.15	1.080	1	1.287
2nd	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	5mm	Ant 1	Reduced	512	1850.2	25.74	26.50	1.191		1.000	-0.09	1.010	1.069	1.203
1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	20850	2510	19.85	21.00	1.303		1.000	-0.08	1.050	1	1.368
2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	Reduced	20850	2510	19.85	21.00	1.303		1.000	-0.08	1.000	1.050	1.303

<10g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Full	128	824.2	29.02	30.00	1.253		1.000	-0.05	2.430	1	3.045
2nd	GSM850	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 0	Full	128	824.2	29.02	30.00	1.253		1.000	-0.02	2.390	1.017	2.995
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	20.42	22.00	1.439		1.000	-0.05	2.410	1	3.468
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	0mm	Ant 1	Reduced	1513	1752.6	20.42	22.00	1.439		1.000	-0.05	2.350	1.026	3.381
1st	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	Full	512	1850.2	26.01	27.00	1.256		1.000	-0.03	2.800	1	3.517
2nd	GSM1900	-	-	-	-	GPRS (4 Tx slots)	Back	0mm	Ant 1	Full	512	1850.2	26.01	27.00	1.256		1.000	-0.09	2.710	1.033	3.404

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.	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. WWAN bands include 5GNR limited to EN-DC mode.
3. EUT will choose each GSM, WCDMA, and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
5. This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
6. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
7. According to the EUT character, WLAN 5GHz and Bluetooth can't transmit simultaneously.
8. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
9. For head/hotspot/body-worn, we chose the worst zoom scan SAR of Bluetooth correspondingly for co-located with WWAN analysis.
10. The reported SAR summation is calculated based on the same configuration and test position.
11. 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 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN Ant 6	5GHz WLAN Ant 6	Bluetooth Ant 6	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	GSM850Ant 0	Right Cheek	0.460	0.511	0.513	0.034	0.97	0.97	0.49
		Right Tilted	0.215	0.511	0.513	0.034	0.73	0.73	0.25
		Left Cheek	0.385	0.511	0.513	0.034	0.90	0.90	0.42
		Left Tilted	0.198	0.511	0.513	0.034	0.71	0.71	0.23
	GSM1900Ant 1	Right Cheek	0.083	0.511	0.513	0.034	0.59	0.60	0.12
		Right Tilted	0.074	0.511	0.513	0.034	0.59	0.59	0.11
		Left Cheek	0.153	0.511	0.513	0.034	0.66	0.67	0.19
		Left Tilted	0.064	0.511	0.513	0.034	0.58	0.58	0.10
WCDMA	WCDMA IIAnt 1	Right Cheek	0.223	0.511	0.513	0.034	0.73	0.74	0.26
		Right Tilted	0.186	0.511	0.513	0.034	0.70	0.70	0.22
		Left Cheek	0.367	0.511	0.513	0.034	0.88	0.88	0.40
		Left Tilted	0.167	0.511	0.513	0.034	0.68	0.68	0.20
	WCDMA IVAnt 1	Right Cheek	0.224	0.511	0.513	0.034	0.74	0.74	0.26
		Right Tilted	0.215	0.511	0.513	0.034	0.73	0.73	0.25
		Left Cheek	0.392	0.511	0.513	0.034	0.90	0.91	0.43
		Left Tilted	0.215	0.511	0.513	0.034	0.73	0.73	0.25
	WCDMA VAnt 0	Right Cheek	0.427	0.511	0.513	0.034	0.94	0.94	0.46
		Right Tilted	0.159	0.511	0.513	0.034	0.67	0.67	0.19
		Left Cheek	0.342	0.511	0.513	0.034	0.85	0.86	0.38
		Left Tilted	0.168	0.511	0.513	0.034	0.68	0.68	0.20
LTE	LTE Band 2Ant 1	Right Cheek	0.186	0.511	0.513	0.034	0.70	0.70	0.22
		Right Tilted	0.185	0.511	0.513	0.034	0.70	0.70	0.22
		Left Cheek	0.302	0.511	0.513	0.034	0.81	0.82	0.34
		Left Tilted	0.143	0.511	0.513	0.034	0.65	0.66	0.18
	LTE Band 7Ant 0	Right Cheek	0.287	0.511	0.513	0.034	0.80	0.80	0.32
		Right Tilted	0.145	0.511	0.513	0.034	0.66	0.66	0.18
		Left Cheek	0.346	0.511	0.513	0.034	0.86	0.86	0.38
		Left Tilted	0.229	0.511	0.513	0.034	0.74	0.74	0.26
	LTE Band 12Ant 0	Right Cheek	0.267	0.511	0.513	0.034	0.78	0.78	0.30
		Right Tilted	0.126	0.511	0.513	0.034	0.64	0.64	0.16
		Left Cheek	0.244	0.511	0.513	0.034	0.76	0.76	0.28
		Left Tilted	0.124	0.511	0.513	0.034	0.64	0.64	0.16
	LTE Band 13Ant 0	Right Cheek	0.376	0.511	0.513	0.034	0.89	0.89	0.41
		Right Tilted	0.168	0.511	0.513	0.034	0.68	0.68	0.20
		Left Cheek	0.319	0.511	0.513	0.034	0.83	0.83	0.35
		Left Tilted	0.166	0.511	0.513	0.034	0.68	0.68	0.20
	LTE Band 26Ant 0	Right Cheek	0.386	0.511	0.513	0.034	0.90	0.90	0.42
		Right Tilted	0.187	0.511	0.513	0.034	0.70	0.70	0.22
		Left Cheek	0.326	0.511	0.513	0.034	0.84	0.84	0.36
		Left Tilted	0.175	0.511	0.513	0.034	0.69	0.69	0.21
	LTE Band 66Ant 1	Right Cheek	0.198	0.511	0.513	0.034	0.71	0.71	0.23
		Right Tilted	0.222	0.511	0.513	0.034	0.73	0.74	0.26
		Left Cheek	0.354	0.511	0.513	0.034	0.87	0.87	0.39
		Left Tilted	0.213	0.511	0.513	0.034	0.72	0.73	0.25
	LTE Band 41Ant 0	Right Cheek	0.106	0.511	0.513	0.034	0.62	0.62	0.14
		Right Tilted	0.063	0.511	0.513	0.034	0.57	0.58	0.10
		Left Cheek	0.158	0.511	0.513	0.034	0.67	0.67	0.19
		Left Tilted	0.121	0.511	0.513	0.034	0.63	0.63	0.16

<5G NR>

WWAN Band	FR1 Band	Exposure Position	1	5	2	3	4	1+2+5	1+3+5	1+4+5
			WWAN	FR1	2.4GHz WLAN Ant 6	5GHz WLAN Ant 6	Bluetooth Ant 6	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 7Ant 4	FR1 n5Ant 0	Right Cheek	0.533	0.263	0.511	0.513	0.034	1.31	1.31	0.83
		Right Tilted	0.603	0.130	0.511	0.513	0.034	1.24	1.25	0.77
		Left Cheek	0.192	0.236	0.511	0.513	0.034	0.94	0.94	0.46
		Left Tilted	0.236	0.134	0.511	0.513	0.034	0.88	0.88	0.40
LTE Band 5Ant 0	FR1 n7Ant 4	Right Cheek	0.386	0.484	0.511	0.513	0.034	1.38	1.38	0.90
		Right Tilted	0.187	0.571	0.511	0.513	0.034	1.27	1.27	0.79
		Left Cheek	0.326	0.182	0.511	0.513	0.034	1.02	1.02	0.54
		Left Tilted	0.175	0.249	0.511	0.513	0.034	0.94	0.94	0.46
LTE Band 66Ant 1	FR1 n7Ant 4	Right Cheek	0.198	0.484	0.511	0.513	0.034	1.19	1.20	0.72
		Right Tilted	0.222	0.571	0.511	0.513	0.034	1.30	1.31	0.83
		Left Cheek	0.354	0.182	0.511	0.513	0.034	1.05	1.05	0.57
		Left Tilted	0.213	0.249	0.511	0.513	0.034	0.97	0.98	0.50
LTE Band 7Ant 4	FR1 n66Ant 1	Right Cheek	0.533	0.121	0.511	0.513	0.034	1.17	1.17	0.69
		Right Tilted	0.603	0.127	0.511	0.513	0.034	1.24	1.24	0.76
		Left Cheek	0.192	0.192	0.511	0.513	0.034	0.90	0.90	0.42
		Left Tilted	0.236	0.142	0.511	0.513	0.034	0.89	0.89	0.41
LTE Band 5Ant 0	FR1 n78 Ant 5-1st	Right Cheek	0.386	0.377	0.511	0.513	0.034	1.27	1.28	0.80
		Right Tilted	0.187	0.391	0.511	0.513	0.034	1.09	1.09	0.61
		Left Cheek	0.326	0.524	0.511	0.513	0.034	1.36	1.36	0.88
		Left Tilted	0.175	0.518	0.511	0.513	0.034	1.20	1.21	0.73
LTE Band 7Ant 0	FR1 n78 Ant 5-1st	Right Cheek	0.287	0.377	0.511	0.513	0.034	1.18	1.18	0.70
		Right Tilted	0.145	0.391	0.511	0.513	0.034	1.05	1.05	0.57
		Left Cheek	0.346	0.524	0.511	0.513	0.034	1.38	1.38	0.90
		Left Tilted	0.229	0.518	0.511	0.513	0.034	1.26	1.26	0.78
LTE Band 38Ant 0	FR1 n78 Ant 5-1st	Right Cheek	0.106	0.377	0.511	0.513	0.034	0.99	1.00	0.52
		Right Tilted	0.063	0.391	0.511	0.513	0.034	0.97	0.97	0.49
		Left Cheek	0.158	0.524	0.511	0.513	0.034	1.19	1.20	0.72
		Left Tilted	0.121	0.518	0.511	0.513	0.034	1.15	1.15	0.67
LTE Band 66Ant 1	FR1 n78 Ant 5-1st	Right Cheek	0.198	0.377	0.511	0.513	0.034	1.09	1.09	0.61
		Right Tilted	0.222	0.391	0.511	0.513	0.034	1.12	1.13	0.65
		Left Cheek	0.354	0.524	0.511	0.513	0.034	1.39	1.39	0.91
		Left Tilted	0.213	0.518	0.511	0.513	0.034	1.24	1.24	0.77
LTE Band 41Ant 0	FR1 n77 Ant 5-1st	Right Cheek	0.106	0.377	0.511	0.513	0.034	0.99	1.00	0.52
		Right Tilted	0.063	0.391	0.511	0.513	0.034	0.97	0.97	0.49
		Left Cheek	0.158	0.524	0.511	0.513	0.034	1.19	1.20	0.72
		Left Tilted	0.121	0.518	0.511	0.513	0.034	1.15	1.15	0.67
LTE Band 5Ant 0	FR1 n78 Ant 5-2nd	Right Cheek	0.386	0.285	0.511	0.513	0.034	1.18	1.18	0.71
		Right Tilted	0.187	0.356	0.511	0.513	0.034	1.05	1.06	0.58
		Left Cheek	0.326	0.446	0.511	0.513	0.034	1.28	1.29	0.81
		Left Tilted	0.175	0.499	0.511	0.513	0.034	1.19	1.19	0.71
LTE Band 7Ant 0	FR1 n78 Ant 5-2nd	Right Cheek	0.287	0.285	0.511	0.513	0.034	1.08	1.09	0.61
		Right Tilted	0.145	0.356	0.511	0.513	0.034	1.01	1.01	0.54
		Left Cheek	0.346	0.446	0.511	0.513	0.034	1.30	1.31	0.83
		Left Tilted	0.229	0.499	0.511	0.513	0.034	1.24	1.24	0.76
LTE Band 38Ant 0	FR1 n78 Ant 5-2nd	Right Cheek	0.106	0.285	0.511	0.513	0.034	0.90	0.90	0.43
		Right Tilted	0.063	0.356	0.511	0.513	0.034	0.93	0.93	0.45
		Left Cheek	0.158	0.446	0.511	0.513	0.034	1.12	1.12	0.64
		Left Tilted	0.121	0.499	0.511	0.513	0.034	1.13	1.13	0.65
LTE Band 66Ant 1	FR1 n78 Ant 5-2nd	Right Cheek	0.198	0.285	0.511	0.513	0.034	0.99	1.00	0.52
		Right Tilted	0.222	0.356	0.511	0.513	0.034	1.09	1.09	0.61
		Left Cheek	0.354	0.446	0.511	0.513	0.034	1.31	1.31	0.83

		Left Tilted	0.213	0.499	0.511	0.513	0.034	1.22	1.23	0.75
LTE Band 41Ant 0	FR1 n77 Ant 5-2nd	Right Cheek	0.106	0.285	0.511	0.513	0.034	0.90	0.90	0.43
		Right Tilted	0.063	0.356	0.511	0.513	0.034	0.93	0.93	0.45
		Left Cheek	0.158	0.446	0.511	0.513	0.034	1.12	1.12	0.64
		Left Tilted	0.121	0.499	0.511	0.513	0.034	1.13	1.13	0.65

17.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 6 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 6 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3 Summed 1g SAR (W/kg)	Case No	SPLSR	1+4 Summed 1g SAR (W/kg)
GSM	GSM850Ant 0	Front	0.487	0.194	0.152	0.072	0.68			0.64			0.56
		Back	1.302	0.362	0.252	0.072	**1.66**	**01**	**0.01**	1.55			1.37
		Left side	0.112				0.11			0.11			0.11
		Right side	0.261	0.116	0.108	0.072	0.38			0.37			0.33
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.663				0.66			0.66			0.66
	GSM1900Ant 1	Front	0.617	0.194	0.152	0.072	0.81			0.77			0.69
		Back	1.287	0.362	0.252	0.072	**1.65**	**02**	**0.01**	1.54			1.36
		Left side	0.378				0.38			0.38			0.38
		Right side		0.116	0.108	0.072	0.12			0.11			0.07
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.557				0.56			0.56			0.56
WCDMA	WCDMA IIAnt 1	Front	0.730	0.194	0.152	0.072	0.92			0.88			0.80
		Back	1.371	0.362	0.252	0.072	**1.73**	**03**	**0.01**	**1.62**	**04**	**0.01**	**1.44**
		Left side	0.500				0.50			0.50			0.50
		Right side		0.116	0.108	0.072	0.12			0.11			0.07
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.568				0.57			0.57			0.57
	WCDMA IVAnt 1	Front	1.022	0.194	0.152	0.072	1.22			1.17			1.09
		Back	1.319	0.362	0.252	0.072	**1.68**	**05**	**0.01**	1.57			1.39
		Left side	0.620				0.62			0.62			0.62
		Right side		0.116	0.108	0.072	0.12			0.11			0.07
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.683				0.68			0.68			0.68
	WCDMA VAnt 0	Front	0.724	0.194	0.152	0.072	0.92			0.88			0.80
		Back	1.330	0.362	0.252	0.072	**1.69**	**06**	**0.01**	**1.58**			1.40
		Left side	0.161				0.16			0.16			0.16
		Right side	0.423	0.116	0.108	0.072	0.54			0.53			0.50
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	1.047				1.05			1.05			1.05
LTE	LTE Band 2Ant 1	Front	0.782	0.194	0.152	0.072	0.98			0.93			0.85
		Back	1.281	0.362	0.252	0.072	**1.64**	**07**	**0.01**	1.53			1.35
		Left side	0.522				0.52			0.52			0.52
		Right side		0.116	0.108	0.072	0.12			0.11			0.07
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.627				0.63			0.63			0.63
	LTE Band 7Ant 0	Front	1.107	0.194	0.152	0.072	1.30			1.26			1.18
		Back	1.368	0.362	0.252	0.072	**1.73**	**08**	**0.01**	**1.62**	**09**	**0.01**	1.44
		Left side	0.320				0.32			0.32			0.32
		Right side	0.221	0.116	0.108	0.072	0.34			0.33			0.29
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	1.290				1.29			1.29			1.29
	LTE Band 12Ant 0	Front	0.437	0.194	0.152	0.072	0.63			0.59			0.51
		Back	0.971	0.362	0.252	0.072	1.33			1.22			1.04
		Left side	0.230				0.23			0.23			0.23

		Right side	0.551	0.116	0.108	0.072	0.67			0.66			0.62
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.694				0.69			0.69			0.69
	LTE Band 13Ant 0	Front	0.716	0.194	0.152	0.072	0.91			0.87			0.79
		Back	1.372	0.362	0.252	0.072	**1.73**	**10**	**0.01**	**1.62**	**11**	**0.01**	1.44
		Left side	0.244				0.24			0.24			0.24
		Right side	0.607	0.116	0.108	0.072	0.72			0.72			0.68
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	1.119				1.12			1.12			1.12
	LTE Band 26Ant 0	Front	0.733	0.194	0.152	0.072	0.93			0.89			0.81
		Back	1.321	0.362	0.252	0.072	**1.68**	**12**	**0.01**	1.57			1.39
		Left side	0.221				0.22			0.22			0.22
		Right side	0.551	0.116	0.108	0.072	0.67			0.66			0.62
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.881				0.88			0.88			0.88
	LTE Band 66Ant 1	Front	0.993	0.194	0.152	0.072	1.19			1.15			1.07
		Back	1.287	0.362	0.252	0.072	**1.65**	**13**	**0.01**	1.54			1.36
		Left side	0.703				0.70			0.70			0.70
		Right side		0.116	0.108	0.072	0.12			0.11			0.07
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	0.747				0.75			0.75			0.75
	LTE Band 41Ant 0	Front	0.799	0.194	0.152	0.072	0.99			0.95			0.87
		Back	1.045	0.362	0.252	0.072	1.41			1.30			1.12
		Left side	0.350				0.35			0.35			0.35
		Right side	0.214	0.116	0.108	0.072	0.33			0.32			0.29
		Top side		0.188	0.379	0.072	0.19			0.38			0.07
		Bottom side	1.297				1.30			1.30			1.30

<5G NR>

WWAN Band	FR1 Band	Exposure Position	1 WWAN 1g SAR (W/kg)	5 FR1 1g SAR (W/kg)	2 2.4GHz WLAN Ant 6 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 6 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)
LTE Band 7Ant 4	FR1 n5Ant 0	Front	0.538	0.287	0.194	0.152	0.072	1.02	0.98	0.90
		Back	0.542	0.548	0.362	0.252	0.072	1.45	1.34	1.16
		Left side	0.231	0.079				0.31	0.31	0.31
		Right side		0.223	0.116	0.108	0.072	0.34	0.33	0.30
		Top side	0.603		0.188	0.379	0.072	0.79	0.98	0.68
		Bottom side		0.309				0.31	0.31	0.31
LTE Band 5Ant 0	FR1 n7Ant 4	Front	0.300	0.478	0.194	0.152	0.072	0.97	0.93	0.85
		Back	0.550	0.572	0.362	0.252	0.072	1.48	1.37	1.19
		Left side	0.066	0.216				0.28	0.28	0.28
		Right side	0.159		0.116	0.108	0.072	0.28	0.27	0.23
		Top side		0.564	0.188	0.379	0.072	0.75	0.94	0.64
		Bottom side	0.397					0.40	0.40	0.40
LTE Band 66Ant 1	FR1 n7Ant 4	Front	0.344	0.478	0.194	0.152	0.072	1.02	0.97	0.89
		Back	0.526	0.572	0.362	0.252	0.072	1.46	1.35	1.17
		Left side	0.264	0.216				0.48	0.48	0.48
		Right side			0.116	0.108	0.072	0.12	0.11	0.07
		Top side		0.564	0.188	0.379	0.072	0.75	0.94	0.64
		Bottom side	0.364					0.36	0.36	0.36
LTE Band 7Ant 4	FR1 n66Ant 1	Front	0.538	0.403	0.194	0.152	0.072	1.14	1.09	1.01
		Back	0.542	0.562	0.362	0.252	0.072	1.47	1.36	1.18
		Left side	0.231	0.406				0.64	0.64	0.64
		Right side			0.116	0.108	0.072	0.12	0.11	0.07
		Top side	0.603		0.188	0.379	0.072	0.79	0.98	0.68
		Bottom side		0.422				0.42	0.42	0.42
LTE Band 5Ant 0	FR1 n78 Ant 5-1st	Front	0.300	0.416	0.194	0.152	0.072	0.91	0.87	0.79
		Back	0.550	0.588	0.362	0.252	0.072	**1.50**	1.39	1.21
		Left side	0.066					0.07	0.07	0.07
		Right side	0.159	0.137	0.116	0.108	0.072	0.41	0.40	0.37
		Top side		0.508	0.188	0.379	0.072	0.70	0.89	0.58
		Bottom side	0.397					0.40	0.40	0.40
LTE Band 7Ant 0	FR1 n78 Ant 5-1st	Front	0.423	0.416	0.194	0.152	0.072	1.03	0.99	0.91
		Back	0.510	0.588	0.362	0.252	0.072	1.46	1.35	1.17
		Left side	0.112					0.11	0.11	0.11
		Right side	0.089	0.137	0.116	0.108	0.072	0.34	0.33	0.30
		Top side		0.508	0.188	0.379	0.072	0.70	0.89	0.58
		Bottom side	0.506					0.51	0.51	0.51
LTE Band 38Ant 0	FR1 n78 Ant 5-1st	Front	0.408	0.416	0.194	0.152	0.072	1.02	0.98	0.90
		Back	0.510	0.588	0.362	0.252	0.072	1.46	1.35	1.17
		Left side	0.130					0.13	0.13	0.13
		Right side	0.082	0.137	0.116	0.108	0.072	0.34	0.33	0.29
		Top side		0.508	0.188	0.379	0.072	0.70	0.89	0.58
		Bottom side	0.496					0.50	0.50	0.50
LTE Band 66Ant 1	FR1 n78 Ant 5-1st	Front	0.344	0.416	0.194	0.152	0.072	0.95	0.91	0.83
		Back	0.526	0.588	0.362	0.252	0.072	1.48	1.37	1.19
		Left side	0.264					0.26	0.26	0.26
		Right side		0.137	0.116	0.108	0.072	0.25	0.25	0.21
		Top side		0.508	0.188	0.379	0.072	0.70	0.89	0.58
		Bottom side	0.364					0.36	0.36	0.36
LTE Band 41Ant 0	FR1 n77 Ant 5-1st	Front	0.408	0.416	0.194	0.152	0.072	1.02	0.98	0.90
		Back	0.510	0.588	0.362	0.252	0.072	1.46	1.35	1.17
		Left side	0.130					0.13	0.13	0.13
		Right side	0.082	0.137	0.116	0.108	0.072	0.34	0.33	0.29
		Top side		0.508	0.188	0.379	0.072	0.70	0.89	0.58
		Bottom side	0.496					0.50	0.50	0.50

WWAN Band	FR1 Band	Exposure Position	1 WWAN 1g SAR (W/kg)	5 FR1 1g SAR (W/kg)	2 2.4GHz WLAN Ant 6 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 6 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)
LTE Band 5Ant 0	FR1 n78 Ant 5-2nd	Front	0.300	0.338	0.194	0.152	0.072	0.83	0.79	0.71
		Back	0.550	0.505	0.362	0.252	0.072	1.42	1.31	1.13
		Left side	0.066					0.07	0.07	0.07
		Right side	0.159	0.102	0.116	0.108	0.072	0.38	0.37	0.33
		Top side		0.544	0.188	0.379	0.072	0.73	0.92	0.62
		Bottom side	0.397					0.40	0.40	0.40
LTE Band 7Ant 0	FR1 n78 Ant 5-2nd	Front	0.423	0.338	0.194	0.152	0.072	0.96	0.91	0.83
		Back	0.510	0.505	0.362	0.252	0.072	1.38	1.27	1.09
		Left side	0.112					0.11	0.11	0.11
		Right side	0.089	0.102	0.116	0.108	0.072	0.31	0.30	0.26
		Top side		0.544	0.188	0.379	0.072	0.73	0.92	0.62
		Bottom side	0.506					0.51	0.51	0.51
LTE Band 38Ant 0	FR1 n78 Ant 5-2nd	Front	0.408	0.338	0.194	0.152	0.072	0.94	0.90	0.82
		Back	0.510	0.505	0.362	0.252	0.072	1.38	1.27	1.09
		Left side	0.130					0.13	0.13	0.13
		Right side	0.082	0.102	0.116	0.108	0.072	0.30	0.29	0.26
		Top side		0.544	0.188	0.379	0.072	0.73	0.92	0.62
		Bottom side	0.496					0.50	0.50	0.50
LTE Band 66Ant 1	FR1 n78 Ant 5-2nd	Front	0.344	0.338	0.194	0.152	0.072	0.88	0.83	0.75
		Back	0.526	0.505	0.362	0.252	0.072	1.39	1.28	1.10
		Left side	0.264					0.26	0.26	0.26
		Right side		0.102	0.116	0.108	0.072	0.22	0.21	0.17
		Top side		0.544	0.188	0.379	0.072	0.73	0.92	0.62
		Bottom side	0.364					0.36	0.36	0.36
LTE Band 41Ant 0	FR1 n77 Ant 5-2nd	Front	0.408	0.338	0.194	0.152	0.072	0.94	0.90	0.82
		Back	0.510	0.505	0.362	0.252	0.072	1.38	1.27	1.09
		Left side	0.130					0.13	0.13	0.13
		Right side	0.082	0.102	0.116	0.108	0.072	0.30	0.29	0.26
		Top side		0.544	0.188	0.379	0.072	0.73	0.92	0.62
		Bottom side	0.496					0.50	0.50	0.50

17.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 6 1g SAR (W/kg)	3 5GHz WLAN Ant 6 1g SAR (W/kg)	4 Bluetooth Ant 6 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	Case No	SPLSR	1+3 Summed 1g SAR (W/kg)	Case No	SPLSR	1+4 Summed 1g SAR (W/kg)
GSM	GSM850Ant 0	Front	0.487	0.362	0.388	0.072	0.85			0.88			0.56
		Back	1.302	0.362	0.388	0.072	**1.66**	**01**	**0.01**	**1.69**	**14**	**0.01**	1.37
		Front with Headset											
		Back with Headset	1.205				1.21			1.21			1.21
	GSM1900Ant 1	Front	0.617	0.362	0.388	0.072	0.98			1.01			0.69
		Back	1.287	0.362	0.388	0.072	**1.65**	**02**	**0.01**	**1.68**	**15**	**0.01**	1.36
		Front with Headset											
		Back with Headset	0.848				0.85			0.85			0.85
WCDMA	WCDMA IIAnt 1	Front	0.730	0.362	0.388	0.072	1.09			1.12			0.80
		Back	1.371	0.362	0.388	0.072	**1.73**	**03**	**0.01**	**1.76**	**16**	**0.01**	1.44
		Front with Headset											
		Back with Headset	0.766				0.77			0.77			0.77
	WCDMA IVAnt 1	Front	1.022	0.362	0.388	0.072	1.38			1.41			1.09
		Back	1.319	0.362	0.388	0.072	**1.68**	**05**	**0.01**	**1.71**	**17**	**0.01**	1.39
		Front with Headset											
		Back with Headset	1.257				1.26			1.26			1.26
	WCDMA VAnt 0	Front	0.724	0.362	0.388	0.072	1.09			1.11			0.80
		Back	1.330	0.362	0.388	0.072	**1.69**	**06**	**0.01**	**1.72**	**18**	**0.01**	1.40
		Front with Headset											
		Back with Headset	1.302				1.30			1.30			1.30
LTE	LTE Band 2Ant 1	Front	0.782	0.362	0.388	0.072	1.14			1.17			0.85
		Back	1.281	0.362	0.388	0.072	**1.64**	**07**	**0.01**	**1.67**	**19**	**0.01**	1.35
		Front with Headset											
		Back with Headset	0.731				0.73			0.73			0.73
	LTE Band 7Ant 0	Front	1.107	0.362	0.388	0.072	1.47			1.50			1.18
		Back	1.368	0.362	0.388	0.072	**1.73**	**08**	**0.01**	**1.76**	**20**	**0.01**	1.44
		Front with Headset											
		Back with Headset	1.162				1.16			1.16			1.16
	LTE Band 12Ant 0	Front	0.437	0.362	0.388	0.072	0.80			0.83			0.51
		Back	0.971	0.362	0.388	0.072	1.33			1.36			1.04
		Front with Headset											
		Back with Headset											
	LTE Band 13Ant 0	Front	0.716	0.362	0.388	0.072	1.08			1.10			0.79
		Back	1.372	0.362	0.388	0.072	**1.73**	**10**	**0.01**	**1.76**	**21**	**0.01**	1.44
		Front with Headset											
		Back with Headset	1.315				1.32			1.32			1.32
	LTE Band 26Ant 0	Front	0.733	0.362	0.388	0.072	1.10			1.12			0.81
		Back	1.321	0.362	0.388	0.072	**1.68**	**12**	**0.01**	**1.71**	**22**	**0.01**	1.39
		Front with Headset											
		Back with Headset	1.298				1.30			1.30			1.30
	LTE Band 66Ant 1	Front	0.993	0.362	0.388	0.072	1.36			1.38			1.07
		Back	1.287	0.362	0.388	0.072	**1.65**	**13**	**0.01**	**1.68**	**23**	**0.01**	1.36
		Front with Headset											
		Back with Headset	1.082				1.08			1.08			1.08
	LTE Band 41Ant 0	Front	0.799	0.362	0.388	0.072	1.16			1.19			0.87
		Back	1.045	0.362	0.388	0.072	1.41			1.43			1.12
		Front with Headset											
		Back with Headset											

<5G NR>

WWAN Band		Exposure Position	1	5	2	3	4	1+2+5 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)
			WWAN	FR1	2.4GHz WLAN Ant 6	5GHz WLAN Ant 6	Bluetooth Ant 6			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
LTE Band 7Ant 4	FR1 n5Ant 0	Front	0.538	0.287	0.362	0.388	0.072	1.19	1.21	0.90
		Back	0.542	0.548	0.362	0.388	0.072	1.45	1.48	1.16
LTE Band 5Ant 0	FR1 n7Ant 4	Front	0.300	0.478	0.362	0.388	0.072	1.14	1.17	0.85
		Back	0.550	0.572	0.362	0.388	0.072	1.48	1.51	1.19
LTE Band 66Ant 1	FR1 n7Ant 4	Front	0.344	0.478	0.362	0.388	0.072	1.18	1.21	0.89
		Back	0.526	0.572	0.362	0.388	0.072	1.46	1.49	1.17
LTE Band 7Ant 4	FR1 n66Ant 1	Front	0.538	0.403	0.362	0.388	0.072	1.30	1.33	1.01
		Back	0.542	0.562	0.362	0.388	0.072	1.47	1.49	1.18
LTE Band 5Ant 0	FR1 n78 Ant 5-1st	Front	0.300	0.416	0.362	0.388	0.072	1.08	1.10	0.79
		Back	0.550	0.588	0.362	0.388	0.072	1.50	1.53	1.21
LTE Band 7Ant 0	FR1 n78 Ant 5-1st	Front	0.423	0.416	0.362	0.388	0.072	1.20	1.23	0.91
		Back	0.510	0.588	0.362	0.388	0.072	1.46	1.49	1.17
LTE Band 38Ant 0	FR1 n78 Ant 5-1st	Front	0.408	0.416	0.362	0.388	0.072	1.19	1.21	0.90
		Back	0.510	0.588	0.362	0.388	0.072	1.46	1.49	1.17
LTE Band 66Ant 1	FR1 n78 Ant 5-1st	Front	0.344	0.416	0.362	0.388	0.072	1.12	1.15	0.83
		Back	0.526	0.588	0.362	0.388	0.072	1.48	1.50	1.19
LTE Band 41Ant 0	FR1 n77 Ant 5-1st	Front	0.408	0.416	0.362	0.388	0.072	1.19	1.21	0.90
		Back	0.510	0.588	0.362	0.388	0.072	1.46	1.49	1.17
LTE Band 5Ant 0	FR1 n78 Ant 5-2nd	Front	0.300	0.338	0.362	0.388	0.072	1.00	1.03	0.71
		Back	0.550	0.505	0.362	0.388	0.072	1.42	1.44	1.13
LTE Band 7Ant 0	FR1 n78 Ant 5-2nd	Front	0.423	0.338	0.362	0.388	0.072	1.12	1.15	0.83
		Back	0.510	0.505	0.362	0.388	0.072	1.38	1.40	1.09
LTE Band 38Ant 0	FR1 n78 Ant 5-2nd	Front	0.408	0.338	0.362	0.388	0.072	1.11	1.13	0.82
		Back	0.510	0.505	0.362	0.388	0.072	1.38	1.40	1.09
LTE Band 66Ant 1	FR1 n78 Ant 5-2nd	Front	0.344	0.338	0.362	0.388	0.072	1.04	1.07	0.75
		Back	0.526	0.505	0.362	0.388	0.072	1.39	1.42	1.10
LTE Band 41Ant 0	FR1 n77 Ant 5-2nd	Front	0.408	0.338	0.362	0.388	0.072	1.11	1.13	0.82
		Back	0.510	0.505	0.362	0.388	0.072	1.38	1.40	1.09

<Sensor off>

WWAN Band		Exposure Position	1	3	1+3 Summed 1g SAR (W/kg)
			WWAN	5GHz WLAN Ant 6	
			1g SAR (W/kg)	1g SAR (W/kg)	
GSM	GSM850Ant 0	Front at 13mm	0.379	0.242	0.62
		Back at 19mm	0.294	0.367	0.66
	GSM1900Ant 1	Front at 13mm	0.479	0.242	0.72
		Back at 19mm	0.224	0.367	0.59
WCDMA	WCDMA IIAnt 1	Front at 13mm	0.981	0.242	1.22
		Back at 19mm	0.679	0.367	1.05
	WCDMA IVAnt 1	Front at 13mm	0.529	0.242	0.77
		Back at 19mm	0.387	0.367	0.75
	WCDMA VAnt 0	Front at 13mm	0.411	0.242	0.65
		Back at 19mm	0.271	0.367	0.64
LTE	LTE Band 2Ant 1	Front at 13mm	0.766	0.242	1.01
		Back at 19mm	0.534	0.367	0.90
	LTE Band 7Ant 0	Front at 13mm	0.721	0.242	0.96
		Back at 19mm	0.413	0.367	0.78
	LTE Band 26Ant 0	Front at 13mm	0.390	0.242	0.63
		Back at 19mm	0.269	0.367	0.64
	LTE Band 66Ant 1	Front at 13mm	0.584	0.242	0.83
		Back at 19mm	0.249	0.367	0.62

<5G NR>

WWAN Band		Exposure Position	1	5	3	1+3+5
			WWAN	FR1	5GHz WLAN Ant 6	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 7Ant 4	FR1 n5Ant 0	Front at 13mm	0.435	0.280	0.242	0.96
		Back at 19mm	0.233	0.249	0.367	0.85
LTE Band 5Ant 0	FR1 n7Ant 4	Front at 13mm	0.298	0.398	0.242	0.94
		Back at 19mm	0.243	0.211	0.367	0.82
LTE Band 66Ant 1	FR1 n7Ant 4	Front at 13mm	0.584	0.398	0.242	1.22
		Back at 19mm	0.249	0.211	0.367	0.83
LTE Band 7Ant 4	FR1 n66Ant 1	Front at 13mm	0.435	0.458	0.242	1.14
		Back at 19mm	0.233	0.207	0.367	0.81
LTE Band 5Ant 0	FR1 n78 Ant 5-1st	Front at 13mm	0.298	0.488	0.242	1.03
		Back at 19mm	0.243	0.477	0.367	1.09
LTE Band 7Ant 0	FR1 n78 Ant 5-1st	Front at 13mm	0.721	0.488	0.242	1.45
		Back at 19mm	0.413	0.477	0.367	1.26
LTE Band 38Ant 0	FR1 n78 Ant 5-1st	Front at 13mm	0.290	0.488	0.242	1.02
		Back at 19mm	0.244	0.477	0.367	1.09
LTE Band 66Ant 1	FR1 n78 Ant 5-1st	Front at 13mm	0.584	0.488	0.242	1.31
		Back at 19mm	0.249	0.477	0.367	1.09
LTE Band 41Ant 0	FR1 n77 Ant 5-1st	Front at 13mm	0.290	0.488	0.242	1.02
		Back at 19mm	0.244	0.477	0.367	1.09
LTE Band 5Ant 0	FR1 n78 Ant 5-2nd	Front at 13mm	0.298	0.260	0.242	0.80
		Back at 19mm	0.243	0.227	0.367	0.84
LTE Band 7Ant 0	FR1 n78 Ant 5-2nd	Front at 13mm	0.721	0.260	0.242	1.22
		Back at 19mm	0.413	0.227	0.367	1.01
LTE Band 38Ant 0	FR1 n78 Ant 5-2nd	Front at 13mm	0.290	0.260	0.242	0.79
		Back at 19mm	0.244	0.227	0.367	0.84
LTE Band 66Ant 1	FR1 n78 Ant 5-2nd	Front at 13mm	0.584	0.260	0.242	1.09
		Back at 19mm	0.249	0.227	0.367	0.84
LTE Band 41Ant 0	FR1 n77 Ant 5-2nd	Front at 13mm	0.290	0.260	0.242	0.79
		Back at 19mm	0.244	0.227	0.367	0.84