FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2171-2
FCC ID	:	IHDT56ZX4
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

We, Sporton International (ShenZhen) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been in compliance with the applicable technical standards.

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

Hank Huang

Reviewed by: Hank Huang / Supervisor

Johnny Chen

Approved by: Johnny Chen / Manager

ACCREDITED Cert #5145.01

Sporton International (ShenZhen) Inc.
1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055
People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA180410	Rev. 01	Initial issue of report.	Oct. 12, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2171-2,** 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	0.48	**1.44**	**1.44**	1.59
		GSM1900	0.21	1.43	1.38	
	WCDMA	Band V	0.44	1.36	1.36	
		Band II	0.33	1.33	1.33	
	LTE	Band 26/Band 5	0.41	1.43	1.43	
		Band 2	0.27	**1.44**	**1.44**	
		Band 7	0.76	1.22	1.35	
		Band 41/Band 38	0.40	1.35	1.35	
		Band 42	1.17	1.14	1.14	
	5G NR	n5	0.27	0.56	0.56	
		n77	0.79	0.57	0.57	
		n78	0.74	0.60	0.79	
DTS	WLAN	2.4GHz WLAN	1.11	0.26	0.84	1.59
NII		5GHz WLAN	**1.19**	0.33	1.19	1.58
DSS	Bluetooth	2.4GHz Bluetooth	0.24	0.13	0.13	1.56

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM850	1.80	3.99
		GSM1900	3.22	
	WCDMA	Band V	2.17	
		Band II	**3.59**	
	LTE	Band 26/Band 5	2.72	
		Band 2	3.36	
		Band 7	3.43	
		Band 41/Band 38	3.03	
		Band 42	1.82	
	5G NR	n5	1.50	
		n77	1.54	
		n78	2.11	
DTS	WLAN	2.4GHz WLAN	1.44	3.98
NII		5GHz WLAN	1.64	3.99
Date of Testing:			2021/9/4~ 2021/9/27	
Remark: This device supports LTE B5 / B38 and B26 / B41. Since the supported frequency span for LTE B5 / B38 falls completely within the supports frequency span for LTE B26 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B26 / B41.				

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

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

2. Administration Data

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

Testing Laboratory			
Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	SAR02-SZ/SAR03-SZ,	CN1256	421272

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

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

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2171-2
FCC ID	IHDT56ZX4
IMEI Code	SIM1: 352867310021676 SIM2: 352867310021684
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2535 MHz ~ 2655 MHz LTE Band 42: 3450 MHz ~ 3550 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78 : 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK,QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
SW Version	RRYA31.Q3-23
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer

to power table at appendix E.
6. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, extremity.
8. There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile. The others are the same including circuit design, PCB board, structure and all components. It is special to declare. 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. There are four headsets, only supplier different, so only chose one headset to perform SAR testing.
10. 5GNR n78 supports HPUE, HPUE power and SAR testing performed separately.
11. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
12. For 5GNR, the simultaneous transmission analysis is used standalone SAR at total power level to show compliance.
13. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
14. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
15. 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.
16. This device supports 5GNR FR1 bands as following table and only NSA mode.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n5	FDD	15	5, 10, 15, 20
	n77	TDD	30	30, 40, 60, 80, 100
	n78	TDD	30	20, 30, 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>IHDT56ZX4</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 5: 824 MHz ~ 849 MHz
LTE Band 7: 2500 MHz ~ 2570 MHz
LTE Band 26: 814 MHz ~ 849 MHz
LTE Band 38: 2570 MHz ~ 2620 MHz
LTE Band 41: 2535 MHz ~ 2655 MHz
LTE Band 42: 3450 MHz ~ 3550 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM / 256QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R12, Cat18</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 13.</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 13.</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 3 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 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 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 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460
M	42590	3500	42590	3500	42590	3500	42590	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540

4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5 : 824 MHz ~ 849 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n77: 30MHz, 40MHz, 60MHz, 80MHz, 100MHz 5G NR n78: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n77	LTE B41
LTE Anchor Bands for n78	LTE B5/7/38/41

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 77

	Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647668	3715.02	648000	3720	648668	3730.02	649334	3740.01	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	664332	3964.98	664000	3960	663332	3949.98	662666	3939.99	662000	3930

NR Band 78

	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98		

Part 27Q

NR Band 77

	Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 60MHz		Bandwidth 80MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	631000	3465	631334	3470.01	632000	3480	632668	3490.02		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	635666	3534.99	635332	3529.98	634666	3519.99	634000	3510		

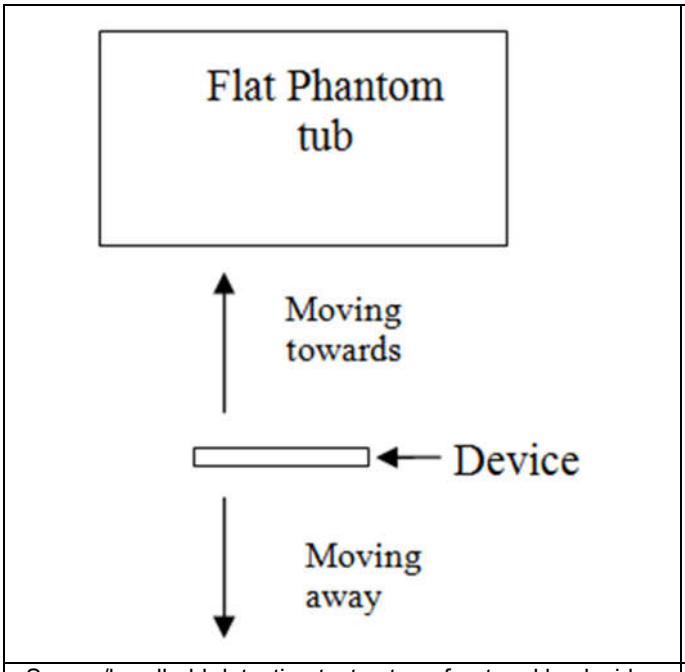
NR Band 78

	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

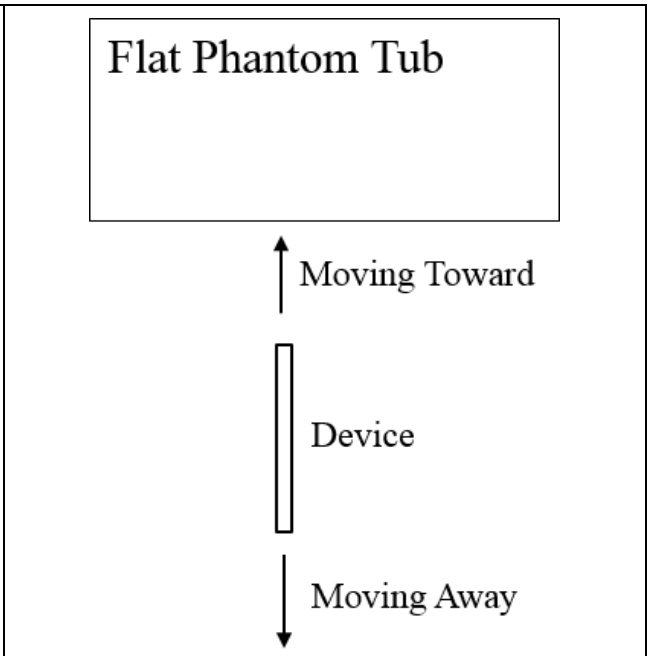
5. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (835MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
3. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
4. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/left/right/bottom/top sides of the device. When front/back/left/right/bottom/top sides of handheld condition is detected reduced power will be active.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



Sensor/handheld detection test set-up, front and back sides



handheld detection test set-up, left, right, top, bottom side

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	17	21	23	29

<Handheld for ANT0>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	9	12	13	19	2	5	12	15

<Handheld for ANT1>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	7	12	15	20	13	19	8	13

<Handheld for ANT4>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	7	10	14	17	7	18	12	16

<Handheld for ANT5>

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	4	10	11	16	9	16

6. RF Exposure Limits

6.1 Uncontrolled Environment

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

6.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

7. Specific Absorption Rate (SAR)

7.1 Introduction

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

7.2 SAR Definition

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

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

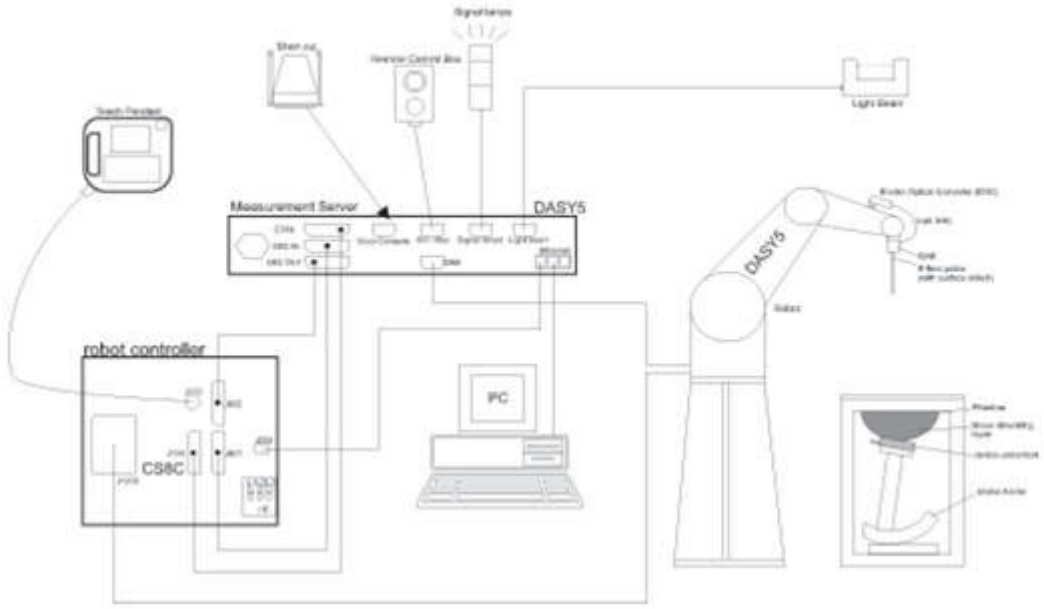
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. System Description and Setup

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



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

8.1 E-Field Probe

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

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 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

8.2 Data Acquisition Electronics (DAE)

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

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

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

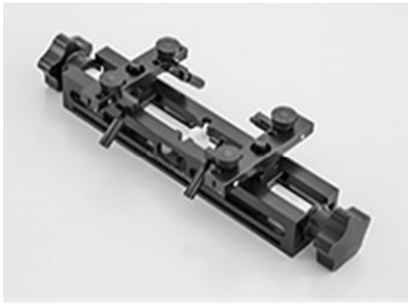
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

9.1 Spatial Peak SAR Evaluation

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

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

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

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values 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

9.2 Power Reference Measurement

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

9.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	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.	

9.4 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.

9.5 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.

9.6 Power Drift Monitoring

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

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 05, 2018	Nov. 24, 2021
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 07, 2018	Nov. 24, 2021
SPEAG	2450MHz System Validation Kit	D2450V2	924	Sep. 02, 2020	Sep. 01, 2023
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 07, 2018	Nov. 24, 2021
SPEAG	3500MHz System Validation Kit	D3500V2	1076	Apr. 29, 2019	Apr. 14, 2022
SPEAG	3700MHz System Validation Kit	D3700V2	1037	Apr. 29, 2019	Apr. 14, 2022
SPEAG	3900MHz System Validation Kit	D3900V2	1022	Jul. 11, 2019	Jul. 06, 2022
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Sep. 24, 2019	Sep. 22, 2022
SPEAG	Data Acquisition Electronics	DAE3	360	Nov. 06, 2020	Nov. 05, 2021
SPEAG	Data Acquisition Electronics	DAE4	1664	Mar. 01, 2021	Feb. 28, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	Sep. 30, 2020	Sep. 29, 2021
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Mar. 15, 2021	Mar. 14, 2022
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1795	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 14, 2021	Jul. 13, 2022
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Radio communication analyzer	MT8821C	6201588577	Apr. 08, 2021	Apr. 07, 2022
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 14, 2021	Jul. 13, 2022
Agilent	Network Analyzer	E5071C	MY46523671	Oct. 15, 2020	Oct. 14, 2021
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Dec. 23, 2020	Dec. 22, 2021
Agilent	Signal Generator	N5181A	MY50145381	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Power Sensor	MA2411B	1207253	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Power Meter	ML2495A	1218010	Dec. 25, 2020	Dec. 24, 2021
R&S	Power Sensor	NRP8S	109228	Apr. 09, 2021	Apr. 08, 2022
R&S	CBT BLUETOOTH TESTER	CBT	100963	Dec. 25, 2020	Dec. 24, 2021
R&S	Spectrum Analyzer	FSP7	100818	Jul. 14, 2021	Jul. 13, 2022
TES	Hygrometer	1310	200505600	Jul. 17, 2021	Jul. 16, 2022
Anymetre	Thermo-Hygrometer	JR593	2015030903	Jan. 05, 2021	Jan. 04, 2022
Anymetre	Thermo-Hygrometer	JR593	2015102801	Jan. 05, 2021	Jan. 04, 2022
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	

Note:

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

11. System Verification

11.1 Tissue Simulating Liquids

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

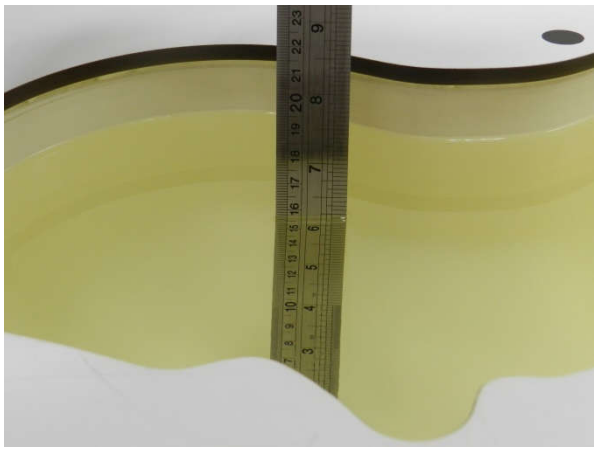


Fig 11.1 Photo of Liquid Height for Head SAR

Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
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
835	Head	22.4	0.904	40.381	0.90	41.50	0.44	-2.70	±5	2021/9/4
835	Head	22.5	0.925	42.207	0.90	41.50	2.78	1.70	±5	2021/9/9
835	Head	22.2	0.904	41.804	0.90	41.50	0.44	0.73	±5	2021/9/15
1900	Head	22.3	1.414	41.126	1.40	40.00	1.00	2.81	±5	2021/9/6
1900	Head	22.3	1.380	41.000	1.40	40.00	-1.43	2.50	±5	2021/9/11
2450	Head	22.5	1.746	39.247	1.80	39.20	-3.00	0.12	±5	2021/9/6
2450	Head	22.6	1.741	39.215	1.80	39.20	-3.28	0.04	±5	2021/9/10
2600	Head	22.5	2.039	37.491	1.96	39.00	4.03	-3.87	±5	2021/9/8
2600	Head	22.4	1.939	37.938	1.96	39.00	-1.07	-2.72	±5	2021/9/13
2600	Head	22.3	1.971	38.234	1.96	39.00	0.56	-1.96	±5	2021/9/17
3500	Head	22.7	2.905	39.577	2.91	37.90	-0.17	4.42	±5	2021/9/12
3500	Head	22.5	2.858	38.432	2.91	37.90	-1.79	1.40	±5	2021/9/23
3500	Head	22.5	2.878	39.142	2.91	37.90	-1.10	3.28	±5	2021/9/25
3700	Head	22.6	3.063	39.332	3.12	37.70	-1.83	4.33	±5	2021/9/13
3700	Head	22.4	3.032	38.926	3.12	37.70	-2.82	3.25	±5	2021/9/26
3900	Head	22.3	3.167	37.998	3.33	37.51	-4.89	1.30	±5	2021/9/19
3900	Head	22.5	3.202	38.722	3.33	37.51	-3.84	3.23	±5	2021/9/27
5250	Head	22.6	4.626	37.038	4.71	35.95	-1.78	3.03	±5	2021/9/7
5250	Head	22.8	4.803	37.045	4.71	35.95	1.97	3.05	±5	2021/9/15
5600	Head	22.5	5.210	36.221	5.07	35.50	2.76	2.03	±5	2021/9/8
5600	Head	22.9	5.182	36.105	5.07	35.50	2.21	1.70	±5	2021/9/16
5750	Head	22.5	5.383	35.944	5.22	35.35	3.12	1.68	±5	2021/9/9
5750	Head	22.8	5.028	36.286	5.22	35.35	-3.68	2.65	±5	2021/9/17

11.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	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 (%)
2021/9/4	835	Head	250	4d162	7577	360	2.55	9.61	10.2	6.14
2021/9/9	835	Head	250	4d162	7577	360	2.52	9.61	10.08	4.89
2021/9/15	835	Head	250	4d162	7577	360	2.23	9.61	8.92	-7.18
2021/9/6	1900	Head	250	5d182	7577	360	10.00	39.60	40	1.01
2021/9/11	1900	Head	250	5d182	7577	360	10.20	39.60	40.8	3.03
2021/9/6	2450	Head	250	924	7641	1664	12.60	51.40	50.4	-1.95
2021/9/10	2450	Head	250	924	7641	1664	12.50	51.40	50	-2.72
2021/9/8	2600	Head	250	1070	7577	360	13.90	58.10	55.6	-4.30
2021/9/13	2600	Head	250	1070	7577	360	14.50	58.10	58	-0.17
2021/9/17	2600	Head	250	1070	7577	360	14.20	58.10	56.8	-2.24
2021/9/12	3500	Head	100	1076	7641	1664	6.56	67.90	65.6	-3.39
2021/9/23	3500	Head	100	1076	7577	360	6.32	67.90	63.2	-6.92
2021/9/25	3500	Head	100	1076	7577	360	6.90	67.90	69	1.62
2021/9/13	3700	Head	100	1037	7641	1664	6.67	68.50	66.7	-2.63
2021/9/26	3700	Head	100	1037	7577	360	6.92	68.50	69.2	1.02
2021/9/19	3900	Head	100	1022	7577	360	6.39	70.50	63.9	-9.36
2021/9/27	3900	Head	100	1022	7577	360	6.46	70.50	64.6	-8.37
2021/9/7	5250	Head	100	1113	7641	1664	7.56	80.50	75.6	-6.09
2021/9/15	5250	Head	100	1113	7641	1664	8.04	80.50	80.4	-0.12
2021/9/8	5600	Head	100	1113	7641	1664	9.15	83.40	91.5	9.71
2021/9/16	5600	Head	100	1113	7641	1664	8.78	83.40	87.8	5.28
2021/9/9	5750	Head	100	1113	7641	1664	8.16	80.00	81.6	2.00
2021/9/17	5750	Head	100	1113	7641	1664	7.82	80.00	78.2	-2.25

<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 (%)
2021/9/4	835	Head	250	4d162	7577	360	1.69	6.35	6.76	6.46
2021/9/9	835	Head	250	4d162	7577	360	1.66	6.35	6.64	4.57
2021/9/15	835	Head	250	4d162	7577	360	1.68	6.35	6.72	5.83
2021/9/6	1900	Head	250	5d182	7577	360	5.22	20.70	20.88	0.87
2021/9/11	1900	Head	250	5d182	7577	360	5.63	20.70	22.52	8.79
2021/9/6	2450	Head	250	924	7641	1664	5.87	24.00	23.48	-2.17
2021/9/10	2450	Head	250	924	7641	1664	5.41	24.00	21.64	-9.83
2021/9/8	2600	Head	250	1070	7577	360	6.12	26.10	24.48	-6.21
2021/9/13	2600	Head	250	1070	7577	360	6.81	26.10	27.24	4.37
2021/9/17	2600	Head	250	1070	7577	360	6.23	26.10	24.92	-4.52
2021/9/12	3500	Head	100	1076	7641	1664	2.39	25.30	23.9	-5.53
2021/9/23	3500	Head	100	1076	7577	360	2.43	25.30	24.3	-3.95
2021/9/25	3500	Head	100	1076	7577	360	2.59	25.30	25.9	2.37
2021/9/13	3700	Head	100	1037	7641	1664	2.29	24.80	22.9	-7.66
2021/9/26	3700	Head	100	1037	7577	360	2.52	24.80	25.2	1.61
2021/9/19	3900	Head	100	1022	7577	360	2.27	24.60	22.7	-7.72
2021/9/27	3900	Head	100	1022	7577	360	2.28	24.60	22.8	-7.32
2021/9/7	5250	Head	100	1113	7641	1664	2.36	23.10	23.6	2.16
2021/9/15	5250	Head	100	1113	7641	1664	2.40	23.10	24	3.90
2021/9/8	5600	Head	100	1113	7641	1664	2.51	23.80	25.1	5.46

2021/9/16	5600	Head	100	1113	7641	1664	2.32	23.80	23.2	-2.52
2021/9/9	5750	Head	100	1113	7641	1664	2.23	22.80	22.3	-2.19
2021/9/17	5750	Head	100	1113	7641	1664	2.22	22.80	22.2	-2.63

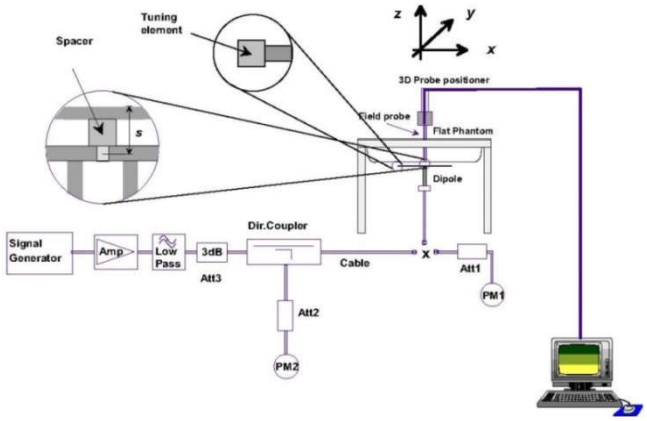


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

Figure 12.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 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.

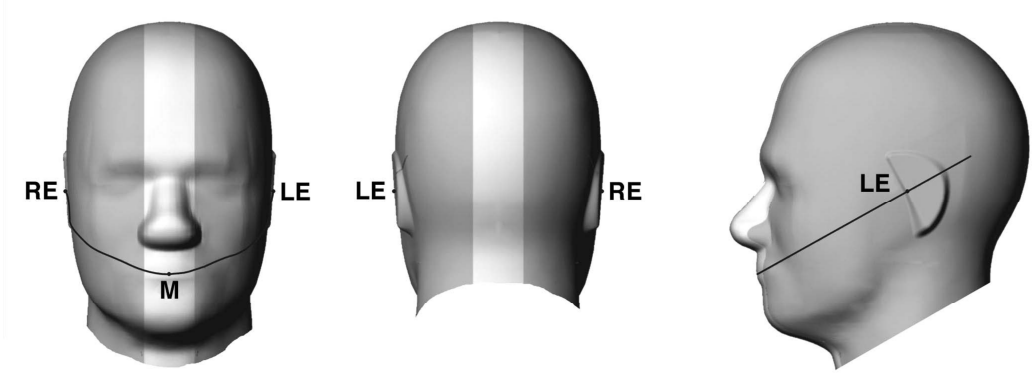


Fig 12.1.1 Front, back, and side views of SAM twin phantom

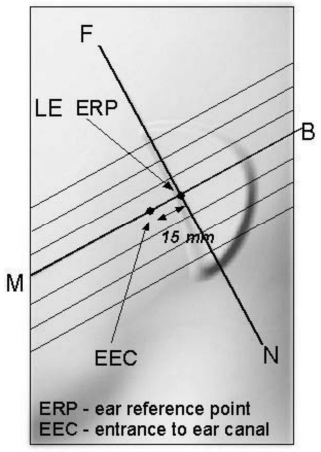


Fig 12.1.2 Close-up side view of phantom showing the ear region.

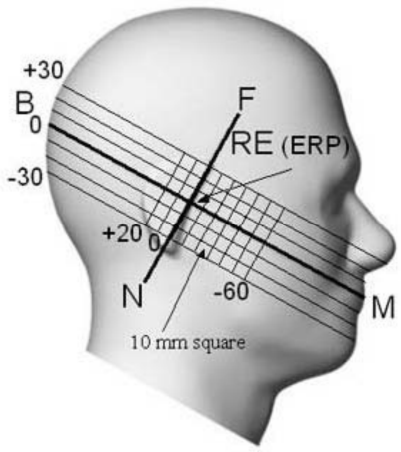


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width 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.

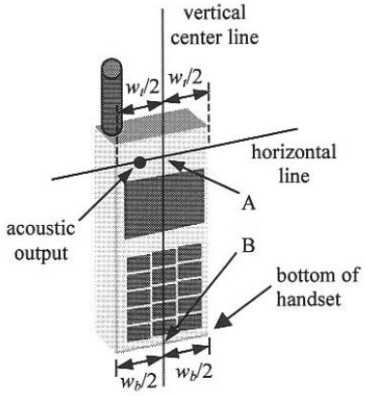


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

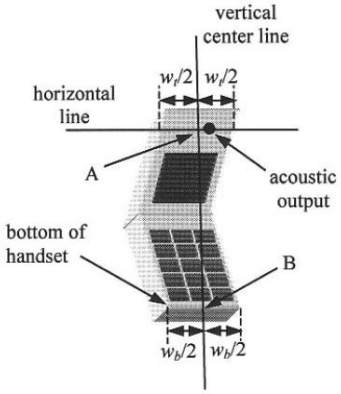


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

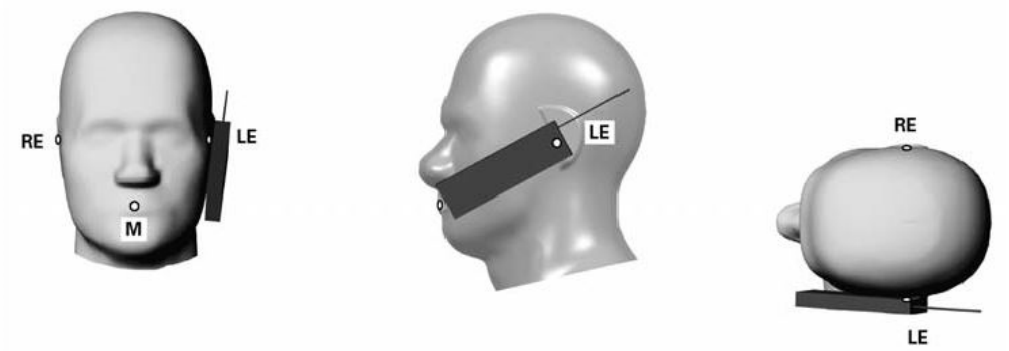


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 Definition of the tilt position

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

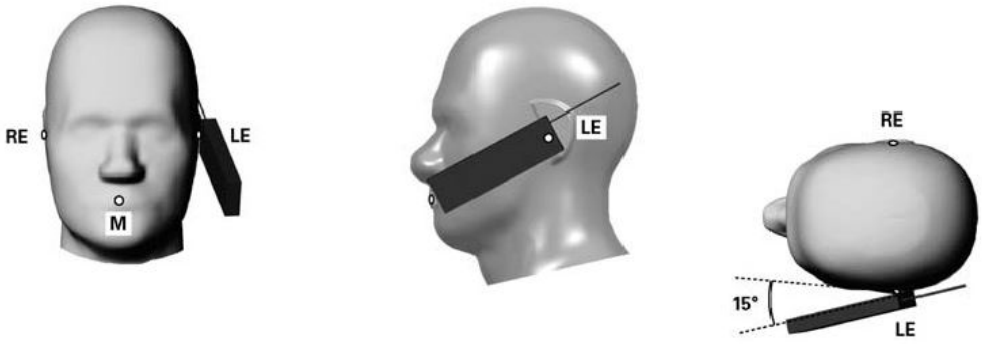


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 Body Worn Accessory

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

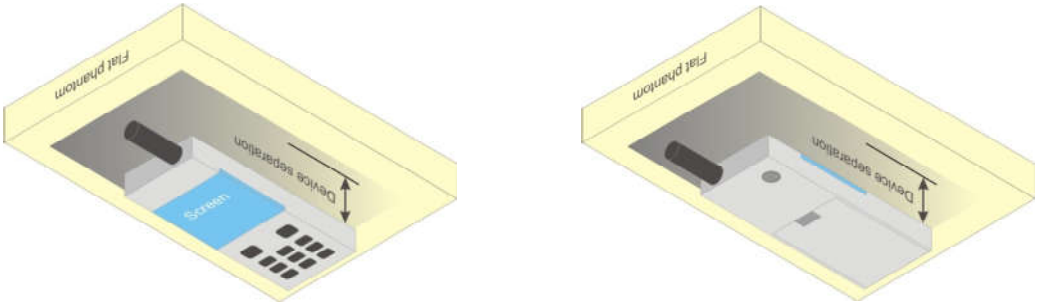


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

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

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

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 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.

12.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L 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.

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

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

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	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.		

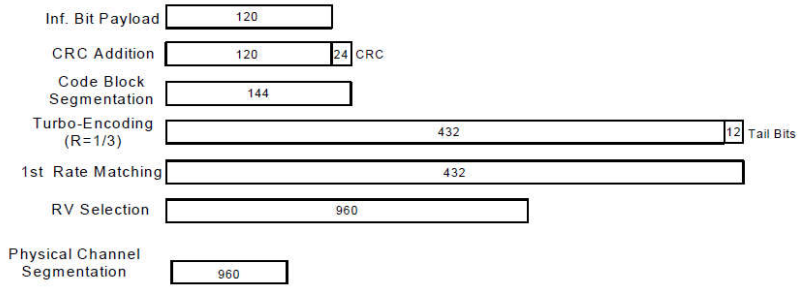


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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>

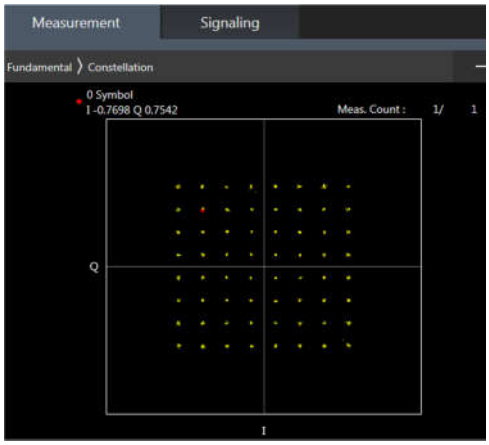
General Note:

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 / 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 Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is > not 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/256QAM 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 B5 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B5 / B38 SAR test was covered by B26 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations

b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

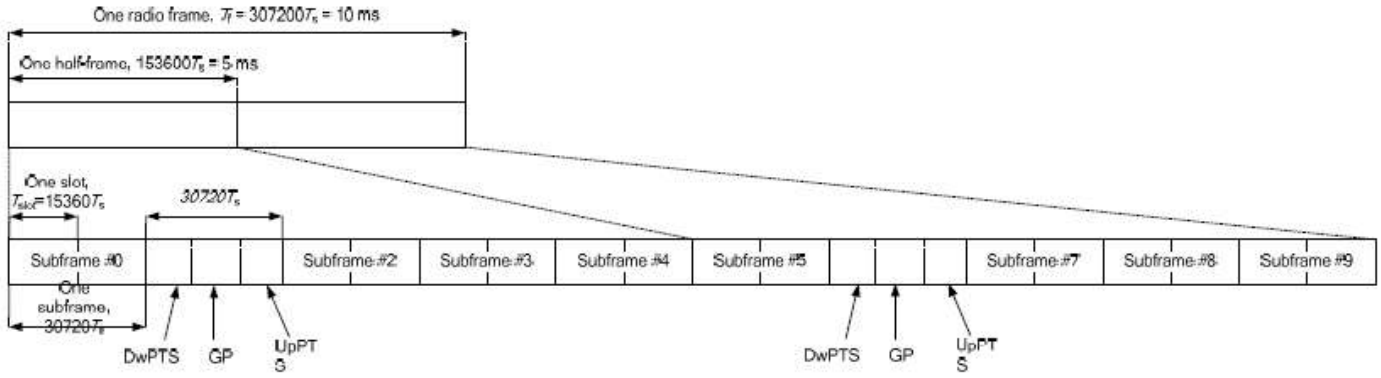


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

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

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

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

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

v. For SAR measurement the duty cycle 1:1.59 (62.9 %) was used perform testing.

vi. 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) * (scaling factor for extended cyclic prefix).

<LTE Carrier Aggregation>

General Note:

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

2CC Downlink Carrier Aggregation				3CC Downlink Carrier Aggregation			
Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	CA_2A-5A			1	CA_2A-7C		
2	CA_2A-7A	7A	3CC-2	2	CA_2A-7A-7A		
3	CA_5A-7A			3	CA_5A-7C		
4	CA_5A-38A	38A		4	CA_41D		
5	CA_5A-41A	41A		5	CA_41A-41C	41A	
6	CA_7A-7A	All	3CC-2	6	CA_41A-41A-41A		
7	CA_7A-42A	7A,42A		7	CA_41C-42A	42A	
8	CA_7B	All		8	CA_41A-42C	41A,42A	
9	CA_7C	All		9	CA_42D		
10	CA_26A-41A	41A					
11	CA_38C	All					
12	CA_41A-41A	41A					
13	CA_41A-42A	41A,42A					
14	CA_41C	All	3CC-7				
15	CA_42C	All	3CC-8				

LTE Carrier Aggregation Conducted Power (Downlink)

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

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

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

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

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

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

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

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

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Bands 7/38/41/42 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	Band
	LTE Band7/38/41/42

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

EN-DC	NR TX	LTE TX
7A-n5	ANT4	ANT0
41A-n77	ANT1	ANT5
5A-n78	ANT0	ANT5
7A-n78	ANT1	ANT5
38A-n78	ANT1	ANT5
41A-n78	ANT1	ANT5

Note: For EN-DC combination, 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.

ENDC List (3*CA)	LTE TX	NR TX
41C-n77	ANT1	ANT5
7C-n78	ANT1	ANT5
41C-n78	ANT1	ANT5
7A-7A-n78	ANT1	ANT5
7C-n5	ANT4	ANT0

<WLAN Conducted Power>

General Note:

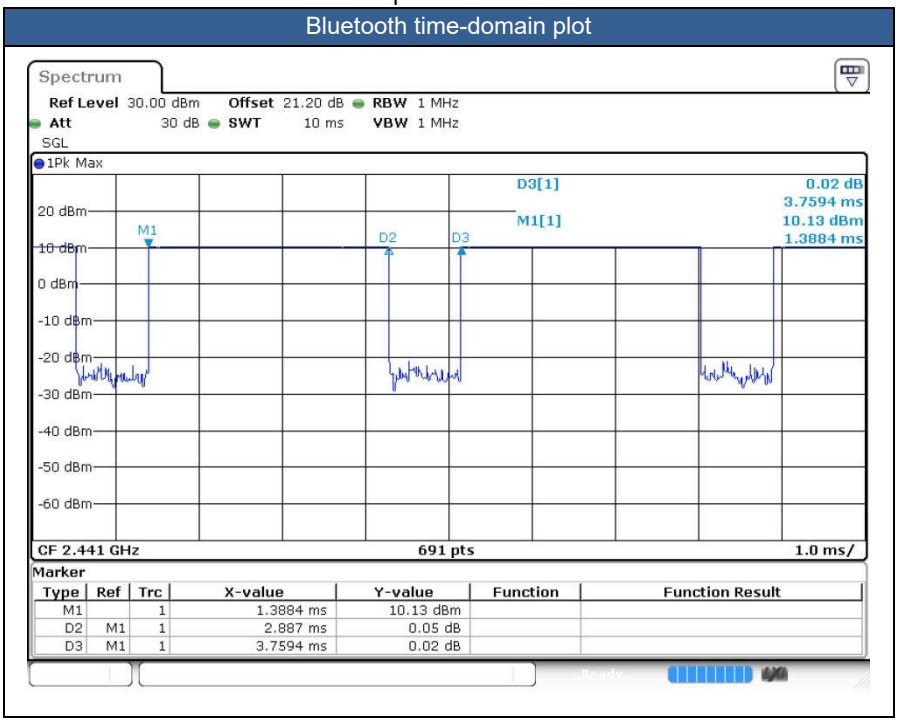
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. 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 76.79 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical 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



14. Antenna Location

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

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of BT/WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/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) and the details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
6. For Some WWAN bands, sensor on reduced power level higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, extremity.
8. There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile. The others are the same including circuit design, PCB board, structure and all components. It is special to declare. 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. There are four headsets, only supplier different, so only chose one headset to perform SAR testing.
10. LTE band 7 for ANT 4 is limited to EN-DC active. When EN-DC is not active, LTE band 7 will not transmit standalone.
11. 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 V /II, LTE Band 2/5/7/26/38/41/42, 5GNR n5/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.
12. The following table“n/a”means the measured SAR is too small to find the 1g cube SAR.

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 2Tx slots for GSM850/GSM1900 are considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / 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/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B5 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B5 / B38 SAR test was covered by LTE B26 / 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

5G NR Note:

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

2. 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.
3. 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.
4. 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.
5. 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.
6. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850_Ant0	GPRS 2 Tx slots	Right Cheek	0mm	Ant0	Full	189	836.4	30.15	31.00	1.216	0.04	0.392	**0.477**
	GSM850_Ant0	GPRS 2 Tx slots	Right Tilted	0mm	Ant0	Full	189	836.4	30.15	31.00	1.216	0.06	0.188	0.229
	GSM850_Ant0	GPRS 2 Tx slots	Left Cheek	0mm	Ant0	Full	189	836.4	30.15	31.00	1.216	-0.18	0.313	0.381
	GSM850_Ant0	GPRS 2 Tx slots	Left Tilted	0mm	Ant0	Full	189	836.4	30.15	31.00	1.216	-0.03	0.158	0.192
02	GSM1900_Ant0	GPRS 2 Tx slots	Right Cheek	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	-0.16	0.170	**0.205**
	GSM1900_Ant0	GPRS 2 Tx slots	Right Tilted	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	0.04	0.097	0.117
	GSM1900_Ant0	GPRS 2 Tx slots	Left Cheek	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	0.07	0.114	0.137
	GSM1900_Ant0	GPRS 2 Tx slots	Left Tilted	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	-0.19	0.147	0.177

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
03	WCDMA V_Ant0	RMC 12.2Kbps	Right Cheek	0mm	Ant0	Full	4182	836.4	22.85	24.00	1.303	-0.1	0.339	**0.442**
	WCDMA V_Ant0	RMC 12.2Kbps	Right Tilted	0mm	Ant0	Full	4182	836.4	22.85	24.00	1.303	0.04	0.153	0.199
	WCDMA V_Ant0	RMC 12.2Kbps	Left Cheek	0mm	Ant0	Full	4182	836.4	22.85	24.00	1.303	0.01	0.267	0.348
	WCDMA V_Ant0	RMC 12.2Kbps	Left Tilted	0mm	Ant0	Full	4182	836.4	22.85	24.00	1.303	0.07	0.131	0.171
04	WCDMA II_Ant0	RMC 12.2Kbps	Right Cheek	0mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	-0.16	0.241	**0.329**
	WCDMA II_Ant0	RMC 12.2Kbps	Right Tilted	0mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.09	0.129	0.176
	WCDMA II_Ant0	RMC 12.2Kbps	Left Cheek	0mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.02	0.156	0.213
	WCDMA II_Ant0	RMC 12.2Kbps	Left Tilted	0mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.03	0.195	0.266

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
05	LTE Band 26_Ant0	15M	QPSK	1	0	Right Cheek	0mm	Ant0	Full	26865	831.5	22.80	24.00	1.318	-0.07	0.309	**0.407**
	LTE Band 26_Ant0	15M	QPSK	1	0	Right Tilted	0mm	Ant0	Full	26865	831.5	22.80	24.00	1.318	0.03	0.134	0.177
	LTE Band 26_Ant0	15M	QPSK	1	0	Left Cheek	0mm	Ant0	Full	26865	831.5	22.80	24.00	1.318	0.09	0.226	0.298
	LTE Band 26_Ant0	15M	QPSK	1	0	Left Tilted	0mm	Ant0	Full	26865	831.5	22.80	24.00	1.318	-0.01	0.079	0.103
	LTE Band 26_Ant0	15M	QPSK	36	0	Right Cheek	0mm	Ant0	Full	26865	831.5	21.72	23.00	1.343	-0.14	0.172	0.231
	LTE Band 26_Ant0	15M	QPSK	36	0	Right Tilted	0mm	Ant0	Full	26865	831.5	21.72	23.00	1.343	-0.09	0.076	0.102
	LTE Band 26_Ant0	15M	QPSK	36	0	Left Cheek	0mm	Ant0	Full	26865	831.5	21.72	23.00	1.343	0.03	0.133	0.179
	LTE Band 26_Ant0	15M	QPSK	36	0	Left Tilted	0mm	Ant0	Full	26865	831.5	21.72	23.00	1.343	0.06	0.054	0.072
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Right Cheek	0mm	Ant0	Full	20525	836.5	22.71	24.00	1.346	-0.17	0.301	0.405
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Right Tilted	0mm	Ant0	Full	20525	836.5	22.71	24.00	1.346	0.08	0.127	0.171
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Left Cheek	0mm	Ant0	Full	20525	836.5	22.71	24.00	1.346	0.09	0.225	0.303
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Left Tilted	0mm	Ant0	Full	20525	836.5	22.71	24.00	1.346	0.13	0.117	0.157
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Right Cheek	0mm	Ant0	Full	20525	836.5	21.65	23.00	1.365	0.06	0.186	0.254
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Right Tilted	0mm	Ant0	Full	20525	836.5	21.65	23.00	1.365	0.14	0.080	0.110
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Left Cheek	0mm	Ant0	Full	20525	836.5	21.65	23.00	1.365	-0.07	0.142	0.194
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Left Tilted	0mm	Ant0	Full	20525	836.5	21.65	23.00	1.365	-0.05	0.075	0.102
06	LTE Band 2_Ant0	20M	QPSK	1	0	Right Cheek	0mm	Ant0	Full	18900	1880	22.70	24.00	1.349	-0.09	0.201	**0.271**
	LTE Band 2_Ant0	20M	QPSK	1	0	Right Tilted	0mm	Ant0	Full	18900	1880	22.70	24.00	1.349	0.06	0.106	0.143
	LTE Band 2_Ant0	20M	QPSK	1	0	Left Cheek	0mm	Ant0	Full	18900	1880	22.70	24.00	1.349	0.03	0.142	0.192
	LTE Band 2_Ant0	20M	QPSK	1	0	Left Tilted	0mm	Ant0	Full	18900	1880	22.70	24.00	1.349	0.11	0.162	0.219
	LTE Band 2_Ant0	20M	QPSK	50	0	Right Cheek	0mm	Ant0	Full	18900	1880	21.54	23.00	1.400	0.07	0.112	0.157
	LTE Band 2_Ant0	20M	QPSK	50	0	Right Tilted	0mm	Ant0	Full	18900	1880	21.54	23.00	1.400	0.08	0.062	0.086
	LTE Band 2_Ant0	20M	QPSK	50	0	Left Cheek	0mm	Ant0	Full	18900	1880	21.54	23.00	1.400	0.05	0.085	0.119
	LTE Band 2_Ant0	20M	QPSK	50	0	Left Tilted	0mm	Ant0	Full	18900	1880	21.54	23.00	1.400	0.01	0.095	0.132
	LTE Band 7_Ant1	20M	QPSK	1	0	Right Cheek	0mm	Ant1	Full	21100	2535	22.90	24.00	1.288	0.02	0.432	0.557
	LTE Band 7_Ant1	20M	QPSK	1	0	Right Tilted	0mm	Ant1	Full	21100	2535	22.90	24.00	1.288	0.04	0.369	0.475
07	LTE Band 7_Ant1	20M	QPSK	1	0	Left Cheek	0mm	Ant1	Full	21100	2535	22.90	24.00	1.288	0.05	0.588	**0.757**
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Tilted	0mm	Ant1	Full	21100	2535	22.90	24.00	1.288	0.11	0.205	0.264
	LTE Band 7C_Ant1	20M	QPSK	1	0	Left Cheek	0mm	Ant1	Full	PCC:21100 SCC:20902	PCC:2535 SCC:2515.2	22.83	24.00	1.309	0.01	0.509	0.666
	LTE Band 7_Ant1	20M	QPSK	50	0	Right Cheek	0mm	Ant1	Full	21100	2535	21.80	23.00	1.318	-0.03	0.366	0.482
	LTE Band 7_Ant1	20M	QPSK	50	0	Right Tilted	0mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.06	0.322	0.424
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Cheek	0mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.14	0.481	0.634
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Tilted	0mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.09	0.177	0.233
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Right Cheek	0mm	Ant1	Reduced	21100	2535	19.29	20.50	1.321	0.01	0.187	0.247
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Right Tilted	0mm	Ant1	Reduced	21100	2535	19.29	20.50	1.321	-0.13	0.167	0.221
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Left Cheek	0mm	Ant1	Reduced	21100	2535	19.29	20.50	1.321	0.18	0.260	0.344
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Left Tilted	0mm	Ant1	Reduced	21100	2535	19.29	20.50	1.321	-0.03	0.094	0.124
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Right Cheek	0mm	Ant1	Reduced	21100	2535	19.26	20.50	1.330	0.04	0.196	0.261
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Right Tilted	0mm	Ant1	Reduced	21100	2535	19.26	20.50	1.330	0.12	0.174	0.231
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Left Cheek	0mm	Ant1	Reduced	21100	2535	19.26	20.50	1.330	0.16	0.272	0.362
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Left Tilted	0mm	Ant1	Reduced	21100	2535	19.26	20.50	1.330	-0.14	0.097	0.130
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Right Cheek	0mm	Ant4	Reduced	21350	2560	14.86	16.00	1.300	0.03	0.510	0.663
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Right Tilted	0mm	Ant4	Reduced	21350	2560	14.86	16.00	1.300	-0.12	0.567	0.737
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Left Cheek	0mm	Ant4	Reduced	21350	2560	14.86	16.00	1.300	0.11	0.199	0.259
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Left Tilted	0mm	Ant4	Reduced	21350	2560	14.86	16.00	1.300	0.05	0.263	0.342
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Right Cheek	0mm	Ant4	Reduced	21350	2560	14.83	16.00	1.309	0.02	0.502	0.657
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Right Tilted	0mm	Ant4	Reduced	21350	2560	14.83	16.00	1.309	-0.15	0.576	0.754
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Left Cheek	0mm	Ant4	Reduced	21350	2560	14.83	16.00	1.309	0.15	0.202	0.264
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Left Tilted	0mm	Ant4	Reduced	21350	2560	14.83	16.00	1.309	0.06	0.275	0.360

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_Ant1	20M	QPSK	1	99	Right Cheek	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.17	0.251	0.313
	LTE Band 41_Ant1	20M	QPSK	1	99	Right Tilted	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.13	0.243	0.303
08	LTE Band 41_Ant1	20M	QPSK	1	99	Left Cheek	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.1	0.324	**0.404**
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Tilted	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.03	0.121	0.151
	LTE Band 41_Ant1	20M	QPSK	50	24	Right Cheek	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.12	0.211	0.260
	LTE Band 41_Ant1	20M	QPSK	50	24	Right Tilted	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.08	0.196	0.241
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Cheek	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.08	0.272	0.335
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Tilted	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.05	0.098	0.120
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Right Cheek	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.17	0.251	0.313
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Right Tilted	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.13	0.243	0.303
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Left Cheek	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.1	0.324	0.404
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Left Tilted	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.03	0.121	0.151
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Right Cheek	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.12	0.211	0.260
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Right Tilted	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.08	0.196	0.241
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Left Cheek	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.08	0.272	0.335
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Left Tilted	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.05	0.098	0.120
	LTE Band 42_Ant5	20M	QPSK	1	0	Right Cheek	0mm	Ant5	Reduced	42590	3500	20.39	21.50	1.291	62.9	1.006	-0.06	0.444	0.577
	LTE Band 42_Ant5	20M	QPSK	1	0	Right Tilted	0mm	Ant5	Reduced	42590	3500	20.39	21.50	1.291	62.9	1.006	0.13	0.461	0.599
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Cheek	0mm	Ant5	Reduced	42590	3500	20.39	21.50	1.291	62.9	1.006	0.08	0.843	1.095
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Tilted	0mm	Ant5	Reduced	42590	3500	20.39	21.50	1.291	62.9	1.006	0.12	0.758	0.985
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Cheek	0mm	Ant5	Reduced	42190	3460	20.29	21.50	1.321	62.9	1.006	-0.12	0.865	1.150
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Cheek	0mm	Ant5	Reduced	42990	3540	20.35	21.50	1.303	62.9	1.006	-0.12	0.819	1.074
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Tilted	0mm	Ant5	Reduced	42190	3460	20.29	21.50	1.321	62.9	1.006	-0.19	0.762	1.013
	LTE Band 42_Ant5	20M	QPSK	1	0	Left Tilted	0mm	Ant5	Reduced	42990	3540	20.35	21.50	1.303	62.9	1.006	0.07	0.705	0.924
	LTE Band 42_Ant5	20M	QPSK	50	0	Right Cheek	0mm	Ant5	Reduced	42590	3500	20.37	21.50	1.297	62.9	1.006	0.02	0.451	0.589
	LTE Band 42_Ant5	20M	QPSK	50	0	Right Tilted	0mm	Ant5	Reduced	42590	3500	20.37	21.50	1.297	62.9	1.006	-0.12	0.479	0.625
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Cheek	0mm	Ant5	Reduced	42590	3500	20.37	21.50	1.297	62.9	1.006	-0.14	0.845	1.103
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Tilted	0mm	Ant5	Reduced	42590	3500	20.37	21.50	1.297	62.9	1.006	-0.18	0.783	1.022
09	LTE Band 42_Ant5	20M	QPSK	50	0	Left Cheek	0mm	Ant5	Reduced	42190	3460	20.25	21.50	1.334	62.9	1.006	-0.03	0.869	**1.166**
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Cheek	0mm	Ant5	Reduced	42990	3540	20.30	21.50	1.318	62.9	1.006	-0.05	0.820	1.087
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Tilted	0mm	Ant5	Reduced	42190	3460	20.25	21.50	1.334	62.9	1.006	0.18	0.771	1.034
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Tilted	0mm	Ant5	Reduced	42990	3540	20.30	21.50	1.318	62.9	1.006	-0.15	0.714	0.947
	LTE Band 42_Ant5	20M	QPSK	100	0	Left Cheek	0mm	Ant5	Reduced	42590	3500	20.33	21.50	1.309	62.9	1.006	0.03	0.832	1.096
	LTE Band 42_Ant5	20M	QPSK	100	0	Left Tilted	0mm	Ant5	Reduced	42590	3500	20.33	21.50	1.309	62.9	1.006	0.09	0.752	0.990

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Right Cheek	0mm	Ant0	Full	167300	836.5	23.28	24.00	1.180	0.19	0.214	0.253
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Right Tilted	0mm	Ant0	Full	167300	836.5	23.28	24.00	1.180	0.03	0.100	0.117
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Left Cheek	0mm	Ant0	Full	167300	836.5	23.28	24.00	1.180	-0.06	0.171	0.202
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Left Tilted	0mm	Ant0	Full	167300	836.5	23.28	24.00	1.180	0.12	0.092	0.109
10	N5_Ant 0	20M	BPSK	50	28	DFT-15	Right Cheek	0mm	Ant0	Full	167300	836.5	23.01	24.00	1.256	-0.18	0.212	**0.266**
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Right Tilted	0mm	Ant0	Full	167300	836.5	23.01	24.00	1.256	0.07	0.092	0.116
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Left Cheek	0mm	Ant0	Full	167300	836.5	23.01	24.00	1.256	-0.09	0.171	0.215
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Left Tilted	0mm	Ant0	Full	167300	836.5	23.01	24.00	1.256	0.08	0.087	0.110
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant5	Reduced	656000	3840	14.56	16.00	1.393	0.07	0.282	0.393
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant5	Reduced	656000	3840	14.56	16.00	1.393	0.05	0.325	0.453
11	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant5	Reduced	656000	3840	14.56	16.00	1.393	-0.01	0.569	**0.793**
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant5	Reduced	656000	3840	14.56	16.00	1.393	0.03	0.563	0.784
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	656000	3840	14.53	16.00	1.403	-0.12	0.264	0.370
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	656000	3840	14.53	16.00	1.403	-0.09	0.298	0.418
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant5	Reduced	656000	3840	14.53	16.00	1.403	-0.15	0.506	0.710
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	656000	3840	14.53	16.00	1.403	-0.03	0.470	0.659
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Right Tilted	0mm	Ant5	Reduced	656000	3840	14.52	16.00	1.406	0.07	0.272	0.382
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Left Cheek	0mm	Ant5	Reduced	656000	3840	14.52	16.00	1.406	0.01	0.483	0.679
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Left Tilted	0mm	Ant5	Reduced	656000	3840	14.52	16.00	1.406	-0.06	0.479	0.673
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.53	16.00	1.403	0.05	0.234	0.328
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.53	16.00	1.403	-0.05	0.238	0.334
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.53	16.00	1.403	-0.06	0.411	0.577
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.53	16.00	1.403	-0.1	0.403	0.565
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.52	16.00	1.406	-0.11	0.258	0.363
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.52	16.00	1.406	-0.09	0.223	0.314
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.52	16.00	1.406	-0.08	0.362	0.509
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.52	16.00	1.406	-0.01	0.344	0.484
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	-0.05	0.227	0.294
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	-0.15	0.290	0.376
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	0.16	0.544	0.706
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	0.19	0.470	0.610
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.02	0.332	0.438
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.13	0.354	0.467
12	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.03	0.563	**0.742**
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.07	0.509	0.671
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.14	0.146	0.192
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.07	0.160	0.211
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	0.19	0.329	0.434
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.06	0.303	0.399
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.09	0.158	0.210
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.02	0.165	0.220
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	0.02	0.350	0.466
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.15	0.305	0.406
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Cheek	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	-0.05	0.227	0.294
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Tilted	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	-0.15	0.290	0.376
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Cheek	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	0.16	0.544	0.706
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Tilted	0mm	Ant5	Reduced	650000	3750	14.87	16.00	1.297	0.19	0.470	0.610
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.02	0.332	0.438
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.13	0.354	0.467
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.03	0.563	0.742
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	650000	3750	14.80	16.00	1.318	0.07	0.509	0.671
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.14	0.146	0.192

	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.07	0.160	0.211
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	0.19	0.329	0.434
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.80	16.00	1.318	-0.06	0.303	0.399
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Cheek	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.09	0.158	0.210
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Tilted	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.02	0.165	0.220
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Cheek	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	0.02	0.350	0.466
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Tilted	0mm	Ant5	Reduced	633332	3499.98	14.76	16.00	1.330	-0.15	0.305	0.406

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	-0.05	0.059	0.114
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.09	0.049	0.094
13	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.09	0.122	**0.235**
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.07	0.091	0.175

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 6	Standalone	6	2437	15.00	16.50	1.413	99.01	1.010	-0.18	0.119	0.170
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 6	Standalone	6	2437	15.00	16.50	1.413	99.01	1.010	0.05	0.098	0.140
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Standalone	6	2437	15.00	16.50	1.413	99.01	1.010	0.15	0.563	0.803
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 6	Standalone	6	2437	15.00	16.50	1.413	99.01	1.010	0.1	0.359	0.512
14	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Standalone	1	2412	14.90	16.50	1.445	99.01	1.010	0.05	0.762	**1.112**
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Simultaneous	1	2412	10.50	12.00	1.413	99.01	1.010	-0.13	0.268	0.382

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 6	Full	52	5260	17.13	19.00	1.538	97.97	1.021	-0.07	0.302	0.474
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 6	Full	52	5260	17.13	19.00	1.538	97.97	1.021	0.01	0.250	0.393
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	Full	52	5260	17.13	19.00	1.538	97.97	1.021	0.06	0.500	0.785
	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Full	52	5260	17.13	19.00	1.538	97.97	1.021	-0.18	0.643	1.010
15	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Full	64	5320	16.90	18.50	1.446	97.97	1.021	0.02	0.807	**1.191**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Simultaneous	58	5290	12.86	14.50	1.459	95.78	1.044	0.18	0.254	0.387
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 6	Full	140	5700	17.44	19.00	1.432	97.97	1.021	0.18	0.142	0.208
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 6	Full	140	5700	17.44	19.00	1.432	97.97	1.021	0.18	0.204	0.298
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	Full	140	5700	17.44	19.00	1.432	97.97	1.021	0.08	0.549	0.803
	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Full	140	5700	17.44	19.00	1.432	97.97	1.021	0.14	0.494	0.722
16	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	Full	132	5660	17.21	19.00	1.510	97.97	1.021	0.19	0.591	**0.911**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Simultaneous	106	5530	11.49	13.00	1.416	95.78	1.044	-0.07	0.239	0.353
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	0mm	Ant 6	Full	149	5745	17.34	19.00	1.466	97.97	1.021	0.06	0.156	0.233
	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	0mm	Ant 6	Full	149	5745	17.34	19.00	1.466	97.97	1.021	-0.01	0.181	0.271
17	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	0mm	Ant 6	Full	149	5745	17.34	19.00	1.466	97.97	1.021	0.13	0.378	**0.566**
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Full	149	5745	17.34	19.00	1.466	97.97	1.021	0.14	0.341	0.510
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 6	Simultaneous	155	5775	14.35	16.00	1.462	95.78	1.044	-0.14	0.139	0.212

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_Ant0	GPRS 2 Tx slots	Front	5mm	Ant0	Reduced	189	836.4	27.85	29.00	1.303	-0.15	0.504	0.657
	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	189	836.4	27.85	29.00	1.303	0.12	1.000	1.303
	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	128	824.2	27.68	29.00	1.355	0.13	0.983	1.332
18	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	251	848.8	27.72	29.00	1.343	0.07	1.070	**1.437**
	GSM850_Ant0	GPRS 2 Tx slots	Left Side	5mm	Ant0	Reduced	189	836.4	27.85	29.00	1.303	-0.11	0.257	0.335
	GSM850_Ant0	GPRS 2 Tx slots	Right Side	5mm	Ant0	Reduced	189	836.4	27.85	29.00	1.303	-0.06	0.405	0.528
	GSM850_Ant0	GPRS 2 Tx slots	Bottom Side	5mm	Ant0	Reduced	189	836.4	27.85	29.00	1.303	0.11	0.481	0.627
	GSM1900_Ant0	GPRS 2 Tx slots	Front	5mm	Ant0	Reduced	512	1850.2	23.48	24.50	1.265	0.08	0.570	0.721
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	512	1850.2	23.48	24.50	1.265	0.02	1.090	1.379
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	661	1880	23.40	24.50	1.288	0.06	0.979	1.261
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Reduced	810	1909.8	23.42	24.50	1.282	0.05	0.814	1.044
	GSM1900_Ant0	GPRS 2 Tx slots	Left Side	5mm	Ant0	Reduced	512	1850.2	22.55	23.50	1.245	0.02	0.116	0.144
	GSM1900_Ant0	GPRS 2 Tx slots	Right Side	5mm	Ant0	Reduced	512	1850.2	22.55	23.50	1.245	0.06	0.081	0.101
19	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	5mm	Ant0	Reduced	512	1850.2	22.55	23.50	1.245	0.04	1.150	**1.431**
	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	5mm	Ant0	Reduced	661	1880	22.50	23.50	1.259	0.13	1.050	1.322
	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	5mm	Ant0	Reduced	810	1909.8	22.47	23.50	1.268	0.18	0.882	1.118

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant0	RMC 12.2Kbps	Front	5mm	Ant0	Reduced	4182	836.4	20.47	21.50	1.268	0.03	0.412	0.522
	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	4182	836.4	20.47	21.50	1.268	-0.01	0.973	1.233
	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	4132	826.4	20.41	21.50	1.285	0.15	0.878	1.128
20	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	4233	846.6	20.46	21.50	1.271	0.05	1.070	**1.360**
	WCDMA V_Ant0	RMC 12.2Kbps	Left Side	5mm	Ant0	Reduced	4182	836.4	20.47	21.50	1.268	-0.05	0.156	0.198
	WCDMA V_Ant0	RMC 12.2Kbps	Right Side	5mm	Ant0	Reduced	4182	836.4	20.47	21.50	1.268	0.13	0.330	0.418
	WCDMA V_Ant0	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	4182	836.4	20.47	21.50	1.268	-0.08	0.394	0.499
	WCDMA II_Ant0	RMC 12.2Kbps	Front	5mm	Ant0	Reduced	9262	1852.4	16.71	18.00	1.346	-0.02	0.528	0.711
21	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	9262	1852.4	16.71	18.00	1.346	0.06	0.990	**1.332**
	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	9400	1880	16.70	18.00	1.349	0.05	0.825	1.113
	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Reduced	9538	1907.6	16.67	18.00	1.358	-0.17	0.796	1.081
	WCDMA II_Ant0	RMC 12.2Kbps	Left Side	5mm	Ant0	Reduced	9262	1852.4	14.64	16.00	1.368	0.17	0.075	0.102
	WCDMA II_Ant0	RMC 12.2Kbps	Right Side	5mm	Ant0	Reduced	9262	1852.4	14.64	16.00	1.368	-0.01	0.053	0.072
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9262	1852.4	14.64	16.00	1.368	0.09	0.948	1.297
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9400	1880	14.62	16.00	1.374	0.12	0.764	1.050
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	5mm	Ant0	Reduced	9538	1907.6	14.59	16.00	1.384	0.19	0.678	0.938

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26_Ant0	15M	QPSK	1	0	Front	5mm	Ant0	Reduced	26865	831.5	21.28	22.50	1.324	0.05	0.432	0.572
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	Reduced	26865	831.5	21.28	22.50	1.324	-0.06	0.977	1.294
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	Reduced	26765	821.5	21.22	22.50	1.343	-0.17	0.870	1.168
22	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	Reduced	26965	841.5	21.17	22.50	1.358	0.11	1.050	**1.426**
	LTE Band 26_Ant0	15M	QPSK	1	0	Left Side	5mm	Ant0	Reduced	26865	831.5	21.28	22.50	1.324	-0.08	0.208	0.275
	LTE Band 26_Ant0	15M	QPSK	1	0	Right Side	5mm	Ant0	Reduced	26865	831.5	21.28	22.50	1.324	0.03	0.395	0.523
	LTE Band 26_Ant0	15M	QPSK	1	0	Bottom Side	5mm	Ant0	Reduced	26865	831.5	21.28	22.50	1.324	0.12	0.386	0.511
	LTE Band 26_Ant0	15M	QPSK	36	0	Front	5mm	Ant0	Reduced	26865	831.5	21.25	22.50	1.334	-0.19	0.359	0.479
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	Reduced	26865	831.5	21.25	22.50	1.334	-0.14	0.766	1.021
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	Reduced	26765	821.5	21.18	22.50	1.355	-0.02	0.685	0.928
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	Reduced	26965	841.5	21.15	22.50	1.365	-0.11	0.861	1.175
	LTE Band 26_Ant0	15M	QPSK	36	0	Left Side	5mm	Ant0	Reduced	26865	831.5	21.25	22.50	1.334	0.05	0.181	0.241
	LTE Band 26_Ant0	15M	QPSK	36	0	Right Side	5mm	Ant0	Reduced	26865	831.5	21.25	22.50	1.334	-0.06	0.329	0.439
	LTE Band 26_Ant0	15M	QPSK	36	0	Bottom Side	5mm	Ant0	Reduced	26865	831.5	21.25	22.50	1.334	0.05	0.310	0.413
	LTE Band 26_Ant0	15M	QPSK	75	0	Back	5mm	Ant0	Reduced	26865	831.5	21.23	22.50	1.340	-0.02	0.812	1.088
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Front	5mm	Ant0	Reduced	20525	836.5	17.27	18.50	1.327	-0.11	0.178	0.236
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Back	5mm	Ant0	Reduced	20525	836.5	17.27	18.50	1.327	-0.03	0.410	0.544
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Left Side	5mm	Ant0	Reduced	20525	836.5	17.27	18.50	1.327	-0.07	0.088	0.117
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Right Side	5mm	Ant0	Reduced	20525	836.5	17.27	18.50	1.327	-0.02	0.165	0.219
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Bottom Side	5mm	Ant0	Reduced	20525	836.5	17.27	18.50	1.327	0.04	0.216	0.287
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Front	5mm	Ant0	Reduced	20525	836.5	17.24	18.50	1.337	0.06	0.184	0.246
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Back	5mm	Ant0	Reduced	20525	836.5	17.24	18.50	1.337	-0.03	0.435	0.581
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Left Side	5mm	Ant0	Reduced	20525	836.5	17.24	18.50	1.337	0.02	0.089	0.119
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Right Side	5mm	Ant0	Reduced	20525	836.5	17.24	18.50	1.337	0.13	0.134	0.179
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Bottom Side	5mm	Ant0	Reduced	20525	836.5	17.24	18.50	1.337	0.16	0.230	0.307
	LTE Band 2_Ant0	20M	QPSK	1	0	Front	5mm	Ant0	Reduced	18900	1880	17.36	18.50	1.300	0.07	0.486	0.632
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	Reduced	18900	1880	17.36	18.50	1.300	0.09	0.885	1.151
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	Reduced	18700	1860	17.35	18.50	1.303	-0.02	1.030	1.342
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	Reduced	19100	1900	17.29	18.50	1.321	-0.02	0.797	1.053
	LTE Band 2_Ant0	20M	QPSK	1	0	Left Side	5mm	Ant0	Reduced	18900	1880	15.13	16.50	1.371	0.03	0.080	0.110
	LTE Band 2_Ant0	20M	QPSK	1	0	Right Side	5mm	Ant0	Reduced	18900	1880	15.13	16.50	1.371	-0.03	0.058	0.080
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	5mm	Ant0	Reduced	18900	1880	15.13	16.50	1.371	0.04	0.884	1.212
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	5mm	Ant0	Reduced	18700	1860	15.07	16.50	1.390	0.03	0.995	1.383
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	5mm	Ant0	Reduced	19100	1900	15.03	16.50	1.403	0.01	0.801	1.124
	LTE Band 2_Ant0	20M	QPSK	50	0	Front	5mm	Ant0	Reduced	18900	1880	17.34	18.50	1.306	-0.04	0.515	0.673
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Reduced	18900	1880	17.34	18.50	1.306	0.09	0.907	1.185
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Reduced	18700	1860	17.32	18.50	1.312	0.12	1.050	1.378
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Reduced	19100	1900	17.27	18.50	1.327	0.09	0.804	1.067
	LTE Band 2_Ant0	20M	QPSK	50	0	Left Side	5mm	Ant0	Reduced	18900	1880	15.10	16.50	1.380	0.04	0.080	0.110
	LTE Band 2_Ant0	20M	QPSK	50	0	Right Side	5mm	Ant0	Reduced	18900	1880	15.10	16.50	1.380	0.02	0.052	0.072
	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	5mm	Ant0	Reduced	18900	1880	15.10	16.50	1.380	0.05	0.900	1.242
23	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	5mm	Ant0	Reduced	18700	1860	15.05	16.50	1.396	0.09	1.030	**1.438**
	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	5mm	Ant0	Reduced	19100	1900	15.00	16.50	1.413	0.07	0.805	1.137
	LTE Band 2_Ant0	20M	QPSK	100	0	Back	5mm	Ant0	Reduced	18900	1880	17.32	18.50	1.312	0.16	0.860	1.128
	LTE Band 2_Ant0	20M	QPSK	100	0	Bottom Side	5mm	Ant0	Reduced	18900	1880	15.07	16.50	1.390	0.09	0.877	1.219
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	Reduced	21100	2535	17.43	18.50	1.279	0.04	0.714	0.913
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	Reduced	20850	2510	17.28	18.50	1.324	-0.01	0.703	0.931
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	Reduced	21350	2560	17.36	18.50	1.300	-0.05	0.734	0.954
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	Reduced	21100	2535	17.43	18.50	1.279	-0.07	0.872	1.116
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	Reduced	20850	2510	17.28	18.50	1.324	-0.16	0.873	1.156
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	Reduced	21350	2560	17.36	18.50	1.300	-0.14	0.863	1.122
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	5mm	Ant1	Reduced	21100	2535	17.43	18.50	1.279	-0.03	0.626	0.801

	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	5mm	Ant1	Reduced	20850	2510	17.28	18.50	1.324	0.07	0.612	0.810
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	5mm	Ant1	Reduced	21350	2560	17.36	18.50	1.300	0.13	0.630	0.819
	LTE Band 7_Ant1	20M	QPSK	1	0	Right Side	5mm	Ant1	Reduced	21100	2535	17.43	18.50	1.279	-0.11	0.121	0.155
	LTE Band 7_Ant1	20M	QPSK	1	0	Bottom Side	5mm	Ant1	Reduced	21100	2535	17.43	18.50	1.279	-0.16	0.536	0.686
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	Reduced	21100	2535	17.41	18.50	1.285	-0.02	0.742	0.954
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	Reduced	20850	2510	17.25	18.50	1.334	0.08	0.742	0.989
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	Reduced	21350	2560	17.33	18.50	1.309	0.09	0.763	0.999
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	21100	2535	17.41	18.50	1.285	-0.15	0.904	1.162
24	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	20850	2510	17.25	18.50	1.334	-0.02	0.917	**1.223**
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	21350	2560	17.33	18.50	1.309	-0.12	0.904	1.184
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	5mm	Ant1	Reduced	21100	2535	17.41	18.50	1.285	0.18	0.638	0.820
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	5mm	Ant1	Reduced	20850	2510	17.25	18.50	1.334	0.18	0.655	0.873
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	5mm	Ant1	Reduced	21350	2560	17.33	18.50	1.309	0.06	0.642	0.840
	LTE Band 7_Ant1	20M	QPSK	50	0	Right Side	5mm	Ant1	Reduced	21100	2535	17.41	18.50	1.285	0.02	0.124	0.159
	LTE Band 7_Ant1	20M	QPSK	50	0	Bottom Side	5mm	Ant1	Reduced	21100	2535	17.41	18.50	1.285	0.08	0.561	0.721
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	PCC:20850 SCC:21048	PCC:2510 SCC:2529.8	17.31	18.50	1.315	0.02	0.914	1.202
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	PCC:21100 SCC:20902	PCC:2535 SCC:2515.2	17.24	18.50	1.337	-0.14	0.908	1.214
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	PCC:21350 SCC:21152	PCC:2560 SCC:2540.2	17.27	18.50	1.327	-0.19	0.893	1.185
	LTE Band 7_Ant1	20M	QPSK	100	0	Front	5mm	Ant1	Reduced	21100	2535	17.39	18.50	1.291	0.12	0.731	0.944
	LTE Band 7_Ant1	20M	QPSK	100	0	Back	5mm	Ant1	Reduced	21100	2535	17.39	18.50	1.291	0.06	0.907	1.171
	LTE Band 7_Ant1	20M	QPSK	100	0	Left Side	5mm	Ant1	Reduced	21100	2535	17.39	18.50	1.291	0.08	0.637	0.823
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Front	5mm	Ant1	Reduced	21100	2535	13.84	15.00	1.306	-0.19	0.302	0.394
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Back	5mm	Ant1	Reduced	21100	2535	13.84	15.00	1.306	-0.15	0.403	0.526
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Left Side	5mm	Ant1	Reduced	21100	2535	13.84	15.00	1.306	-0.15	0.267	0.349
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Right Side	5mm	Ant1	Reduced	21100	2535	13.84	15.00	1.306	-0.11	0.047	0.061
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Bottom Side	5mm	Ant1	Reduced	21100	2535	13.84	15.00	1.306	0.1	0.255	0.333
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Front	5mm	Ant1	Reduced	21100	2535	13.80	15.00	1.318	-0.15	0.320	0.422
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Back	5mm	Ant1	Reduced	21100	2535	13.80	15.00	1.318	-0.16	0.427	0.563
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Left Side	5mm	Ant1	Reduced	21100	2535	13.80	15.00	1.318	0.06	0.269	0.355
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Right Side	5mm	Ant1	Reduced	21100	2535	13.80	15.00	1.318	0.02	0.049	0.065
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Bottom Side	5mm	Ant1	Reduced	21100	2535	13.80	15.00	1.318	0.08	0.264	0.348
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Front	5mm	Ant4	Reduced	21350	2560	11.89	13.00	1.291	0.15	0.149	0.192
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Back	5mm	Ant4	Reduced	21350	2560	11.89	13.00	1.291	-0.16	0.425	0.549
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Left Side	5mm	Ant4	Reduced	21350	2560	11.89	13.00	1.291	-0.03	0.115	0.148
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Right Side	5mm	Ant4	Reduced	21350	2560	11.89	13.00	1.291	-	n/a	n/a
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Top Side	5mm	Ant4	Reduced	21350	2560	11.89	13.00	1.291	0.18	0.526	0.679
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Front	5mm	Ant4	Reduced	21350	2560	11.86	13.00	1.300	-0.05	0.141	0.183
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Back	5mm	Ant4	Reduced	21350	2560	11.86	13.00	1.300	-0.11	0.425	0.553
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Left Side	5mm	Ant4	Reduced	21350	2560	11.86	13.00	1.300	-0.19	0.115	0.150
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Right Side	5mm	Ant4	Reduced	21350	2560	11.86	13.00	1.300	-	n/a	n/a
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Top Side	5mm	Ant4	Reduced	21350	2560	11.86	13.00	1.300	0.17	0.502	0.653

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	-0.01	0.695	0.858
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	-0.02	0.680	0.865
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	0.09	0.731	0.917
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	-0.19	0.635	0.804
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	0.15	0.922	1.138
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	0.06	0.940	1.196
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	0.14	0.992	1.245
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	-0.18	0.812	1.028
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	5mm	Ant1	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	0.16	0.755	0.932
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	5mm	Ant1	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	-0.07	0.733	0.933
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	5mm	Ant1	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	0.08	0.771	0.968
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	5mm	Ant1	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	0.18	0.639	0.809
	LTE Band 41_Ant1	20M	QPSK	1	99	Right Side	5mm	Ant1	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	-0.1	0.124	0.153
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	5mm	Ant1	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	-0.12	0.614	0.758
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	5mm	Ant1	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	0.15	0.658	0.837
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	5mm	Ant1	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	-0.08	0.639	0.802
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	5mm	Ant1	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	0.15	0.514	0.651
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	-0.14	0.721	0.894
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	-0.15	0.728	0.933
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	0.1	0.859	1.085
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	-0.07	0.681	0.870
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	0.17	0.939	1.165
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	0.14	0.959	1.229
25	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	-0.18	1.070	**1.352**
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	0.04	0.876	1.120
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant1	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	-0.13	0.763	0.947
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant1	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	0.13	0.757	0.970
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant1	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	0.12	0.779	0.984
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	5mm	Ant1	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	0.06	0.676	0.864
	LTE Band 41_Ant1	20M	QPSK	50	24	Right Side	5mm	Ant1	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	0.01	0.126	0.156
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant1	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	-0.11	0.648	0.804
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant1	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	0.16	0.681	0.872
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant1	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	-0.1	0.664	0.839
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	5mm	Ant1	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	0.05	0.545	0.697
	LTE Band 41_Ant1	20M	QPSK	100	0	Front	5mm	Ant1	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.13	0.840	1.044
	LTE Band 41_Ant1	20M	QPSK	100	0	Back	5mm	Ant1	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.11	1.060	1.318
	LTE Band 41_Ant1	20M	QPSK	100	0	Left Side	5mm	Ant1	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.17	0.719	0.894
	LTE Band 41_Ant1	20M	QPSK	100	0	Bottom Side	5mm	Ant1	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.05	0.629	0.782
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Front	5mm	Ant1	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	0.09	0.324	0.403
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Back	5mm	Ant1	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	-0.07	0.435	0.541
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Left Side	5mm	Ant1	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	0.01	0.277	0.344
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Right Side	5mm	Ant1	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	-	n/a	n/a
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Bottom Side	5mm	Ant1	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	-0.16	0.256	0.318
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Front	5mm	Ant1	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	-0.07	0.333	0.416
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	5mm	Ant1	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	0.16	0.456	0.570
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Left Side	5mm	Ant1	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	0.15	0.286	0.357
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Right Side	5mm	Ant1	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	-	n/a	n/a
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Bottom Side	5mm	Ant1	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	0.16	0.271	0.339
	LTE Band 42_Ant5	20M	QPSK	1	0	Front	5mm	Ant5	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.13	0.492	0.654
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.16	0.740	0.984
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	Reduced	42190	3460	20.74	22.00	1.337	62.9	1.006	0.01	0.795	1.069
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	Reduced	42990	3540	20.75	22.00	1.334	62.9	1.006	-0.14	0.655	0.879

	LTE Band 42_Ant5	20M	QPSK	1	0	Left Side	5mm	Ant5	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	0.14	0.060	0.080
	LTE Band 42_Ant5	20M	QPSK	1	0	Right Side	5mm	Ant5	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.16	0.378	0.502
	LTE Band 42_Ant5	20M	QPSK	1	0	Top Side	5mm	Ant5	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.16	0.347	0.461
	LTE Band 42_Ant5	20M	QPSK	50	0	Front	5mm	Ant5	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	0.12	0.491	0.656
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	0.11	0.770	1.028
26	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	Reduced	42190	3460	20.69	22.00	1.352	62.9	1.006	-0.05	0.836	**1.137**
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	Reduced	42990	3540	20.72	22.00	1.343	62.9	1.006	0.15	0.672	0.908
	LTE Band 42_Ant5	20M	QPSK	50	0	Left Side	5mm	Ant5	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	-0.17	0.068	0.091
	LTE Band 42_Ant5	20M	QPSK	50	0	Right Side	5mm	Ant5	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	0.02	0.393	0.525
	LTE Band 42_Ant5	20M	QPSK	50	0	Top Side	5mm	Ant5	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	-0.16	0.363	0.485
	LTE Band 42_Ant5	20M	QPSK	100	0	Back	5mm	Ant5	Reduced	42590	3500	20.74	22.00	1.337	62.9	1.006	0.03	0.735	0.988

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Front	5mm	Ant0	Reduced	167300	836.5	19.73	20.50	1.194	0.06	0.208	0.248
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Back	5mm	Ant0	Reduced	167300	836.5	19.73	20.50	1.194	0.13	0.445	0.531
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Left Side	5mm	Ant0	Reduced	167300	836.5	19.73	20.50	1.194	-0.17	0.094	0.112
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Right Side	5mm	Ant0	Reduced	167300	836.5	19.73	20.50	1.194	-0.1	0.184	0.220
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Bottom Side	5mm	Ant0	Reduced	167300	836.5	19.73	20.50	1.194	-0.02	0.259	0.309
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Front	5mm	Ant0	Reduced	167300	836.5	19.70	20.50	1.202	-0.12	0.211	0.254
27	N5_Ant 0	20M	BPSK	50	28	DFT-15	Back	5mm	Ant0	Reduced	167300	836.5	19.70	20.50	1.202	-0.02	0.464	**0.558**
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Left Side	5mm	Ant0	Reduced	167300	836.5	19.70	20.50	1.202	0.15	0.096	0.115
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Right Side	5mm	Ant0	Reduced	167300	836.5	19.70	20.50	1.202	-0.06	0.191	0.230
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Bottom Side	5mm	Ant0	Reduced	167300	836.5	19.70	20.50	1.202	-0.15	0.273	0.328
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	Reduced	656000	3840	12.77	14.00	1.327	-0.17	0.227	0.301
28	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	Reduced	656000	3840	12.77	14.00	1.327	0.03	0.427	**0.567**
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Side	5mm	Ant5	Reduced	656000	3840	12.77	14.00	1.327	0.19	0.022	0.029
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Side	5mm	Ant5	Reduced	656000	3840	12.77	14.00	1.327	-0.09	0.082	0.109
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant5	Reduced	656000	3840	12.77	14.00	1.327	0.14	0.291	0.386
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	656000	3840	12.75	14.00	1.334	0.17	0.209	0.279
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	656000	3840	12.75	14.00	1.334	-0.05	0.299	0.399
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	656000	3840	12.75	14.00	1.334	-0.15	0.021	0.029
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	656000	3840	12.75	14.00	1.334	-0.1	0.075	0.100
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	656000	3840	12.75	14.00	1.334	0.02	0.206	0.275
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Back	5mm	Ant5	Reduced	656000	3840	12.70	14.00	1.349	0.03	0.239	0.322
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.71	14.00	1.346	-0.19	0.210	0.283
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.71	14.00	1.346	0.16	0.250	0.336
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.71	14.00	1.346	0.1	0.038	0.051
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.71	14.00	1.346	0.03	0.152	0.205
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.71	14.00	1.346	0.19	0.170	0.229
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.68	14.00	1.355	0.12	0.178	0.241
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.68	14.00	1.355	-0.18	0.217	0.294
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.68	14.00	1.355	-0.13	0.025	0.034
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.68	14.00	1.355	0.01	0.129	0.175
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.68	14.00	1.355	0.19	0.147	0.199
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.161	0.211
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.01	0.412	0.539
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.030	0.039
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	0.12	0.075	0.098
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	0.15	0.340	0.445
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.15	0.192	0.252
29	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.13	0.455	**0.597**
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.05	0.022	0.029
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.03	0.072	0.095

	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.17	0.316	0.415
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.11	0.111	0.149
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	-0.11	0.152	0.204
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.16	0.021	0.028
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.01	0.087	0.117
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.07	0.111	0.149
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.02	0.106	0.143
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	0.08	0.161	0.218
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	0.06	0.019	0.025
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.19	0.098	0.133
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.09	0.090	0.122
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.161	0.211
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.01	0.412	0.539
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Left Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.030	0.039
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Right Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	0.12	0.075	0.098
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	5mm	Ant5	Reduced	650000	3750	12.83	14.00	1.309	0.15	0.340	0.445
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.15	0.192	0.252
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.13	0.455	0.597
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.05	0.022	0.029
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.03	0.072	0.095
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	650000	3750	12.82	14.00	1.312	-0.17	0.316	0.415
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.11	0.111	0.149
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	-0.11	0.152	0.204
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.16	0.021	0.028
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.01	0.087	0.117
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.72	14.00	1.343	0.07	0.111	0.149
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.02	0.106	0.143
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	0.08	0.161	0.218
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Left Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	0.06	0.019	0.025
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.19	0.098	0.133
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	5mm	Ant5	Reduced	633332	3499.98	12.69	14.00	1.352	-0.09	0.090	0.122

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	-0.08	0.047	0.091
30	Bluetooth	DH5 1Mbps	Back	5mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.06	0.066	**0.127**
	Bluetooth	DH5 1Mbps	Left Side	5mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.01	0.007	0.013
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.18	0.063	0.121
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 6	Full	39	2441	10.80	12.50	1.479	76.79	1.302	-0.18	0.037	0.071

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz-H	802.11b 1Mbps	Front	5mm	Ant 6	Reduced	6	2437	11.40	13.00	1.445	99.01	1.010	-0.04	0.083	0.121
31	WLAN2.4GHz-H	802.11b 1Mbps	Back	5mm	Ant 6	Reduced	6	2437	11.40	13.00	1.445	99.01	1.010	-0.03	0.175	**0.255**
	WLAN2.4GHz-H	802.11b 1Mbps	Left Side	5mm	Ant 6	Reduced	6	2437	11.40	13.00	1.445	99.01	1.010	-	n/a	n/a
	WLAN2.4GHz-H	802.11b 1Mbps	Right Side	5mm	Ant 6	Reduced	6	2437	11.40	13.00	1.445	99.01	1.010	-0.02	0.098	0.143
	WLAN2.4GHz-H	802.11b 1Mbps	Top Side	5mm	Ant 6	Reduced	6	2437	11.40	13.00	1.445	99.01	1.010	0.1	0.067	0.098

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2 GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	Reduced	42	5210	10.22	11.50	1.343	95.78	1.044	-0.05	0.035	0.049
32	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	42	5210	10.22	11.50	1.343	95.78	1.044	0.01	0.234	**0.328**
	WLAN5.2 GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 6	Reduced	42	5210	10.22	11.50	1.343	95.78	1.044	-	n/a	n/a
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	Reduced	42	5210	10.22	11.50	1.343	95.78	1.044	-0.06	0.022	0.031
	WLAN5.2 GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Reduced	42	5210	10.22	11.50	1.343	95.78	1.044	-0.01	0.140	0.196
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	Reduced	155	5775	8.41	10.00	1.442	95.78	1.044	0.05	0.013	0.020
33	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Reduced	155	5775	8.41	10.00	1.442	95.78	1.044	-0.12	0.155	**0.233**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	5mm	Ant 6	Reduced	155	5775	8.41	10.00	1.442	95.78	1.044	-	n/a	n/a
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 6	Reduced	155	5775	8.41	10.00	1.442	95.78	1.044	-0.11	0.071	0.107
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Reduced	155	5775	8.41	10.00	1.442	95.78	1.044	0.08	0.052	0.078

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_Ant0	GPRS 2 Tx slots	Front	5mm	Ant0	-	Reduced	189	836.4	27.85	29.00	1.303	-0.15	0.504	0.657
	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	189	836.4	27.85	29.00	1.303	0.12	1.000	1.303
	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	128	824.2	27.68	29.00	1.355	0.13	0.983	1.332
34	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	251	848.8	27.72	29.00	1.343	0.07	1.070	**1.437**
	GSM850_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Headset	Reduced	251	848.8	27.72	29.00	1.343	0.13	1.050	1.410
	GSM850_Ant0	GPRS 2 Tx slots	Front	16mm	Ant0	-	Full	189	836.4	30.15	31.00	1.216	0.03	0.227	0.276
	GSM850_Ant0	GPRS 2 Tx slots	Back	22mm	Ant0	-	Full	251	848.8	29.90	31.00	1.288	0.12	0.230	0.296
	GSM1900_Ant0	GPRS 2 Tx slots	Front	5mm	Ant0	-	Reduced	512	1850.2	23.48	24.50	1.265	0.08	0.570	0.721
35	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	512	1850.2	23.48	24.50	1.265	0.02	1.090	**1.379**
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	661	1880	23.40	24.50	1.288	0.06	0.979	1.261
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	-	Reduced	810	1909.8	23.42	24.50	1.282	0.05	0.814	1.044
	GSM1900_Ant0	GPRS 2 Tx slots	Back	5mm	Ant0	Headset	Reduced	512	1850.2	23.48	24.50	1.265	0.1	0.923	1.167
	GSM1900_Ant0	GPRS 2 Tx slots	Front	16mm	Ant0	-	Full	512	1850.2	27.19	28.00	1.205	0.02	0.363	0.437
	GSM1900_Ant0	GPRS 2 Tx slots	Back	22mm	Ant0	-	Full	512	1850.2	27.19	28.00	1.205	0.04	0.288	0.347

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V_Ant0	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	4182	836.4	20.47	21.50	1.268	0.03	0.412	0.522
	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	4182	836.4	20.47	21.50	1.268	-0.01	0.973	1.233
	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	4132	826.4	20.41	21.50	1.285	0.15	0.878	1.128
36	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	4233	846.6	20.46	21.50	1.271	0.05	1.070	**1.360**
	WCDMA V_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Headset	Reduced	4233	846.6	20.46	21.50	1.271	0.12	0.981	1.246
	WCDMA V_Ant0	RMC 12.2Kbps	Front	16mm	Ant0	-	Full	4182	836.4	22.85	24.00	1.303	0.03	0.211	0.275
	WCDMA V_Ant0	RMC 12.2Kbps	Back	22mm	Ant0	-	Full	4233	846.6	22.77	24.00	1.327	0.16	0.161	0.214
	WCDMA II_Ant0	RMC 12.2Kbps	Front	5mm	Ant0	-	Reduced	9262	1852.4	16.71	18.00	1.346	-0.02	0.528	0.711
37	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9262	1852.4	16.71	18.00	1.346	0.06	0.990	**1.332**
	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9400	1880	16.70	18.00	1.349	0.05	0.825	1.113
	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	-	Reduced	9538	1907.6	16.67	18.00	1.358	-0.17	0.796	1.081
	WCDMA II_Ant0	RMC 12.2Kbps	Back	5mm	Ant0	Headset	Reduced	9262	1852.4	16.71	18.00	1.346	0.06	0.987	1.328
	WCDMA II_Ant0	RMC 12.2Kbps	Front	16mm	Ant0	-	Full	9262	1852.4	22.65	24.00	1.365	0.15	0.490	0.669
	WCDMA II_Ant0	RMC 12.2Kbps	Back	22mm	Ant0	-	Full	9262	1852.4	22.65	24.00	1.365	-0.04	0.402	0.549

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 26_Ant0	15M	QPSK	1	0	Front	5mm	Ant0	-	Reduced	26865	831.5	21.28	22.50	1.324	0.05	0.432	0.572
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	26865	831.5	21.28	22.50	1.324	-0.06	0.977	1.294
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	26765	821.5	21.22	22.50	1.343	-0.17	0.870	1.168
38	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	26965	841.5	21.17	22.50	1.358	0.11	1.050	**1.426**
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	5mm	Ant0	Headset	Reduced	26965	841.5	21.17	22.50	1.358	0.16	0.953	1.294
	LTE Band 26_Ant0	15M	QPSK	1	0	Front	16mm	Ant0	-	Full	26865	831.5	22.80	24.00	1.318	0.03	0.212	0.279
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	22mm	Ant0	-	Full	26965	841.5	22.70	24.00	1.349	-0.06	0.174	0.235
	LTE Band 26_Ant0	15M	QPSK	36	0	Front	5mm	Ant0	-	Reduced	26865	831.5	21.25	22.50	1.334	-0.19	0.359	0.479
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	-	Reduced	26865	831.5	21.25	22.50	1.334	-0.14	0.766	1.021
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	-	Reduced	26765	821.5	21.18	22.50	1.355	-0.02	0.685	0.928
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	5mm	Ant0	-	Reduced	26965	841.5	21.15	22.50	1.365	-0.11	0.861	1.175
	LTE Band 26_Ant0	15M	QPSK	36	0	Front	16mm	Ant0	-	Full	26865	831.5	21.72	23.00	1.343	0.05	0.116	0.156
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	22mm	Ant0	-	Full	26965	841.5	21.60	23.00	1.380	-0.12	0.095	0.131
	LTE Band 26_Ant0	15M	QPSK	75	0	Back	5mm	Ant0	-	Reduced	26865	831.5	21.23	22.50	1.340	-0.02	0.812	1.088
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Front	5mm	Ant0	-	Reduced	20525	836.5	17.27	18.50	1.327	-0.11	0.178	0.236
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	20525	836.5	17.27	18.50	1.327	-0.03	0.410	0.544
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Front	16mm	Ant0	-	Full	20525	836.5	22.71	24.00	1.346	0.06	0.206	0.277
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Back	22mm	Ant0	-	Full	20525	836.5	22.71	24.00	1.346	0.15	0.177	0.238
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Front	5mm	Ant0	-	Reduced	20525	836.5	17.24	18.50	1.337	0.06	0.184	0.246
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Back	5mm	Ant0	-	Reduced	20525	836.5	17.24	18.50	1.337	-0.03	0.435	0.581
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Front	16mm	Ant0	-	Full	20525	836.5	21.65	23.00	1.365	0.08	0.118	0.161
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Back	22mm	Ant0	-	Full	20525	836.5	21.65	23.00	1.365	0.12	0.107	0.146
	LTE Band 2_Ant0	20M	QPSK	1	0	Front	5mm	Ant0	-	Reduced	18900	1880	17.36	18.50	1.300	0.07	0.486	0.632
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	18900	1880	17.36	18.50	1.300	0.09	0.885	1.151
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	18700	1860	17.35	18.50	1.303	-0.02	1.030	1.342
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	-	Reduced	19100	1900	17.29	18.50	1.321	-0.02	0.797	1.053
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	5mm	Ant0	Headset	Reduced	18700	1860	17.35	18.50	1.303	0.1	1.090	1.420
	LTE Band 2_Ant0	20M	QPSK	1	0	Front	16mm	Ant0	-	Full	18900	1880	22.70	24.00	1.349	0.06	0.392	0.529
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	22mm	Ant0	Headset	Full	18700	1860	22.69	24.00	1.352	0.12	0.362	0.489
	LTE Band 2_Ant0	20M	QPSK	50	0	Front	5mm	Ant0	-	Reduced	18900	1880	17.34	18.50	1.306	-0.04	0.515	0.673
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	-	Reduced	18900	1880	17.34	18.50	1.306	0.09	0.907	1.185
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	-	Reduced	18700	1860	17.32	18.50	1.312	0.12	1.050	1.378
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	-	Reduced	19100	1900	17.27	18.50	1.327	0.09	0.804	1.067
39	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Headset	Reduced	18700	1860	17.32	18.50	1.312	0.08	1.100	**1.443**
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Headset	Reduced	18900	1880	17.34	18.50	1.306	0.05	0.904	1.181
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	5mm	Ant0	Headset	Reduced	19100	1900	17.27	18.50	1.327	0.03	0.802	1.065
	LTE Band 2_Ant0	20M	QPSK	50	0	Front	16mm	Ant0	-	Full	18900	1880	21.54	23.00	1.400	0.05	0.223	0.312
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	22mm	Ant0	Headset	Full	18700	1860	21.52	23.00	1.406	0.09	0.201	0.283
	LTE Band 2_Ant0	20M	QPSK	100	0	Back	5mm	Ant0	-	Reduced	18900	1880	17.32	18.50	1.312	0.16	0.860	1.128
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	-	Reduced	21100	2535	17.43	18.50	1.279	0.04	0.714	0.913
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	-	Reduced	20850	2510	17.28	18.50	1.324	-0.01	0.703	0.931
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	5mm	Ant1	-	Reduced	21350	2560	17.36	18.50	1.300	-0.05	0.734	0.954
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	-	Reduced	21100	2535	17.43	18.50	1.279	-0.07	0.872	1.116
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	-	Reduced	20850	2510	17.28	18.50	1.324	-0.16	0.910	1.205
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	-	Reduced	21350	2560	17.36	18.50	1.300	-0.14	0.863	1.122
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	5mm	Ant1	Headset	Reduced	20850	2510	17.28	18.50	1.324	-0.12	0.970	1.285
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	16mm	Ant1	-	Full	21350	2560	22.88	24.00	1.294	0.06	0.445	0.576
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	22mm	Ant1	Headset	Full	20850	2510	22.45	24.00	1.429	0.12	0.273	0.390
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	-	Reduced	21100	2535	17.41	18.50	1.285	-0.02	0.742	0.954
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	-	Reduced	20850	2510	17.25	18.50	1.334	0.08	0.742	0.989
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	5mm	Ant1	-	Reduced	21350	2560	17.33	18.50	1.309	0.09	0.763	0.999
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	-	Reduced	21100	2535	17.41	18.50	1.285	-0.15	0.904	1.162

	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	-	Reduced	20850	2510	17.25	18.50	1.334	-0.02	0.917	1.223
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	-	Reduced	21350	2560	17.33	18.50	1.309	-0.12	0.904	1.184
40	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	20850	2510	17.25	18.50	1.334	-0.17	1.010	**1.347**
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	21100	2535	17.41	18.50	1.285	0.04	0.908	1.167
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	21350	2560	17.33	18.50	1.309	-0.14	0.911	1.193
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	PCC:20850 SCC:21048	PCC:2510 SCC:2529.8	17.31	18.50	1.315	0.02	0.988	1.299
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	PCC:21100 SCC:20902	PCC:2535 SCC:2515.2	17.24	18.50	1.337	-0.14	0.977	1.306
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	5mm	Ant1	Headset	Reduced	PCC:21350 SCC:21152	PCC:2560 SCC:2540.2	17.27	18.50	1.327	-0.19	0.951	1.262
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	16mm	Ant1	-	Full	21350	2560	21.77	23.00	1.327	0.08	0.388	0.515
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	22mm	Ant1	Headset	Full	20850	2510	21.45	23.00	1.429	0.03	0.235	0.336
	LTE Band 7_Ant1	20M	QPSK	100	0	Front	5mm	Ant1	-	Reduced	21100	2535	17.39	18.50	1.291	0.12	0.731	0.944
	LTE Band 7_Ant1	20M	QPSK	100	0	Back	5mm	Ant1	-	Reduced	21100	2535	17.39	18.50	1.291	0.06	0.907	1.171
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Front	5mm	Ant1	-	Reduced	21100	2535	13.84	15.00	1.306	-0.19	0.302	0.394
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Back	5mm	Ant1	-	Reduced	21100	2535	13.84	15.00	1.306	-0.15	0.403	0.526
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Front	16mm	Ant1	-	Full	21100	2535	22.90	24.00	1.288	-0.12	0.536	0.691
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Back	22mm	Ant1	-	Full	21100	2535	22.90	24.00	1.288	0.03	0.297	0.383
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Front	5mm	Ant1	-	Reduced	21100	2535	13.80	15.00	1.318	-0.15	0.320	0.422
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Back	5mm	Ant1	-	Reduced	21100	2535	13.80	15.00	1.318	-0.16	0.427	0.563
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Front	16mm	Ant1	-	Full	21100	2535	21.80	23.00	1.318	-0.1	0.434	0.572
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Back	22mm	Ant1	-	Full	21100	2535	21.80	23.00	1.318	0.05	0.241	0.318
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Front	5mm	Ant4	-	Reduced	21350	2560	11.89	13.00	1.291	0.15	0.149	0.192
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Back	5mm	Ant4	-	Reduced	21350	2560	11.89	13.00	1.291	-0.16	0.425	0.549
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Front	16mm	Ant4	-	Full	21350	2560	22.86	24.00	1.300	0.08	0.395	0.514
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Back	22mm	Ant4	-	Full	21350	2560	22.86	24.00	1.300	-0.13	0.491	0.638
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Front	5mm	Ant4	-	Reduced	21350	2560	11.86	13.00	1.300	-0.05	0.141	0.183
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Back	5mm	Ant4	-	Reduced	21350	2560	11.86	13.00	1.300	-0.11	0.425	0.553
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Front	16mm	Ant4	-	Full	21350	2560	21.46	23.00	1.426	0.06	0.276	0.393
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Back	22mm	Ant4	-	Full	21350	2560	21.46	23.00	1.426	0.12	0.350	0.499

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	-	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	-0.01	0.695	0.858
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	-	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	-0.02	0.680	0.865
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	-	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	0.09	0.731	0.917
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	5mm	Ant1	-	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	-0.19	0.635	0.804
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	-	Reduced	40400	2571	20.11	21.00	1.227	62.9	1.006	0.15	0.922	1.138
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	-	Reduced	40140	2545	19.98	21.00	1.265	62.9	1.006	0.06	0.940	1.196
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	-	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	0.14	0.992	1.245
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	-	Reduced	41140	2645	20.00	21.00	1.259	62.9	1.006	-0.18	0.812	1.028
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	5mm	Ant1	Headset	Reduced	40670	2598	20.04	21.00	1.247	62.9	1.006	-0.1	0.920	1.154
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	16mm	Ant1	-	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	0.03	0.340	0.438
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	22mm	Ant1	-	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	0.1	0.167	0.215
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	-	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	-0.14	0.721	0.894
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	-	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	-0.15	0.728	0.933
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	-	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	0.1	0.859	1.085
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	5mm	Ant1	-	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	-0.07	0.681	0.870
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	-	Reduced	40400	2571	20.09	21.00	1.233	62.9	1.006	0.17	0.939	1.165
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	-	Reduced	40140	2545	19.95	21.00	1.274	62.9	1.006	0.14	0.959	1.229
41	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	-	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	-0.18	1.070	**1.352**
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	-	Reduced	41140	2645	19.96	21.00	1.271	62.9	1.006	0.04	0.876	1.120
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	5mm	Ant1	Headset	Reduced	40670	2598	20.01	21.00	1.256	62.9	1.006	0.16	0.940	1.188
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	16mm	Ant1	-	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	0.06	0.268	0.340
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	22mm	Ant1	-	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	0.08	0.136	0.173
	LTE Band 41_Ant1	20M	QPSK	100	0	Front	5mm	Ant1	-	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.13	0.840	1.044
	LTE Band 41_Ant1	20M	QPSK	100	0	Back	5mm	Ant1	-	Reduced	40400	2571	20.08	21.00	1.236	62.9	1.006	-0.11	1.060	1.318
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Front	5mm	Ant1	-	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	0.09	0.324	0.403
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Back	5mm	Ant1	-	Reduced	40400	2571	16.58	17.50	1.236	62.9	1.006	-0.07	0.435	0.541
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Front	16mm	Ant1	-	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.07	0.323	0.403
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Back	22mm	Ant1	-	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.03	0.177	0.221
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Front	5mm	Ant1	-	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	-0.07	0.333	0.416
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	5mm	Ant1	-	Reduced	40400	2571	16.56	17.50	1.242	62.9	1.006	0.16	0.456	0.570
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Front	16mm	Ant1	-	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.14	0.275	0.339
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	22mm	Ant1	-	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.02	0.147	0.181
	LTE Band 42_Ant5	20M	QPSK	1	0	Front	5mm	Ant5	-	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.13	0.492	0.654
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	-	Reduced	42590	3500	20.79	22.00	1.321	62.9	1.006	-0.16	0.740	0.984
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	-	Reduced	42190	3460	20.74	22.00	1.337	62.9	1.006	0.01	0.795	1.069
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	5mm	Ant5	-	Reduced	42990	3540	20.75	22.00	1.334	62.9	1.006	-0.14	0.655	0.879
	LTE Band 42_Ant5	20M	QPSK	1	0	Front	16mm	Ant5	-	Full	42590	3500	22.76	24.00	1.330	62.9	1.006	0.03	0.095	0.127
	LTE Band 42_Ant5	20M	QPSK	1	0	Back	22mm	Ant5	-	Full	42190	3460	22.60	24.00	1.380	62.9	1.006	0.16	0.071	0.099
	LTE Band 42_Ant5	20M	QPSK	50	0	Front	5mm	Ant5	-	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	0.12	0.491	0.656
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	-	Reduced	42590	3500	20.77	22.00	1.327	62.9	1.006	0.11	0.770	1.028
42	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	-	Reduced	42190	3460	20.69	22.00	1.352	62.9	1.006	-0.05	0.836	**1.137**
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	5mm	Ant5	-	Reduced	42990	3540	20.72	22.00	1.343	62.9	1.006	0.15	0.672	0.908
	LTE Band 42_Ant5	20M	QPSK	50	0	Front	16mm	Ant5	-	Full	42590	3500	21.71	23.00	1.346	62.9	1.006	0.05	0.069	0.093
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	22mm	Ant5	-	Full	42190	3460	21.67	23.00	1.358	62.9	1.006	0.11	0.052	0.071
	LTE Band 42_Ant5	20M	QPSK	100	0	Back	5mm	Ant5	-	Reduced	42590	3500	20.74	22.00	1.337	62.9	1.006	0.03	0.735	0.988

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Front	5mm	Ant0	-	Reduced	167300	836.5	19.73	20.50	1.194	0.06	0.208	0.248
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Back	5mm	Ant0	-	Reduced	167300	836.5	19.73	20.50	1.194	0.13	0.445	0.531
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Front	16mm	Ant0	-	Full	167300	836.5	23.28	24.00	1.180	0.06	0.154	0.182
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Back	22mm	Ant0	-	Full	167300	836.5	23.28	24.00	1.180	0.17	0.132	0.156
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Front	5mm	Ant0	-	Reduced	167300	836.5	19.70	20.50	1.202	-0.12	0.211	0.254
43	N5_Ant 0	20M	BPSK	50	28	DFT-15	Back	5mm	Ant0	-	Reduced	167300	836.5	19.70	20.50	1.202	-0.02	0.464	**0.558**
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Front	16mm	Ant0	-	Full	167300	836.5	23.01	24.00	1.256	0.03	0.147	0.185
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Back	22mm	Ant0	-	Full	167300	836.5	23.01	24.00	1.256	0.14	0.124	0.156
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	-	Reduced	656000	3840	12.77	14.00	1.327	-0.17	0.227	0.301
44	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	-	Reduced	656000	3840	12.77	14.00	1.327	0.03	0.427	**0.567**
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	16mm	Ant5	-	Full	656000	3840	22.62	24.00	1.374	0.06	0.290	0.398
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	22mm	Ant5	-	Full	656000	3840	22.62	24.00	1.374	0.07	0.268	0.368
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	656000	3840	12.75	14.00	1.334	0.17	0.209	0.279
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	656000	3840	12.75	14.00	1.334	-0.05	0.299	0.399
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	656000	3840	22.54	24.00	1.400	-0.07	0.244	0.341
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	656000	3840	22.54	24.00	1.400	-0.02	0.195	0.273
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Back	5mm	Ant5	-	Reduced	656000	3840	12.70	14.00	1.349	0.03	0.239	0.322
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.71	14.00	1.346	-0.19	0.210	0.283
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.71	14.00	1.346	0.16	0.250	
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	22.75	24.00	1.334	0.13	0.217	0.289
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	22.75	24.00	1.334	0.17	0.130	0.173
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.68	14.00	1.355	0.12	0.178	0.241
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.68	14.00	1.355	-0.18	0.217	0.294
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	22.73	24.00	1.340	0.16	0.176	0.236
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	22.73	24.00	1.340	0.07	0.091	0.122
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	-	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.161	0.211
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	-	Reduced	650000	3750	12.83	14.00	1.309	-0.01	0.412	0.539
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	16mm	Ant5	-	Full	650000	3750	22.95	24.00	1.274	0.06	0.330	0.420
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	22mm	Ant5	-	Full	650000	3750	22.95	24.00	1.274	0.11	0.370	0.471
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	650000	3750	12.82	14.00	1.312	-0.15	0.192	0.252
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	650000	3750	12.82	14.00	1.312	-0.13	0.455	0.597
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	650000	3750	22.85	24.00	1.303	0.08	0.318	0.414
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	650000	3750	22.85	24.00	1.303	0.06	0.350	0.456
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.72	14.00	1.343	0.11	0.111	0.149
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.72	14.00	1.343	-0.11	0.152	0.204
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	23.05	24.00	1.245	0.05	0.157	0.195
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	23.05	24.00	1.245	0.03	0.121	0.151
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.69	14.00	1.352	-0.02	0.106	0.143
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.69	14.00	1.352	0.08	0.161	0.218
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	22.96	24.00	1.271	0.05	0.163	0.207
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	22.96	24.00	1.271	0.03	0.106	0.135
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	5mm	Ant5	-	Reduced	650000	3750	12.83	14.00	1.309	-0.1	0.161	0.211
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	5mm	Ant5	-	Reduced	650000	3750	12.83	14.00	1.309	-0.01	0.412	0.539
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	16mm	Ant5	-	Full	650000	3750	24.92	26.00	1.282	-0.12	0.523	0.671
45	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	22mm	Ant5	-	Full	650000	3750	24.92	26.00	1.282	0.05	0.613	**0.786**
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	650000	3750	12.82	14.00	1.312	-0.15	0.192	0.252
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	650000	3750	12.82	14.00	1.312	-0.13	0.455	0.597
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	650000	3750	24.83	26.00	1.309	-0.18	0.525	0.687
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	650000	3750	24.83	26.00	1.309	0.17	0.599	0.784
	N78(HPUE)_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Back	22mm	Ant5	-	Full	650000	3750	24.33	25.50	1.309	0.07	0.592	0.775
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.72	14.00	1.343	0.11	0.111	0.149
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.72	14.00	1.343	-0.11	0.152	0.204

	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	24.82	26.00	1.312	-0.17	0.250	0.328
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	24.82	26.00	1.312	0.03	0.190	0.249
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	5mm	Ant5	-	Reduced	633332	3499.98	12.69	14.00	1.352	-0.02	0.106	0.143
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	5mm	Ant5	-	Reduced	633332	3499.98	12.69	14.00	1.352	0.08	0.161	0.218
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	16mm	Ant5	-	Full	633332	3499.98	24.77	26.00	1.327	0.15	0.254	0.337
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	22mm	Ant5	-	Full	633332	3499.98	24.77	26.00	1.327	0.08	0.146	0.194

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 6	-	Full	39	2441	10.80	12.50	1.479	76.79	1.302	-0.08	0.047	0.091
46	Bluetooth	DH5 1Mbps	Back	5mm	Ant 6	-	Full	39	2441	10.80	12.50	1.479	76.79	1.302	0.06	0.066	**0.127**

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 6	-	Standalone	6	2437	16.50	18.00	1.413	99.01	1.010	0.07	0.138	0.197
47	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Standalone	6	2437	16.50	18.00	1.413	99.01	1.010	-0.17	0.585	**0.835**
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Standalone	1	2412	16.40	18.00	1.445	99.01	1.010	0.12	0.522	0.762
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 6	-	Simultaneous	6	2437	11.40	13.00	1.445	99.01	1.010	-0.04	0.083	0.121
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	-	Simultaneous	6	2437	11.40	13.00	1.445	99.01	1.010	-0.03	0.175	0.255
	WLAN2.4GHz	802.11b 1Mbps	Front	16mm	Ant 6	-	Full	6	2437	19.00	20.50	1.413	99.01	1.010	0.05	0.150	0.214
	WLAN2.4GHz	802.11b 1Mbps	Back	22mm	Ant 6	-	Full	6	2437	19.00	20.50	1.413	99.01	1.010	0.11	0.085	0.121
	WLAN2.4GHz	802.11b 1Mbps	Front	16mm	Ant 6	-	Simultaneous	6	2437	14.50	16.00	1.413	99.01	1.010	0.13	0.045	0.064
	WLAN2.4GHz	802.11b 1Mbps	Back	22mm	Ant 6	-	Simultaneous	6	2437	14.50	16.00	1.413	99.01	1.010	0.06	0.032	0.045

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Standalone	58	5290	13.67	15.50	1.524	95.78	1.044	0.01	0.135	0.215
48	WLAN5.3GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Standalone	58	5290	13.67	15.50	1.524	95.78	1.044	-0.14	0.723	**1.150**
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	42	5210	10.22	11.50	1.343	95.78	1.044	0.03	0.035	0.049
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	42	5210	10.22	11.50	1.343	95.78	1.044	-0.16	0.234	0.328
	WLAN5.3GHz	802.11a 6Mbps	Front	16mm	Ant 6	-	Full	52	5260	17.13	19.00	1.538	97.97	1.021	-	n/a	n/a
	WLAN5.3GHz	802.11a 6Mbps	Back	22mm	Ant 6	-	Full	52	5260	17.13	19.00	1.538	97.97	1.021	0.17	0.285	0.448
	WLAN5.2GHz	802.11n-HT40 MCS0	Front	16mm	Ant 6	-	Simultaneous	38	5190	15.98	17.50	1.419	96.40	1.037	-	n/a	n/a
	WLAN5.2GHz	802.11n-HT40 MCS0	Back	22mm	Ant 6	-	Simultaneous	38	5190	15.98	17.50	1.419	96.40	1.037	0.06	0.147	0.216
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Standalone	106	5530	11.89	13.50	1.449	95.78	1.044	0.06	0.299	0.452
49	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Standalone	106	5530	11.89	13.50	1.449	95.78	1.044	0.14	0.789	**1.193**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	106	5530	6.22	8.00	1.507	95.78	1.044	-0.12	0.109	0.171
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	106	5530	6.22	8.00	1.507	95.78	1.044	0.13	0.229	0.360
	WLAN5.5GHz	802.11a 6Mbps	Front	16mm	Ant 6	-	Full	140	5700	17.44	19.00	1.432	97.97	1.021	-	n/a	n/a
	WLAN5.5GHz	802.11a 6Mbps	Back	22mm	Ant 6	-	Full	140	5700	17.44	19.00	1.432	97.97	1.021	0.03	0.252	0.369
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	16mm	Ant 6	-	Simultaneous	106	5530	10.57	12.00	1.390	95.78	1.044	-	n/a	n/a
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	22mm	Ant 6	-	Simultaneous	106	5530	10.57	12.00	1.390	95.78	1.044	-0.18	0.170	0.247
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Standalone	155	5775	14.35	16.00	1.462	95.78	1.044	-0.15	0.133	0.203
50	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Standalone	155	5775	14.35	16.00	1.462	95.78	1.044	0.09	0.441	**0.673**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 6	-	Simultaneous	155	5775	8.41	10.00	1.442	95.78	1.044	0.05	0.013	0.020
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	-	Simultaneous	155	5775	8.41	10.00	1.442	95.78	1.044	-0.12	0.155	0.233
	WLAN5.8GHz	802.11a 6Mbps	Front	16mm	Ant 6	-	Full	149	5745	17.34	19.00	1.466	97.97	1.021	-	n/a	n/a
	WLAN5.8GHz	802.11a 6Mbps	Back	22mm	Ant 6	-	Full	149	5745	17.34	19.00	1.466	97.97	1.021	0.08	0.192	0.287
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	16mm	Ant 6	-	Simultaneous	155	5775	14.35	16.00	1.462	95.78	1.044	-	n/a	n/a
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	22mm	Ant 6	-	Simultaneous	155	5775	14.35	16.00	1.462	95.78	1.044	0.03	0.102	0.156

15.4 Product Specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
51	GSM850_Ant0	GPRS 2 Tx slots	Back	0mm	Ant0	Full	189	836.4	30.15	31.00	1.216	-0.11	1.480	**1.800**
	GSM1900_Ant0	GPRS 2 Tx slots	Front	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	0.08	1.750	2.109
	GSM1900_Ant0	GPRS 2 Tx slots	Front	0mm	Ant0	Full	661	1880	26.97	28.00	1.268	0.05	1.540	1.952
	GSM1900_Ant0	GPRS 2 Tx slots	Front	0mm	Ant0	Full	810	1909.8	27.13	28.00	1.222	0.18	1.330	1.625
52	GSM1900_Ant0	GPRS 2 Tx slots	Back	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	-0.04	2.670	**3.217**
	GSM1900_Ant0	GPRS 2 Tx slots	Back	0mm	Ant0	Full	661	1880	26.97	28.00	1.268	0.09	2.410	3.055
	GSM1900_Ant0	GPRS 2 Tx slots	Back	0mm	Ant0	Full	810	1909.8	27.13	28.00	1.222	0.18	2.300	2.810
	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	0mm	Ant0	Full	512	1850.2	27.19	28.00	1.205	0.01	2.600	3.133
	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	0mm	Ant0	Full	661	1880	26.97	28.00	1.268	0.02	2.460	3.118
	GSM1900_Ant0	GPRS 2 Tx slots	Bottom Side	0mm	Ant0	Full	810	1909.8	27.13	28.00	1.222	0.16	2.520	3.079

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA V_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Full	4182	836.4	22.85	24.00	1.303	-0.14	1.540	2.007
53	WCDMA V_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Full	4132	826.4	22.81	24.00	1.315	-0.14	1.650	**2.170**
	WCDMA V_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Full	4233	846.6	22.77	24.00	1.327	-0.1	1.520	2.018
	WCDMA II_Ant0	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	9262	1852.4	20.26	21.50	1.330	0.15	1.610	2.142
	WCDMA II_Ant0	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	9400	1880	20.21	21.50	1.346	0.12	1.570	2.113
	WCDMA II_Ant0	RMC 12.2Kbps	Front	0mm	Ant0	Reduced	9538	1907.6	20.14	21.50	1.368	0.14	1.460	1.997
	WCDMA II_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	9262	1852.4	20.26	21.50	1.330	0.02	2.250	2.994
	WCDMA II_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	9400	1880	20.21	21.50	1.346	0.09	2.020	2.719
	WCDMA II_Ant0	RMC 12.2Kbps	Back	0mm	Ant0	Reduced	9538	1907.6	20.14	21.50	1.368	0.11	2.160	2.954
54	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	9262	1852.4	20.26	21.50	1.330	0.01	2.700	**3.592**
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	9400	1880	20.21	21.50	1.346	0.03	2.490	3.351
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	0mm	Ant0	Reduced	9538	1907.6	20.14	21.50	1.368	0.04	2.170	2.968
	WCDMA II_Ant0	RMC 12.2Kbps	Front	8mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.03	0.787	1.074
	WCDMA II_Ant0	RMC 12.2Kbps	Back	12mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.12	0.657	0.897
	WCDMA II_Ant0	RMC 12.2Kbps	Bottom Side	11mm	Ant0	Full	9262	1852.4	22.65	24.00	1.365	0.06	1.250	1.706

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
55	LTE Band 26_Ant0	15M	QPSK	1	0	Back	0mm	Ant0	Full	26865	831.5	22.80	24.00	1.318	-0.1	2.060	**2.716**
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	0mm	Ant0	Full	26765	821.5	22.75	24.00	1.334	-0.14	2.010	2.680
	LTE Band 26_Ant0	15M	QPSK	1	0	Back	0mm	Ant0	Full	26965	841.5	22.70	24.00	1.349	-0.14	1.910	2.577
	LTE Band 26_Ant0	15M	QPSK	36	0	Back	0mm	Ant0	Full	26865	831.5	21.72	23.00	1.343	0.03	1.100	1.477
	LTE Band 26_Ant0	15M	QPSK	75	0	Back	0mm	Ant0	Full	26865	831.5	21.68	23.00	1.355	-0.12	1.040	1.409
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Back	0mm	Ant0	Reduced	20525	836.5	19.14	20.50	1.368	0.03	1.040	1.422
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Back	0mm	Ant0	Reduced	20525	836.5	19.11	20.50	1.377	0.05	1.090	1.501
	LTE Band 5_Ant0_EN-DC	10M	QPSK	1	0	Back	12mm	Ant0	Full	20525	836.5	22.71	24.00	1.346	-0.06	0.187	0.252
	LTE Band 5_Ant0_EN-DC	10M	QPSK	25	0	Back	12mm	Ant0	Full	20525	836.5	21.65	23.00	1.365	0.12	0.110	0.150
	LTE Band 2_Ant0	20M	QPSK	1	0	Front	0mm	Ant0	Reduced	18900	1880	19.82	21.00	1.312	0.05	1.300	1.706
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	0mm	Ant0	Reduced	18900	1880	19.82	21.00	1.312	0.04	1.670	2.191
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	0mm	Ant0	Reduced	18700	1860	19.78	21.00	1.324	0.14	1.910	2.529
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	0mm	Ant0	Reduced	19100	1900	19.75	21.00	1.334	0.07	1.680	2.240
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	0mm	Ant0	Reduced	18900	1880	19.82	21.00	1.312	0.15	2.350	3.084
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	0mm	Ant0	Reduced	18700	1860	19.78	21.00	1.324	0.14	2.420	3.205
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	0mm	Ant0	Reduced	19100	1900	19.75	21.00	1.334	0.08	2.200	2.934
	LTE Band 2_Ant0	20M	QPSK	1	0	Front	8mm	Ant0	Full	18900	1880	22.70	24.00	1.349	0.06	0.659	0.889
	LTE Band 2_Ant0	20M	QPSK	1	0	Back	12mm	Ant0	Full	18700	1860	22.69	24.00	1.352	0.03	0.601	0.813
	LTE Band 2_Ant0	20M	QPSK	1	0	Bottom Side	11mm	Ant0	Full	18700	1860	22.69	24.00	1.352	0.05	1.140	1.541
	LTE Band 2_Ant0	20M	QPSK	50	0	Front	0mm	Ant0	Reduced	18900	1880	19.78	21.00	1.324	0.11	1.260	1.669
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	0mm	Ant0	Reduced	18900	1880	19.78	21.00	1.324	0.09	1.790	2.371
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	0mm	Ant0	Reduced	18700	1860	19.73	21.00	1.340	0.12	2.030	2.720
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	0mm	Ant0	Reduced	19100	1900	19.72	21.00	1.343	0.05	1.760	2.363
	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	0mm	Ant0	Reduced	18900	1880	19.78	21.00	1.324	-0.15	2.390	3.165
56	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	0mm	Ant0	Reduced	18700	1860	19.73	21.00	1.340	0.07	2.510	**3.363**
	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	0mm	Ant0	Reduced	19100	1900	19.72	21.00	1.343	0.17	2.280	3.062
	LTE Band 2_Ant0	20M	QPSK	50	0	Front	8mm	Ant0	Full	18900	1880	21.54	23.00	1.400	-0.03	0.369	0.516
	LTE Band 2_Ant0	20M	QPSK	50	0	Back	12mm	Ant0	Full	18700	1860	21.52	23.00	1.406	-0.08	0.348	0.489
	LTE Band 2_Ant0	20M	QPSK	50	0	Bottom Side	11mm	Ant0	Full	18700	1860	21.52	23.00	1.406	-0.12	0.648	0.911
	LTE Band 2_Ant0	20M	QPSK	100	0	Back	0mm	Ant0	Reduced	18900	1880	19.76	21.00	1.330	-0.06	1.600	2.129
	LTE Band 2_Ant0	20M	QPSK	100	0	Bottom Side	0mm	Ant0	Reduced	18900	1880	19.76	21.00	1.330	-0.01	2.280	3.033
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	0mm	Ant1	Reduced	21100	2535	21.40	22.50	1.288	-0.03	2.180	2.808
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	0mm	Ant1	Reduced	20850	2510	21.36	22.50	1.300	0.11	2.360	3.068
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	0mm	Ant1	Reduced	21350	2560	21.33	22.50	1.309	-0.15	2.090	2.736
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	0mm	Ant1	Reduced	21100	2535	21.40	22.50	1.288	0.17	2.390	3.079
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	0mm	Ant1	Reduced	20850	2510	21.36	22.50	1.300	0.08	2.430	3.159
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	0mm	Ant1	Reduced	21350	2560	21.33	22.50	1.309	0.1	2.400	3.142
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant1	Reduced	21100	2535	21.40	22.50	1.288	0.19	1.980	2.551
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant1	Reduced	20850	2510	21.36	22.50	1.300	-0.12	2.110	2.743
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	0mm	Ant1	Reduced	21350	2560	21.33	22.50	1.309	-0.14	2.020	2.645
	LTE Band 7_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant1	Reduced	21100	2535	21.40	22.50	1.288	0.15	2.030	2.615
	LTE Band 7_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant1	Reduced	20850	2510	21.36	22.50	1.300	0.19	2.050	2.665
	LTE Band 7_Ant1	20M	QPSK	1	0	Bottom Side	0mm	Ant1	Reduced	21350	2560	21.33	22.50	1.309	-0.18	2.000	2.618
	LTE Band 7_Ant1	20M	QPSK	1	0	Front	6mm	Ant1	Full	20850	2510	22.45	24.00	1.429	0.09	0.937	1.339
	LTE Band 7_Ant1	20M	QPSK	1	0	Back	14mm	Ant1	Full	20850	2510	22.45	24.00	1.429	0.03	0.371	0.530
	LTE Band 7_Ant1	20M	QPSK	1	0	Left Side	12mm	Ant1	Full	20850	2510	22.45	24.00	1.429	-0.12	0.339	0.484
	LTE Band 7_Ant1	20M	QPSK	1	0	Bottom Side	7mm	Ant1	Full	20850	2510	22.45	24.00	1.429	-0.16	0.759	1.085
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	0mm	Ant1	Reduced	21100	2535	21.37	22.50	1.297	-0.19	2.260	2.932
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	0mm	Ant1	Reduced	20850	2510	21.33	22.50	1.309	0.13	2.520	3.299
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	0mm	Ant1	Reduced	21350	2560	21.30	22.50	1.318	-0.15	2.180	2.874
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	21100	2535	21.37	22.50	1.297	0.06	2.470	3.204
57	LTE Band 7_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	20850	2510	21.33	22.50	1.309	0.05	2.620	**3.430**

	LTE Band 7_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	21350	2560	21.30	22.50	1.318	0.17	2.580	3.401
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	0mm	Ant1	Reduced	21100	2535	21.37	22.50	1.297	-0.01	2.070	2.685
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	0mm	Ant1	Reduced	20850	2510	21.33	22.50	1.309	0.1	2.130	2.789
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	0mm	Ant1	Reduced	21350	2560	21.30	22.50	1.318	0.13	2.030	2.676
	LTE Band 7_Ant1	20M	QPSK	50	0	Bottom Side	0mm	Ant1	Reduced	21100	2535	21.37	22.50	1.297	0.19	2.050	2.659
	LTE Band 7_Ant1	20M	QPSK	50	0	Bottom Side	0mm	Ant1	Reduced	20850	2510	21.33	22.50	1.309	0.16	2.140	2.802
	LTE Band 7_Ant1	20M	QPSK	50	0	Bottom Side	0mm	Ant1	Reduced	21350	2560	21.30	22.50	1.318	-0.13	2.080	2.742
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	PCC:20850 SCC:21048	PCC:2510 SCC:2529.8	21.33	22.50	1.309	0.16	2.580	3.378
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	PCC:21100 SCC:20902	PCC:2535 SCC:2515.2	21.28	22.50	1.324	0.17	2.570	3.404
	LTE Band 7C_Ant1	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	PCC:21350 SCC:21152	PCC:2560 SCC:2540.2	21.30	22.50	1.318	0.07	2.600	3.427
	LTE Band 7_Ant1	20M	QPSK	50	0	Front	6mm	Ant1	Full	20850	2510	21.45	23.00	1.429	-0.03	0.795	1.136
	LTE Band 7_Ant1	20M	QPSK	50	0	Back	14mm	Ant1	Full	20850	2510	21.45	23.00	1.429	-0.1	0.314	0.449
	LTE Band 7_Ant1	20M	QPSK	50	0	Left Side	12mm	Ant1	Full	20850	2510	21.45	23.00	1.429	-0.04	0.288	0.412
	LTE Band 7_Ant1	20M	QPSK	50	0	Bottom Side	7mm	Ant1	Full	20850	2510	21.45	23.00	1.429	0.07	0.661	0.944
	LTE Band 7_Ant1	20M	QPSK	100	0	Front	0mm	Ant1	Reduced	21100	2535	21.33	22.50	1.309	0.15	2.230	2.919
	LTE Band 7_Ant1	20M	QPSK	100	0	Back	0mm	Ant1	Reduced	21100	2535	21.33	22.50	1.309	0	2.460	3.221
	LTE Band 7_Ant1	20M	QPSK	100	0	Left Side	0mm	Ant1	Reduced	21100	2535	21.33	22.50	1.309	0.09	1.990	2.605
	LTE Band 7_Ant1	20M	QPSK	100	0	Bottom Side	0mm	Ant1	Reduced	21100	2535	21.33	22.50	1.309	0.1	2.030	2.658
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Front	0mm	Ant1	Reduced	21100	2535	17.85	19.00	1.303	-0.09	0.954	1.243
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Back	0mm	Ant1	Reduced	21100	2535	17.85	19.00	1.303	0.15	1.110	1.447
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Left Side	0mm	Ant1	Reduced	21100	2535	17.85	19.00	1.303	-0.1	0.858	1.118
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Bottom Side	0mm	Ant1	Reduced	21100	2535	17.85	19.00	1.303	-0.19	0.860	1.121
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Front	6mm	Ant1	Full	21100	2535	22.90	24.00	1.288	-0.18	1.020	1.314
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Back	14mm	Ant1	Full	21100	2535	22.90	24.00	1.288	0.12	0.398	0.513
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Left Side	12mm	Ant1	Full	21100	2535	22.90	24.00	1.288	-0.13	0.376	0.484
	LTE Band 7_Ant1_EN-DC	20M	QPSK	1	0	Bottom Side	7mm	Ant1	Full	21100	2535	22.90	24.00	1.288	-0.15	0.795	1.024
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Front	0mm	Ant1	Reduced	21100	2535	17.82	19.00	1.312	0.09	0.964	1.265
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Back	0mm	Ant1	Reduced	21100	2535	17.82	19.00	1.312	0.16	1.160	1.522
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Left Side	0mm	Ant1	Reduced	21100	2535	17.82	19.00	1.312	-0.05	0.882	1.157
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Bottom Side	0mm	Ant1	Reduced	21100	2535	17.82	19.00	1.312	0.01	0.884	1.160
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Front	6mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.08	0.788	1.039
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Back	14mm	Ant1	Full	21100	2535	21.80	23.00	1.318	-0.05	0.329	0.434
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Left Side	12mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.14	0.306	0.403
	LTE Band 7_Ant1_EN-DC	20M	QPSK	50	0	Bottom Side	7mm	Ant1	Full	21100	2535	21.80	23.00	1.318	0.03	0.668	0.881
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Front	0mm	Ant4	Reduced	21350	2560	17.36	18.50	1.300	0.06	0.607	0.789
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Back	0mm	Ant4	Reduced	21350	2560	17.36	18.50	1.300	0.01	1.110	1.443
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Left Side	0mm	Ant4	Reduced	21350	2560	17.36	18.50	1.300	-0.04	0.663	0.862
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Top Side	0mm	Ant4	Reduced	21350	2560	17.36	18.50	1.300	0.11	0.725	0.943
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Front	6mm	Ant4	Full	21350	2560	22.86	24.00	1.300	-0.04	0.461	0.599
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Back	13mm	Ant4	Full	21350	2560	22.86	24.00	1.300	0.03	0.544	0.707
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Left Side	6mm	Ant4	Full	21350	2560	22.86	24.00	1.300	0.04	0.436	0.567
	LTE Band 7_Ant4_EN-DC	20M	QPSK	1	0	Top Side	11mm	Ant4	Full	21350	2560	22.86	24.00	1.300	0.09	0.885	1.151
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Front	0mm	Ant4	Reduced	21350	2560	17.35	18.50	1.303	-0.19	0.618	0.805
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Back	0mm	Ant4	Reduced	21350	2560	17.35	18.50	1.303	0.11	1.130	1.473
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Left Side	0mm	Ant4	Reduced	21350	2560	17.35	18.50	1.303	0.14	0.687	0.895
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Top Side	0mm	Ant4	Reduced	21350	2560	17.35	18.50	1.303	-0.18	0.740	0.964
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Front	6mm	Ant4	Full	21350	2560	21.46	23.00	1.426	-0.14	0.404	0.576
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Back	13mm	Ant4	Full	21350	2560	21.46	23.00	1.426	-0.05	0.450	0.642
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Left Side	6mm	Ant4	Full	21350	2560	21.46	23.00	1.426	0.07	0.353	0.503
	LTE Band 7_Ant4_EN-DC	20M	QPSK	50	0	Top Side	11mm	Ant4	Full	21350	2560	21.46	23.00	1.426	-0.07	0.640	0.912

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.01	1.860	2.318
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	0mm	Ant1	Full	40140	2545	22.82	24.00	1.312	62.9	1.006	0.15	1.850	2.442
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	0mm	Ant1	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	-0.05	1.930	2.484
	LTE Band 41_Ant1	20M	QPSK	1	99	Front	0mm	Ant1	Full	41140	2645	23.00	24.00	1.259	62.9	1.006	0.04	1.760	2.229
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.12	2.280	2.841
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	0mm	Ant1	Full	40140	2545	22.82	24.00	1.312	62.9	1.006	-0.16	2.150	2.838
58	LTE Band 41_Ant1	20M	QPSK	1	99	Back	0mm	Ant1	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	0.11	2.350	**3.025**
	LTE Band 41_Ant1	20M	QPSK	1	99	Back	0mm	Ant1	Full	41140	2645	23.00	24.00	1.259	62.9	1.006	0.06	1.950	2.470
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.17	1.720	2.144
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	0mm	Ant1	Full	40140	2545	22.82	24.00	1.312	62.9	1.006	-0.16	1.620	2.139
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	0mm	Ant1	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	-0.07	1.860	2.394
	LTE Band 41_Ant1	20M	QPSK	1	99	Left Side	0mm	Ant1	Full	41140	2645	23.00	24.00	1.259	62.9	1.006	-0.14	1.500	1.900
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	0mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.15	1.800	2.243
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	0mm	Ant1	Full	40140	2545	22.82	24.00	1.312	62.9	1.006	0.08	1.740	2.297
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	0mm	Ant1	Full	40670	2598	22.93	24.00	1.279	62.9	1.006	-0.04	1.850	2.381
	LTE Band 41_Ant1	20M	QPSK	1	99	Bottom Side	0mm	Ant1	Full	41140	2645	23.00	24.00	1.259	62.9	1.006	0.15	1.570	1.988
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.04	1.530	1.885
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	0mm	Ant1	Full	40140	2545	21.95	23.00	1.274	62.9	1.006	-0.05	1.570	2.011
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	0mm	Ant1	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	-0.13	1.540	1.955
	LTE Band 41_Ant1	20M	QPSK	50	24	Front	0mm	Ant1	Full	41140	2645	22.04	23.00	1.247	62.9	1.006	0.17	1.410	1.769
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.05	1.780	2.193
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	0mm	Ant1	Full	40140	2545	21.95	23.00	1.274	62.9	1.006	-0.14	1.790	2.293
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	0mm	Ant1	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	-0.13	1.960	2.488
	LTE Band 41_Ant1	20M	QPSK	50	24	Back	0mm	Ant1	Full	41140	2645	22.04	23.00	1.247	62.9	1.006	-0.12	1.620	2.033
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.09	1.410	1.737
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant1	Full	40140	2545	21.95	23.00	1.274	62.9	1.006	0.03	1.370	1.755
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant1	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	0.1	1.470	1.866
	LTE Band 41_Ant1	20M	QPSK	50	24	Left Side	0mm	Ant1	Full	41140	2645	22.04	23.00	1.247	62.9	1.006	-0.08	1.330	1.669
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.03	1.400	1.725
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant1	Full	40140	2545	21.95	23.00	1.274	62.9	1.006	0.1	1.380	1.768
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant1	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	-0.13	1.410	1.790
	LTE Band 41_Ant1	20M	QPSK	50	24	Bottom Side	0mm	Ant1	Full	41140	2645	22.04	23.00	1.247	62.9	1.006	-0.14	1.120	1.405
	LTE Band 41_Ant1	20M	QPSK	100	0	Front	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.13	1.420	1.749
	LTE Band 41_Ant1	20M	QPSK	100	0	Back	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.05	1.770	2.181
	LTE Band 41_Ant1	20M	QPSK	100	0	Left Side	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.16	1.390	1.712
	LTE Band 41_Ant1	20M	QPSK	100	0	Bottom Side	0mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.09	1.410	1.737
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Front	0mm	Ant1	Reduced	40400	2571	20.68	21.50	1.208	62.9	1.006	0.19	0.940	1.142
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Back	0mm	Ant1	Reduced	40400	2571	20.68	21.50	1.208	62.9	1.006	0.05	1.230	1.495
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Left Side	0mm	Ant1	Reduced	40400	2571	20.68	21.50	1.208	62.9	1.006	0.16	0.908	1.103
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Bottom Side	0mm	Ant1	Reduced	40400	2571	20.68	21.50	1.208	62.9	1.006	-0.13	0.948	1.152
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Front	6mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.11	0.571	0.712
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Back	14mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.16	0.225	0.280
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Left Side	12mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	-0.08	0.204	0.254
	LTE Band 41_Ant1_EN-DC	20M	QPSK	1	99	Bottom Side	7mm	Ant1	Full	40400	2571	23.07	24.00	1.239	62.9	1.006	0.14	0.625	0.779
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Front	0mm	Ant1	Reduced	40400	2571	20.66	21.50	1.213	62.9	1.006	-0.01	0.963	1.176
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	0mm	Ant1	Reduced	40400	2571	20.66	21.50	1.213	62.9	1.006	0.12	1.300	1.587
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	0mm	Ant1	Reduced	40140	2545	20.45	21.50	1.274	62.9	1.006	0.04	1.278	1.637
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	0mm	Ant1	Reduced	40670	2598	20.60	21.50	1.230	62.9	1.006	0.13	1.327	1.642
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	0mm	Ant1	Reduced	41140	2645	20.43	21.50	1.279	62.9	1.006	0.08	1.147	1.476
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Left Side	0mm	Ant1	Reduced	40400	2571	20.66	21.50	1.213	62.9	1.006	-0.19	0.931	1.136
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Bottom Side	0mm	Ant1	Reduced	40400	2571	20.66	21.50	1.213	62.9	1.006	-0.11	0.972	1.186
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Front	6mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.09	0.473	0.583

	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	14mm	Ant1	Full	40670	2598	21.99	23.00	1.262	62.9	1.006	0.04	0.191	0.242
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Left Side	12mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	-0.18	0.167	0.206
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Bottom Side	7mm	Ant1	Full	40400	2571	22.12	23.00	1.225	62.9	1.006	0.06	0.514	0.633
	LTE Band 41_Ant1_EN-DC	20M	QPSK	50	24	Back	0mm	Ant1	Reduced	40400	2571	20.63	21.50	1.222	62.9	1.006	0.03	1.250	1.536
59	LTE Band 42_Ant5	20M	QPSK	1	0	Back	0mm	Ant5	Full	42590	3500	22.76	24.00	1.330	62.9	1.006	0.12	1.360	**1.820**
	LTE Band 42_Ant5	20M	QPSK	50	0	Back	0mm	Ant5	Full	42590	3500	21.71	23.00	1.346	62.9	1.006	-0.08	0.984	1.332

<5GNR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Back	0mm	Ant0	Reduced	167300	836.5	21.71	22.50	1.199	0.07	1.110	1.331
60	N5_Ant 0	20M	BPSK	50	28	DFT-15	Back	0mm	Ant0	Reduced	167300	836.5	21.50	22.50	1.259	0.08	1.190	**1.498**
	N5_Ant 0	20M	BPSK	1	1	DFT-15	Back	12mm	Ant0	Full	167300	836.5	23.28	24.00	1.180	0.05	0.143	0.169
	N5_Ant 0	20M	BPSK	50	28	DFT-15	Back	12mm	Ant0	Full	167300	836.5	23.01	24.00	1.256	0.03	0.155	0.195
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	0mm	Ant5	Reduced	656000	3840	18.67	20.00	1.358	0.12	0.834	1.133
61	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	0mm	Ant5	Reduced	656000	3840	18.67	20.00	1.358	0.03	1.130	**1.535**
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant5	Reduced	656000	3840	18.67	20.00	1.358	0.09	0.365	0.496
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	3mm	Ant5	Full	656000	3840	22.62	24.00	1.374	-0.08	0.830	1.140
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	10mm	Ant5	Full	656000	3840	22.62	24.00	1.374	-0.11	0.390	0.536
	N77_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	8mm	Ant5	Full	656000	3840	22.62	24.00	1.374	-0.05	0.468	0.643
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	656000	3840	18.65	20.00	1.365	-0.11	0.687	0.937
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	656000	3840	18.65	20.00	1.365	-0.02	0.881	1.202
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	656000	3840	18.65	20.00	1.365	0.18	0.265	0.362
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	656000	3840	22.54	24.00	1.400	0.09	0.753	1.054
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	656000	3840	22.54	24.00	1.400	-0.06	0.305	0.427
	N77_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	656000	3840	22.54	24.00	1.400	-0.05	0.354	0.495
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Front	0mm	Ant5	Reduced	656000	3840	18.61	20.00	1.377	0.06	0.808	1.113
	N77_Ant 5_Part 27O	100M	BPSK	270	0	DFT-30	Back	0mm	Ant5	Reduced	656000	3840	18.61	20.00	1.377	0.11	0.970	1.336
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.64	20.00	1.368	0.18	0.721	0.986
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.64	20.00	1.368	0.14	0.891	1.219
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	22.75	24.00	1.334	0.04	1.060	1.414
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.64	20.00	1.368	-0.17	0.512	0.700
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	22.75	24.00	1.334	-0.18	0.726	0.968
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	22.75	24.00	1.334	0.12	0.298	0.397
	N77_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	22.75	24.00	1.334	0.09	0.216	0.288
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.61	20.00	1.377	0.11	0.666	0.917
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.61	20.00	1.377	0.17	0.795	1.095
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	22.73	24.00	1.340	0.05	0.990	1.326
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.61	20.00	1.377	0.01	0.486	0.669
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	22.73	24.00	1.340	0.04	0.631	0.845
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	22.73	24.00	1.340	0.15	0.223	0.299
	N77_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	22.73	24.00	1.340	0.09	0.195	0.261
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.09	0.893	1.148
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.05	1.150	1.478
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.17	0.980	1.260
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Front	3mm	Ant5	Full	650000	3750	22.95	24.00	1.274	0.06	1.140	1.452
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Back	10mm	Ant5	Full	650000	3750	22.95	24.00	1.274	0.17	0.655	0.834
	N78_Ant 5_Part 27O	100M	BPSK	1	1	DFT-30	Top Side	8mm	Ant5	Full	650000	3750	22.95	24.00	1.274	0.03	0.680	0.866
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	0.16	0.921	1.192
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	-0.07	1.220	1.579
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	0.08	1.010	1.307
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	650000	3750	22.85	24.00	1.303	0.06	1.200	1.564
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	650000	3750	22.85	24.00	1.303	0.01	0.616	0.803
	N78_Ant 5_Part 27O	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	650000	3750	22.85	24.00	1.303	0.08	0.652	0.850
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	-0.16	0.602	0.788

	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	-0.15	0.702	0.919
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	23.05	24.00	1.245	0.14	0.935	1.164
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	0.03	0.504	0.660
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	23.05	24.00	1.245	-0.07	0.595	0.740
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	23.05	24.00	1.245	-0.1	0.199	0.248
	N78_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	23.05	24.00	1.245	-0.01	0.191	0.238
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	-0.01	0.622	0.820
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	0.11	0.729	0.961
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	22.96	24.00	1.271	0.15	0.878	1.116
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	-0.08	0.472	0.622
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	22.96	24.00	1.271	-0.16	0.554	0.704
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	22.96	24.00	1.271	-0.1	0.193	0.245
	N78_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	22.96	24.00	1.271	0.18	0.177	0.225
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.09	0.893	1.148
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.05	1.150	1.478
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Right Side	0mm	Ant5	Full	650000	3750	24.92	26.00	1.282	0.07	1.050	1.346
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Top Side	0mm	Ant5	Reduced	650000	3750	18.91	20.00	1.285	-0.17	0.980	1.260
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Front	3mm	Ant5	Full	650000	3750	24.92	26.00	1.282	-0.15	1.520	1.949
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Back	10mm	Ant5	Full	650000	3750	24.92	26.00	1.282	0.13	1.040	1.334
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	1	DFT-30	Top Side	8mm	Ant5	Full	650000	3750	24.92	26.00	1.282	-0.09	1.150	1.475
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	0.16	0.921	1.192
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	-0.07	1.220	1.579
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	0mm	Ant5	Full	650000	3750	24.83	26.00	1.309	0.04	1.020	1.335
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	650000	3750	18.88	20.00	1.294	0.08	1.010	1.307
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	650000	3750	24.83	26.00	1.309	-0.1	1.570	2.055
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	650000	3750	24.83	26.00	1.309	0.19	0.954	1.249
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	650000	3750	24.83	26.00	1.309	-0.16	1.050	1.375
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	270	0	DFT-30	Front	3mm	Ant5	Full	650000	3750	24.33	25.50	1.309	0.06	1.420	1.859
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	-0.16	0.602	0.788
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	-0.15	0.702	0.919
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	24.82	26.00	1.312	-0.05	1.450	1.903
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.83	20.00	1.309	0.03	0.504	0.660
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	24.82	26.00	1.312	0.09	0.889	1.167
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	24.82	26.00	1.312	0.04	0.319	0.419
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	1	271	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	24.82	26.00	1.312	0.06	0.332	0.436
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	-0.01	0.622	0.820
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	0.11	0.729	0.961
62	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	24.77	26.00	1.327	0.12	1.590	**2.111**
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	0mm	Ant5	Reduced	633332	3499.98	18.80	20.00	1.318	-0.08	0.472	0.622
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Front	3mm	Ant5	Full	633332	3499.98	24.77	26.00	1.327	0.11	0.937	1.244
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Back	10mm	Ant5	Full	633332	3499.98	24.77	26.00	1.327	0.07	0.316	0.419
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	135	69	DFT-30	Top Side	8mm	Ant5	Full	633332	3499.98	24.77	26.00	1.327	0.03	0.298	0.396
	N78(HPUE)_Ant 5_Part 27Q	100M	BPSK	270	0	DFT-30	Right Side	0mm	Ant5	Full	633332	3499.98	24.21	25.50	1.346	0.04	1.160	1.561