FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2165-3, XT2165-3PP, XT2165DL, XT2165-5
FCC ID	:	IHDT56ZP5
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

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

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

Reviewed by: Hank Huang / Supervisor

Approved by: Johnny Chen / Manager

Sporton International (ShenZhen) Inc.
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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA170628	Rev. 01	Initial issue of report.	Sep. 17, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2165-3, XT2165-3PP, XT2165DL, XT2165-5,** 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	**1.19**	1.35	1.35	1.58
		GSM1900	1.14	**1.42**	1.41	
	WCDMA	Band V	1.17	**1.42**	1.42	
		Band IV	0.45	1.37	1.37	
		Band II	1.12	**1.42**	1.42	
	LTE	Band 71	0.45	1.08	1.08	
		Band 12/Band 17	0.64	1.30	**1.44**	
		Band 13	0.48	1.40	1.40	
		Band 26/Band 5	**1.19**	1.40	1.40	
		Band 66/ Band 4	0.44	1.41	1.42	
		Band 25/Band 2	1.15	1.40	1.37	
		Band 7	**1.19**	1.32	1.32	
		Band 41/ Band 38	1.13	1.34	1.30	
DTS	WLAN	2.4GHz WLAN	1.14	0.30	1.08	1.58
NII		5GHz WLAN	**1.19**	0.50	1.04	1.57
DSS	Bluetooth	2.4GHz Bluetooth	0.11	0.10	0.10	1.57

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
License	GSM	GSM850	2.98	3.99
		GSM1900	3.36	
	WCDMA	Band V	2.95	
		Band IV	**3.58**	
		Band II	3.48	
	LTE	Band 12/Band 17	1.78	
		Band 13	2.18	
		Band 26/Band 5	2.40	
		Band 66/ Band 4	3.30	
		Band 25/Band 2	3.19	
		Band 7	2.78	
		Band 41/Band 38	2.66	
DTS	WLAN	2.4GHz WLAN	2.25	3.99
NII		5GHz WLAN	2.75	3.88
Date of Testing:			2021/08/12 ~ 2021/09/03	

Remark: This device supports both LTE B4/5/17/38/2 and B66/26/12/41/25. Since the supported frequency span for LTE B4/5/17/38/2 falls completely within the supports frequency span for LTE B66/26/12/41/25, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66/26/12/41/25.

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.
	SAR01-SZ SAR02-SZ SAR04-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	XT2165-3, XT2165-3PP, XT2165DL, XT2165-5
FCC ID	IHDT56ZP5
IMEI Code	351024740023630
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 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
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM 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
HW Version	DVT2
SW Version	RRQ31.Q3-51
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. WLAN operation in 5600 MHz ~ 5650 MHz is notched
2. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
3. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
4. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
5. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the 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.

7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
8. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
9. LTE B41 supports HPUE, HPUE power and SAR testing performed separately.
10. There are four models, the four models are for different markets and no other difference.

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>IHDT56ZP5</td></tr>
<tr><td>Equipment Name</td><td>Mobile Cellular Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850 MHz ~ 1910 MHz
LTE Band 4: 1710 MHz ~ 1755 MHz
LTE Band 5: 824 MHz ~ 849 MHz
LTE Band 7: 2500 MHz ~ 2570 MHz
LTE Band 12: 699 MHz ~ 716 MHz
LTE Band 13: 777 MHz ~ 787 MHz
LTE Band 17: 704 MHz ~ 716 MHz
LTE Band 25: 1850 MHz ~ 1915 MHz
LTE Band 26: 814 MHz ~ 849 MHz
LTE Band 38: 2570 MHz ~ 2620 MHz
LTE Band 41: 2496 MHz ~ 2690 MHz
LTE Band 66: 1710 MHz ~ 1780 MHz
LTE Band 71: 663 MHz ~ 698 MHz</td></tr>
<tr><td>Channel Bandwidth</td><td>LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz
LTE Band 13: 5MHz, 10MHz
LTE Band 17: 5MHz, 10MHz
LTE Band 25:1.4MHz, 3MHz, 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 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R11, Cat7</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 41C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance.
2. This device supports maximum of 2 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.</td></tr>
</table>

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844
LTE Band 7								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
LTE Band 12								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711
LTE Band 13				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq.(MHz)
L	23205	779.5	23230	782
M	23230	782		
H	23255	784.5		
LTE Band 17				
	Bandwidth 5 MHz		Bandwidth 10 MHz	
	Channel #	Freq.(MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709
M	23790	710	23790	710
H	23825	713.5	23800	711

LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905

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

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

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

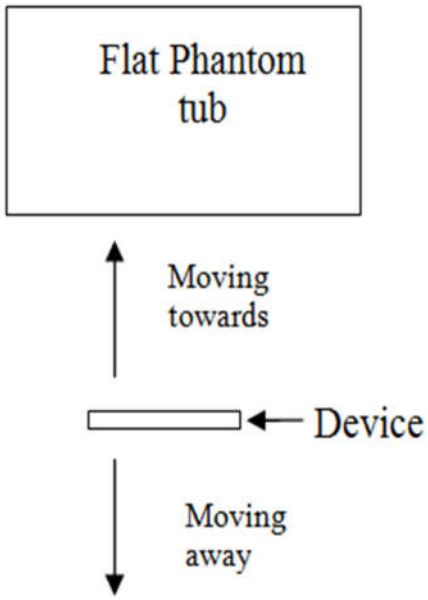
LTE Band 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047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

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

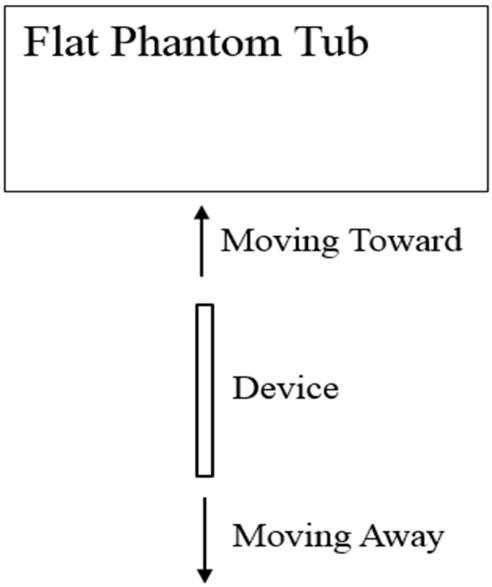
5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5750MHz) and lowest (750MHz) 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/right/left/top/bottom side of the device. When front/back/right/left/top/bottom side 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, right, left, top and bottom sides

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	20	25	25	31

<Handheld for ANT1>

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	15	15	24	4	6	15	22

<Handheld for ANT2>

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	8	13	15	24	6	14	13	18

<Handheld for ANT4>

Proximity Sensor Triggering Distance (mm)				
Position	Back		Right Side	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	11	7	9

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:

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

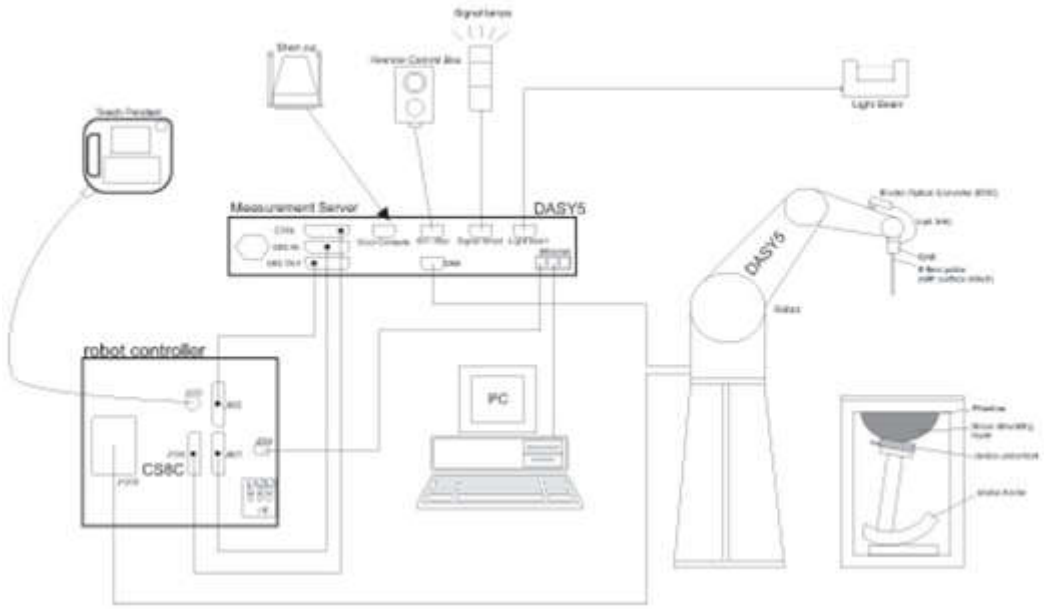
SAR is expressed in units of Watts per kilogram (W/kg)

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

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: 2.5 mm (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	

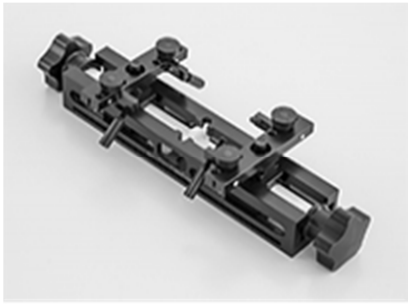
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

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	750MHz System Validation Kit	D750V3	1099	Dec. 06, 2018	Nov. 24, 2021
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 05, 2018	Nov. 24, 2021
SPEAG	1750MHz System Validation Kit	D1750V2	1090	Mar. 27, 2019	Mar. 26, 2022
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, 2021
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 07, 2018	Nov. 24, 2021
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Sep. 24, 2019	Sep. 23, 2022
SPEAG	Data Acquisition Electronics	DAE3	360	Nov. 06, 2020	Nov. 05, 2021
SPEAG	Data Acquisition Electronics	DAE4	1386	Jan. 13, 2021	Jan. 12, 2022
SPEAG	Data Acquisition Electronics	DAE4	1664	Mar. 01, 2021	Feb. 28, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7576	Apr. 26, 2021	Apr. 25, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	3975	Jun. 07, 2021	Jun. 06, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	Apr. 30, 2021	Apr. 29, 2022
SPEAG	Dosimetric E-Field Probe	EX3DV4	7641	Mar. 15, 2021	Mar. 14, 2022
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1671	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1500	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201341952	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Radio communication analyzer	MT8820C	6201563813	Dec. 25, 2020	Dec. 24, 2021
Anritsu	Radio communication analyzer	MT8821C	6201588577	Apr. 08, 2021	Apr. 07, 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	NRP50S	101254	Apr. 09, 2021	Apr. 08, 2022
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
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
mini-circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Weinschel	Attenuator 1	3M-10	N/A	Note 1	
Weinschel	Attenuator 2	3M-20	N/A	Note 1	

Note:

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

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.

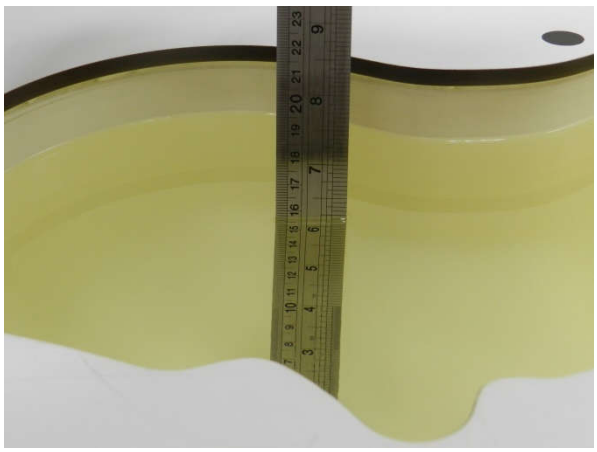


Fig 11.1 Photo of Liquid Height for Head SAR

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								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.5	0.880	40.936	0.89	41.90	-1.12	-2.30	±5	2021/8/16
835	Head	22.8	0.904	40.381	0.90	41.50	0.44	-2.70	±5	2021/8/12
835	Head	22.5	0.920	42.227	0.90	41.50	2.22	1.75	±5	2021/8/17
835	Head	22.5	0.902	40.749	0.90	41.50	0.22	-1.81	±5	2021/8/18
1750	Head	22.6	1.375	41.541	1.37	40.10	0.36	3.59	±5	2021/8/13
1750	Head	22.6	1.355	38.395	1.37	40.10	-1.09	-4.25	±5	2021/8/20
1750	Head	22.6	1.377	41.359	1.37	40.10	0.51	3.14	±5	2021/8/21
1900	Head	22.7	1.443	40.030	1.40	40.00	3.07	0.08	±5	2021/8/14
1900	Head	22.4	1.453	39.136	1.40	40.00	3.79	-2.16	±5	2021/8/23
1900	Head	22.7	1.440	40.038	1.40	40.00	2.86	0.09	±5	2021/8/24
2450	Head	22.7	1.829	40.081	1.80	39.20	1.61	2.25	±5	2021/8/25
2450	Head	22.4	1.746	39.247	1.80	39.20	-3.00	0.12	±5	2021/8/26
2600	Head	22.9	1.974	38.204	1.96	39.00	0.71	-2.04	±5	2021/8/27
2600	Head	22.8	1.894	40.240	1.96	39.00	-3.37	3.18	±5	2021/8/28
5250	Head	22.7	4.638	37.088	4.71	35.95	-1.53	3.17	±5	2021/8/29
5250	Head	22.4	4.502	36.248	4.71	35.95	-4.42	0.83	±5	2021/9/3
5600	Head	22.8	5.048	36.534	5.07	35.50	-0.43	2.91	±5	2021/8/31
5750	Head	22.6	5.357	35.815	5.22	35.35	2.62	1.32	±5	2021/9/1

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 (%)
2021/8/16	750	Head	250	1099	7641	1664	2.21	8.52	8.84	3.76
2021/8/12	835	Head	250	4d162	7576	1664	2.29	9.61	9.16	-4.68
2021/8/17	835	Head	250	4d162	7576	1664	2.33	9.61	9.32	-3.02
2021/8/18	835	Head	250	4d162	7641	1664	2.51	9.61	10.04	4.47
2021/8/13	1750	Head	250	1090	7576	1664	8.75	36.40	35	-3.85
2021/8/20	1750	Head	250	1090	7576	1664	8.62	36.40	34.48	-5.27
2021/8/21	1750	Head	250	1090	7641	1664	9.16	36.40	36.64	0.66
2021/8/14	1900	Head	250	5d182	7576	1664	9.88	39.60	39.52	-0.20
2021/8/23	1900	Head	250	5d182	7576	1664	9.94	39.60	39.76	0.40
2021/8/24	1900	Head	250	5d182	7641	1664	9.89	39.60	39.56	-0.10
2021/8/25	2450	Head	250	924	3819	1386	13.20	51.40	52.8	2.72
2021/8/26	2450	Head	250	924	7641	1664	12.60	51.40	50.4	-1.95
2021/8/27	2600	Head	250	1070	3819	1386	13.90	58.10	55.6	-4.30
2021/8/28	2600	Head	250	1070	7641	1664	14.20	58.10	56.8	-2.24
2021/8/29	5250	Head	100	1113	3975	360	7.85	80.50	78.5	-2.48
2021/9/3	5250	Head	100	1113	3975	1386	7.91	80.50	79.1	-1.74
2021/8/31	5600	Head	100	1113	3975	360	7.56	83.40	75.6	-9.35
2021/9/1	5750	Head	100	1113	3975	360	7.55	80.00	75.5	-5.63

<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 (%)
2021/8/16	750	Head	250	1099	7641	1664	1.33	5.64	5.32	-5.67
2021/8/12	835	Head	250	4d162	7576	1664	1.51	6.35	6.04	-4.88
2021/8/17	835	Head	250	4d162	7576	1664	1.54	6.35	6.16	-2.99
2021/8/18	835	Head	250	4d162	7641	1664	1.64	6.35	6.56	3.31
2021/8/13	1750	Head	250	1090	7576	1664	4.72	19.20	18.88	-1.67
2021/8/20	1750	Head	250	1090	7576	1664	4.65	19.20	18.6	-3.12
2021/8/21	1750	Head	250	1090	7641	1664	4.97	19.20	19.88	3.54
2021/8/14	1900	Head	250	5d182	7576	1664	5.11	20.70	20.44	-1.26
2021/8/23	1900	Head	250	5d182	7576	1664	5.15	20.70	20.6	-0.48
2021/8/24	1900	Head	250	5d182	7641	1664	5.14	20.70	20.56	-0.68
2021/8/25	2450	Head	250	924	3819	1386	6.15	24.00	24.6	2.50
2021/8/26	2450	Head	250	924	7641	1664	5.76	24.00	23.04	-4.00
2021/8/27	2600	Head	250	1070	3819	1386	6.15	26.10	24.6	-5.75
2021/8/28	2600	Head	250	1070	7641	1664	6.28	26.10	25.12	-3.75
2021/8/29	5250	Head	100	1113	3975	360	2.34	23.10	23.4	1.30
2021/9/3	5250	Head	100	1113	3975	1386	2.20	23.10	22	-4.76
2021/8/31	5600	Head	100	1113	3975	360	2.33	23.80	23.3	-2.10
2021/9/1	5750	Head	100	1113	3975	360	2.27	22.80	22.7	-0.44

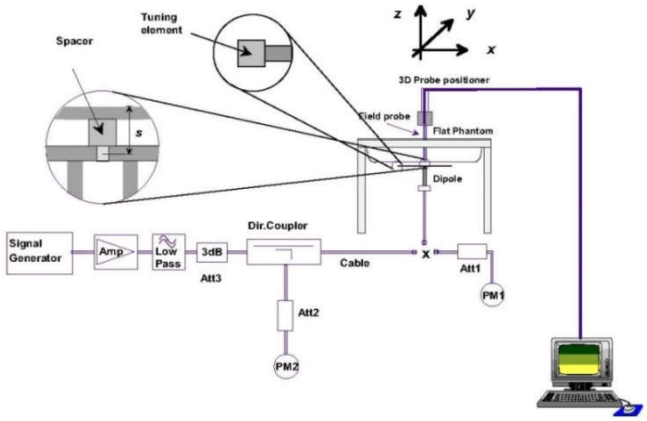


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

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

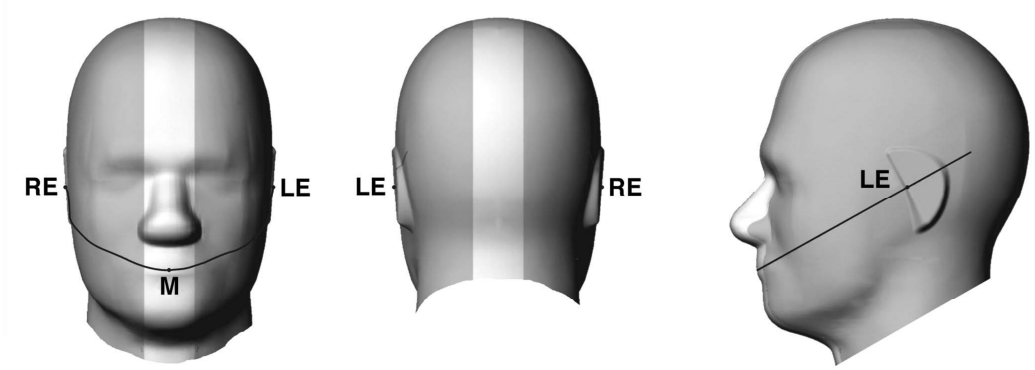


Fig 12.1.1 Front, back, and side views of SAM twin phantom

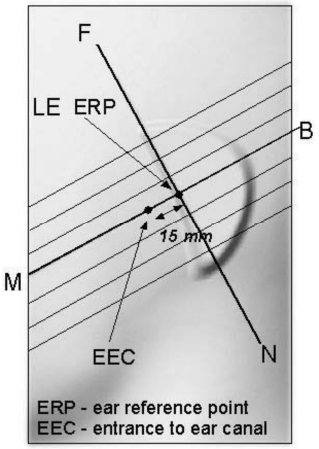


Fig 12.1.2 Close-up side view of phantom showing the ear region.

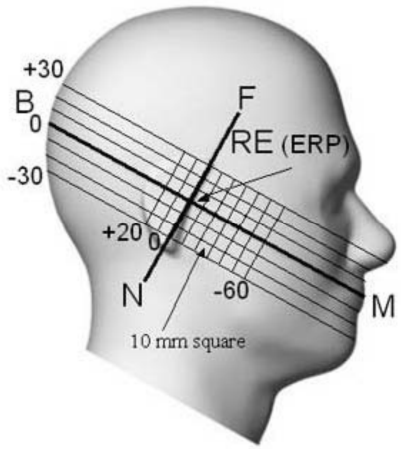


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 Definition of the cheek position

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

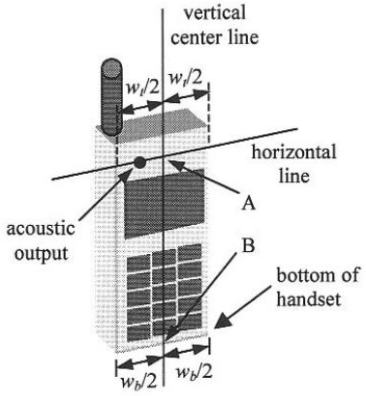


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

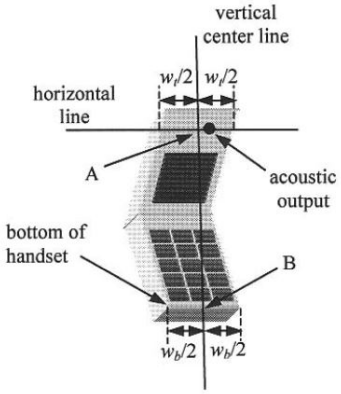


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

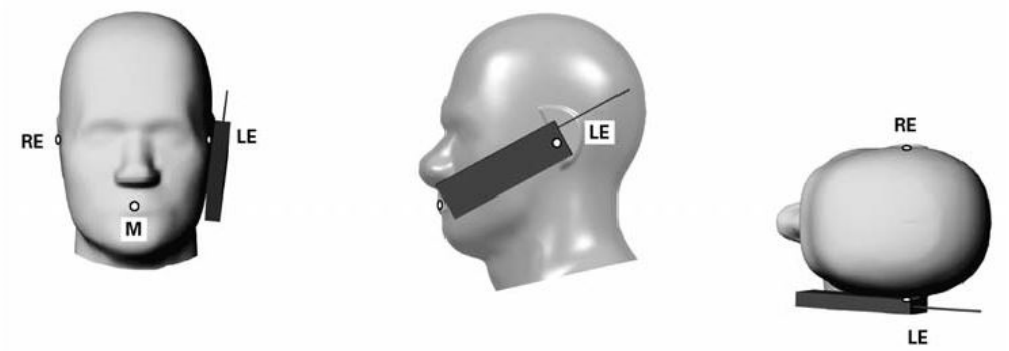


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

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

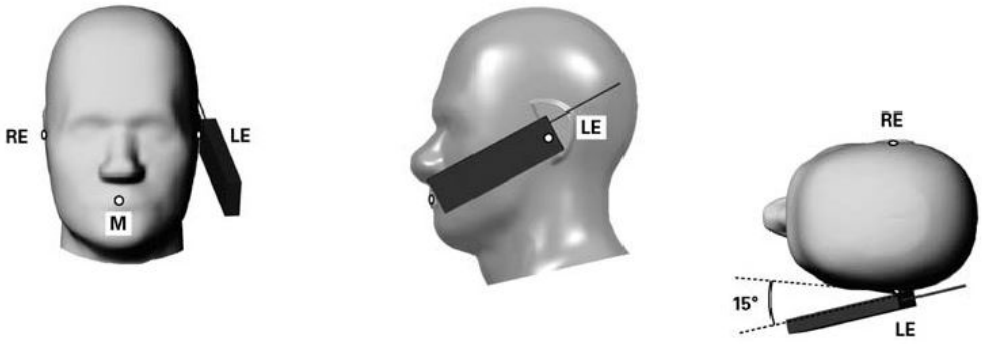


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

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.

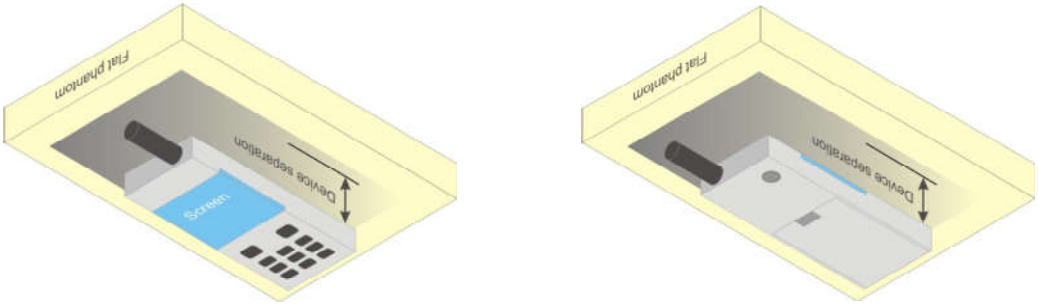


Fig 12.4 Body Worn Position

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

12.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L 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 4Tx slots for GSM850 and 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.		

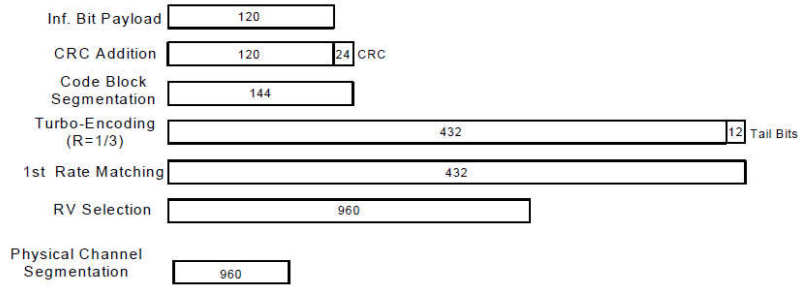


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 β_{hs} = 30/15 * β_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>

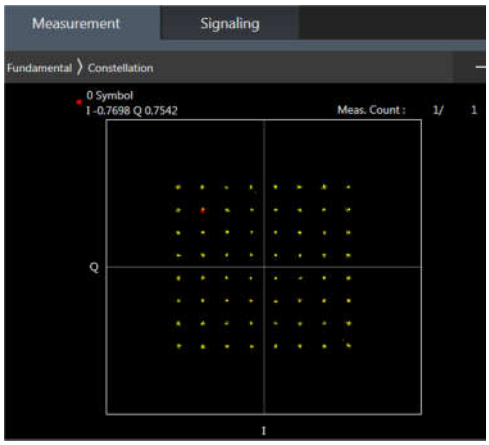
General Note:

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 output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE B4/B5/B17/B38/B2 SAR test was covered by B66/B26/B12/B41/B25; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM

16QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

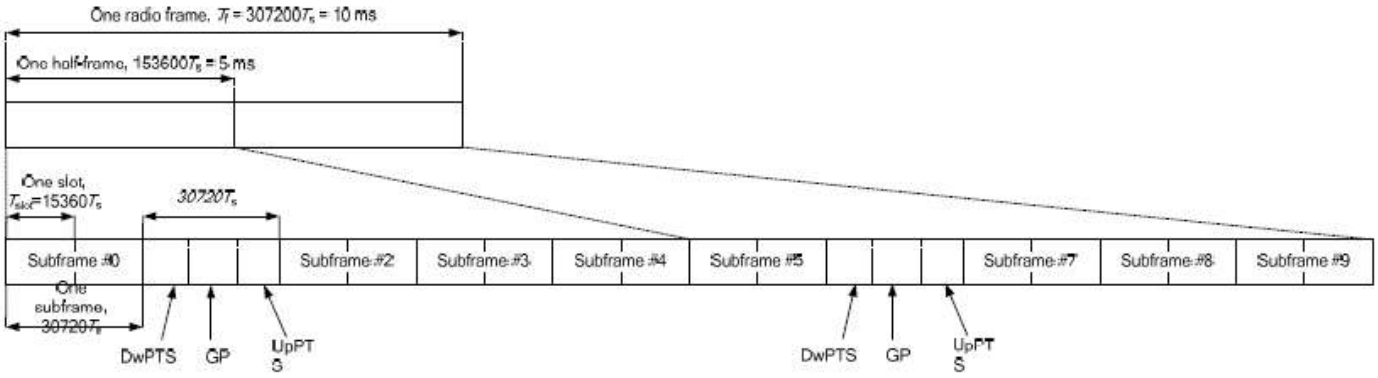


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE Band 41 Power class 2

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

For LTE Band 41 Power class 3

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

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

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

<LTE Carrier Aggregation>

General Note:

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

2CC Downlink Carrier Aggregation	
Number	Combination
1	CA_2C
2	CA_2A-2A
3	CA_4A-4A
4	CA_5B
5	CA_5A-7A
6	CA_7C
7	CA_7A-7A
8	CA_7A-12A
9	CA_12B
10	CA_25A-25A
11	CA_25A-26A
12	CA_26A-41A
13	CA_38C
14	CA_41C
15	CA_41A-41A
16	CA_66B
17	CA_66C
18	CA_66A-66A
19	CA_2A-5A
20	CA_13A-2A
21	CA_13A-4A
22	CA_66A-13A

LTE Carrier Aggregation Conducted Power (Downlink)

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

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

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

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

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

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

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

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

LTE Carrier Aggregation Conducted Power (Uplink)

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

<Power Measurement Setup>

LTE UL CA	TX Ant
CA_41C	Ant 1/ Ant 2

<WLAN Conducted Power>

General Note:

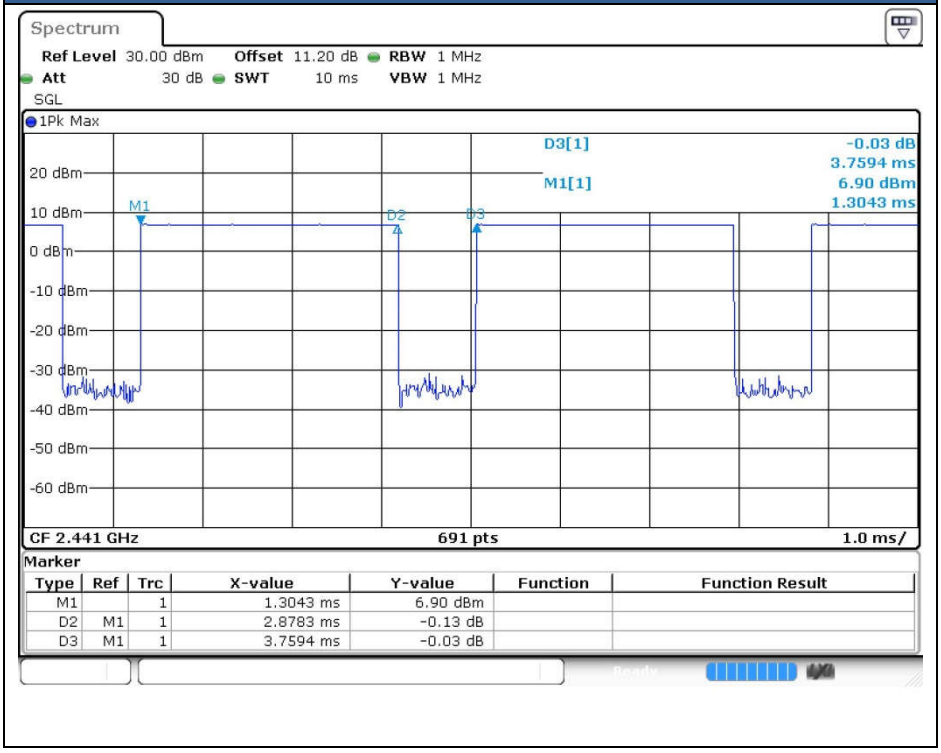
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. 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 76.56 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for 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 of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
   f. For TDD LTE SAR measurement of power class 2, the duty cycle 1:2.33 (42.9 %) was used perform testing and considering the theoretical duty cycle of 43.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 42.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 43.3%/42.9% = 1.009 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR (W/kg) = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/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. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the 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.
5. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity.
6. For some WWAN bands, sensor on reduced power level is higher than hotspot reduced power level, so front/back sensor on SAR can represent hotspot conservatively.
7. LTE B41 supports HPUE, HPUE power and SAR testing performed separately.
8. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
   a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band2/4/5/7/12/13/17/25/26/66/38/41, WLAN 2.4GHz/5.2GHz/5.8GHz, therefore product specific 10g SAR is necessary.
   b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
   c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
9. The following table “n/a” means the measured 1g/10g cube SAR is too small to be found.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 4Tx slots for GSM850 and 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 output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B26 / B38 / B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4/B5/B17/B38/B2 SAR test was covered by B66/B26/B12/B41/B25; 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

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Right Cheek	0mm	Ant 1	Full	251	848.8	28.90	30.00	1.288	0.01	0.607	0.782
	GSM850	GPRS 4 Tx slots	Right Tilted	0mm	Ant 1	Full	251	848.8	28.90	30.00	1.288	0.07	0.341	0.439
	GSM850	GPRS 4 Tx slots	Left Cheek	0mm	Ant 1	Full	251	848.8	28.90	30.00	1.288	-0.03	0.474	0.611
	GSM850	GPRS 4 Tx slots	Left Tilted	0mm	Ant 1	Full	251	848.8	28.90	30.00	1.288	-0.05	0.291	0.375
01	GSM850	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	251	848.8	24.97	26.00	1.268	0.06	0.937	**1.188**
	GSM850	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	251	848.8	24.97	26.00	1.268	0.05	0.670	0.849
	GSM850	GPRS 4 Tx slots	Left Cheek	0mm	Ant 2	Reduced	251	848.8	24.97	26.00	1.268	0.02	0.725	0.919
	GSM850	GPRS 4 Tx slots	Left Tilted	0mm	Ant 2	Reduced	251	848.8	24.97	26.00	1.268	0.07	0.642	0.814
	GSM850	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	128	824.2	24.96	26.00	1.271	-0.1	0.894	1.136
	GSM850	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	189	836.4	24.90	26.00	1.288	-0.12	0.865	1.114
	GSM850	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	128	824.2	24.96	26.00	1.271	0.08	0.662	0.841
	GSM850	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	189	836.4	24.90	26.00	1.288	-0.03	0.654	0.843
	GSM850	GPRS 4 Tx slots	Left Cheek	0mm	Ant 2	Reduced	128	824.2	24.96	26.00	1.271	0.09	0.720	0.915
	GSM850	GPRS 4 Tx slots	Left Cheek	0mm	Ant 2	Reduced	189	836.4	24.90	26.00	1.288	-0.02	0.714	0.920
	GSM850	GPRS 4 Tx slots	Left Tilted	0mm	Ant 2	Reduced	128	824.2	24.96	26.00	1.271	-0.06	0.628	0.798
	GSM850	GPRS 4 Tx slots	Left Tilted	0mm	Ant 2	Reduced	189	836.4	24.90	26.00	1.288	0.07	0.632	0.814
	GSM1900	GPRS 4 Tx slots	Right Cheek	0mm	Ant 1	Full	661	1880	26.42	27.50	1.282	0.13	0.520	0.667
	GSM1900	GPRS 4 Tx slots	Right Tilted	0mm	Ant 1	Full	661	1880	26.42	27.50	1.282	-0.09	0.274	0.351
	GSM1900	GPRS 4 Tx slots	Left Cheek	0mm	Ant 1	Full	661	1880	26.42	27.50	1.282	0.04	0.420	0.539
	GSM1900	GPRS 4 Tx slots	Left Tilted	0mm	Ant 1	Full	661	1880	26.42	27.50	1.282	0.1	0.287	0.368
	GSM1900	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	661	1880	19.82	20.50	1.169	-0.03	0.718	0.840
	GSM1900	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	661	1880	19.82	20.50	1.169	-0.12	0.824	0.964
	GSM1900	GPRS 4 Tx slots	Left Cheek	0mm	Ant 2	Reduced	661	1880	19.82	20.50	1.169	-0.08	0.492	0.575
	GSM1900	GPRS 4 Tx slots	Left Tilted	0mm	Ant 2	Reduced	661	1880	19.82	20.50	1.169	-0.08	0.560	0.655
	GSM1900	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	512	1850.2	19.58	20.50	1.236	0.09	0.750	0.927
	GSM1900	GPRS 4 Tx slots	Right Cheek	0mm	Ant 2	Reduced	810	1909.8	19.70	20.50	1.202	0.17	0.593	0.713
02	GSM1900	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	512	1850.2	19.58	20.50	1.236	-0.01	0.922	**1.140**
	GSM1900	GPRS 4 Tx slots	Right Tilted	0mm	Ant 2	Reduced	810	1909.8	19.70	20.50	1.202	-0.09	0.707	0.850

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full	4233	846.6	22.77	24.00	1.327	0.06	0.549	0.729
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full	4233	846.6	22.77	24.00	1.327	0.11	0.257	0.341
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	4233	846.6	22.77	24.00	1.327	0.06	0.415	0.551
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full	4233	846.6	22.77	24.00	1.327	0.14	0.218	0.289
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4233	846.6	19.36	20.50	1.300	0.03	0.863	1.122
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4233	846.6	19.36	20.50	1.300	0.11	0.658	0.856
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4233	846.6	19.36	20.50	1.300	0.02	0.687	0.893
	WCDMA V	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	4233	846.6	19.36	20.50	1.300	0.07	0.564	0.733
	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4132	826.4	19.32	20.50	1.312	-0.02	0.818	1.073
03	WCDMA V	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	4182	836.4	19.33	20.50	1.309	-0.15	0.895	**1.172**
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4132	826.4	19.32	20.50	1.312	0.17	0.623	0.818
	WCDMA V	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	4182	836.4	19.33	20.50	1.309	-0.04	0.668	0.875
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4132	826.4	19.32	20.50	1.312	0.1	0.643	0.844
	WCDMA V	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	4182	836.4	19.33	20.50	1.309	0.06	0.703	0.920
04	WCDMA IV	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full	1513	1752.6	22.68	24.00	1.355	0.03	0.333	**0.451**
	WCDMA IV	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full	1513	1752.6	22.68	24.00	1.355	0.02	0.174	0.236
	WCDMA IV	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	1513	1752.6	22.68	24.00	1.355	0.15	0.188	0.255
	WCDMA IV	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full	1513	1752.6	22.68	24.00	1.355	0.08	0.159	0.215
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	Full	9262	1852.4	22.98	24.00	1.265	-0.07	0.437	0.553
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	Full	9262	1852.4	22.98	24.00	1.265	0.04	0.216	0.273
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	Full	9262	1852.4	22.98	24.00	1.265	-0.14	0.323	0.409
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	Full	9262	1852.4	22.98	24.00	1.265	-0.12	0.264	0.334
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9262	1852.4	16.68	18.00	1.355	0.01	0.741	1.004
05	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9262	1852.4	16.68	18.00	1.355	-0.02	0.828	**1.122**
	WCDMA II	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	Reduced	9262	1852.4	16.68	18.00	1.355	-0.05	0.497	0.674
	WCDMA II	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	Reduced	9262	1852.4	16.68	18.00	1.355	0.09	0.572	0.775
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9400	1880	16.62	18.00	1.374	-0.07	0.705	0.969
	WCDMA II	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	Reduced	9538	1907.6	16.56	18.00	1.393	0.08	0.671	0.935
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9400	1880	16.62	18.00	1.374	0.08	0.778	1.069
	WCDMA II	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	Reduced	9538	1907.6	16.56	18.00	1.393	0.06	0.756	1.053

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 71	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.18	0.286	0.380
	LTE Band 71	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.07	0.154	0.204
	LTE Band 71	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	133322	683	22.77	24.00	1.327	0.02	0.328	0.435
	LTE Band 71	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.07	0.210	0.279
	LTE Band 71	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.13	0.234	0.314
	LTE Band 71	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.18	0.126	0.169
	LTE Band 71	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	133322	683	21.72	23.00	1.343	0.16	0.263	0.353
	LTE Band 71	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.18	0.171	0.230
06	LTE Band 71	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Full	133322	683	22.15	23.00	1.216	-0.04	0.372	**0.452**
	LTE Band 71	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.07	0.245	0.298
	LTE Band 71	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.02	0.278	0.338
	LTE Band 71	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.17	0.210	0.255
	LTE Band 71	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Full	133322	683	21.13	22.00	1.222	0.09	0.280	0.342
	LTE Band 71	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Full	133322	683	21.13	22.00	1.222	0.03	0.197	0.241
	LTE Band 71	20M	QPSK	50	24	Left Cheek	0mm	Ant 2	Full	133322	683	21.13	22.00	1.222	0.13	0.222	0.271
	LTE Band 71	20M	QPSK	50	24	Left Tilted	0mm	Ant 2	Full	133322	683	21.13	22.00	1.222	-0.04	0.175	0.214
	LTE Band 12	10M	QPSK	1	25	Right Cheek	0mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	0.1	0.341	0.483
	LTE Band 12	10M	QPSK	1	25	Right Tilted	0mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	0.18	0.189	0.268
	LTE Band 12	10M	QPSK	1	25	Left Cheek	0mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	-0.12	0.289	0.409
	LTE Band 12	10M	QPSK	1	25	Left Tilted	0mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	0.1	0.243	0.344
	LTE Band 12	10M	QPSK	25	12	Right Cheek	0mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	0.04	0.330	0.472
	LTE Band 12	10M	QPSK	25	12	Right Tilted	0mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	-0.18	0.152	0.217
	LTE Band 12	10M	QPSK	25	12	Left Cheek	0mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	-0.14	0.259	0.370
	LTE Band 12	10M	QPSK	25	12	Left Tilted	0mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	-0.17	0.196	0.280
07	LTE Band 12	10M	QPSK	1	25	Right Cheek	0mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.09	0.498	**0.636**
	LTE Band 12	10M	QPSK	1	25	Right Tilted	0mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.03	0.447	0.571
	LTE Band 12	10M	QPSK	1	25	Left Cheek	0mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	0.07	0.488	0.623
	LTE Band 12	10M	QPSK	1	25	Left Tilted	0mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.03	0.360	0.460
	LTE Band 12	10M	QPSK	25	12	Right Cheek	0mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	-0.16	0.481	0.618
	LTE Band 12	10M	QPSK	25	12	Right Tilted	0mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.02	0.363	0.467
	LTE Band 12	10M	QPSK	25	12	Left Cheek	0mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.03	0.386	0.496
	LTE Band 12	10M	QPSK	25	12	Left Tilted	0mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.18	0.291	0.374
08	LTE Band 13	10M	QPSK	1	25	Right Cheek	0mm	Ant 1	Full	23230	782	22.81	24.00	1.315	0.11	0.361	**0.475**
	LTE Band 13	10M	QPSK	1	25	Right Tilted	0mm	Ant 1	Full	23230	782	22.81	24.00	1.315	0.02	0.234	0.308
	LTE Band 13	10M	QPSK	1	25	Left Cheek	0mm	Ant 1	Full	23230	782	22.81	24.00	1.315	0.19	0.302	0.397
	LTE Band 13	10M	QPSK	1	25	Left Tilted	0mm	Ant 1	Full	23230	782	22.81	24.00	1.315	-0.05	0.271	0.356
	LTE Band 13	10M	QPSK	25	12	Right Cheek	0mm	Ant 1	Full	23230	782	21.67	23.00	1.358	0.13	0.319	0.433
	LTE Band 13	10M	QPSK	25	12	Right Tilted	0mm	Ant 1	Full	23230	782	21.67	23.00	1.358	0.12	0.187	0.254
	LTE Band 13	10M	QPSK	25	12	Left Cheek	0mm	Ant 1	Full	23230	782	21.67	23.00	1.358	-0.02	0.243	0.330
	LTE Band 13	10M	QPSK	25	12	Left Tilted	0mm	Ant 1	Full	23230	782	21.67	23.00	1.358	0.09	0.218	0.296
	LTE Band 26	15M	QPSK	1	37	Right Cheek	0mm	Ant 1	Full	26865	831.5	22.76	24.00	1.330	-0.02	0.321	0.427
	LTE Band 26	15M	QPSK	1	37	Right Tilted	0mm	Ant 1	Full	26865	831.5	22.76	24.00	1.330	-0.04	0.196	0.261
	LTE Band 26	15M	QPSK	1	37	Left Cheek	0mm	Ant 1	Full	26865	831.5	22.76	24.00	1.330	-0.05	0.299	0.398
	LTE Band 26	15M	QPSK	1	37	Left Tilted	0mm	Ant 1	Full	26865	831.5	22.76	24.00	1.330	-0.15	0.244	0.325
	LTE Band 26	15M	QPSK	36	20	Right Cheek	0mm	Ant 1	Full	26865	831.5	21.61	23.00	1.377	0.08	0.221	0.304
	LTE Band 26	15M	QPSK	36	20	Right Tilted	0mm	Ant 1	Full	26865	831.5	21.61	23.00	1.377	-0.01	0.124	0.171
	LTE Band 26	15M	QPSK	36	20	Left Cheek	0mm	Ant 1	Full	26865	831.5	21.61	23.00	1.377	-0.14	0.255	0.351
	LTE Band 26	15M	QPSK	36	20	Left Tilted	0mm	Ant 1	Full	26865	831.5	21.61	23.00	1.377	0.07	0.193	0.266
09	LTE Band 26	15M	QPSK	1	37	Right Cheek	0mm	Ant 2	Reduced	26865	831.5	20.61	21.50	1.227	-0.12	0.966	**1.186**
	LTE Band 26	15M	QPSK	1	37	Right Tilted	0mm	Ant 2	Reduced	26865	831.5	20.61	21.50	1.227	-0.12	0.762	0.935
	LTE Band 26	15M	QPSK	1	37	Left Cheek	0mm	Ant 2	Reduced	26865	831.5	20.61	21.50	1.227	-0.1	0.592	0.727

	LTE Band 26	15M	QPSK	1	37	Left Tilted	0mm	Ant 2	Reduced	26865	831.5	20.61	21.50	1.227	-0.14	0.592	0.727
	LTE Band 26	15M	QPSK	36	20	Right Cheek	0mm	Ant 2	Reduced	26865	831.5	19.42	20.50	1.282	-0.15	0.707	0.907
	LTE Band 26	15M	QPSK	36	20	Right Tilted	0mm	Ant 2	Reduced	26865	831.5	19.42	20.50	1.282	0.18	0.582	0.746
	LTE Band 26	15M	QPSK	36	20	Left Cheek	0mm	Ant 2	Reduced	26865	831.5	19.42	20.50	1.282	0.11	0.562	0.721
	LTE Band 26	15M	QPSK	36	20	Left Tilted	0mm	Ant 2	Reduced	26865	831.5	19.42	20.50	1.282	-0.11	0.479	0.614
	LTE Band 26	15M	QPSK	75	0	Right Cheek	0mm	Ant 2	Reduced	26865	831.5	19.38	20.50	1.294	-0.09	0.647	0.837
	LTE Band 26	15M	QPSK	75	0	Right Tilted	0mm	Ant 2	Reduced	26865	831.5	19.38	20.50	1.294	0.15	0.580	0.751
10	LTE Band 66	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	132572	1770	22.50	24.00	1.413	-0.04	0.314	**0.444**
	LTE Band 66	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	132572	1770	22.50	24.00	1.413	0.13	0.166	0.234
	LTE Band 66	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	132572	1770	22.50	24.00	1.413	0.15	0.211	0.298
	LTE Band 66	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	132572	1770	22.50	24.00	1.413	-0.18	0.210	0.297
	LTE Band 66	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	132572	1770	21.39	23.00	1.449	-0.1	0.217	0.314
	LTE Band 66	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	132572	1770	21.39	23.00	1.449	-0.16	0.130	0.188
	LTE Band 66	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	132572	1770	21.39	23.00	1.449	-0.09	0.171	0.248
	LTE Band 66	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	132572	1770	21.39	23.00	1.449	-0.16	0.168	0.243
	LTE Band 25	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	26140	1860	22.78	24.00	1.324	-0.13	0.370	0.490
	LTE Band 25	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	26140	1860	22.78	24.00	1.324	0.11	0.229	0.303
	LTE Band 25	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	26140	1860	22.78	24.00	1.324	0.15	0.349	0.462
	LTE Band 25	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	26140	1860	22.78	24.00	1.324	-0.01	0.291	0.385
	LTE Band 25	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	26140	1860	21.79	23.00	1.321	0.13	0.314	0.415
	LTE Band 25	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	26140	1860	21.79	23.00	1.321	0.06	0.196	0.259
	LTE Band 25	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	26140	1860	21.79	23.00	1.321	0.04	0.281	0.371
	LTE Band 25	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	26140	1860	21.79	23.00	1.321	-0.08	0.233	0.308
	LTE Band 25	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	26140	1860	16.79	18.00	1.321	0.15	0.760	1.004
11	LTE Band 25	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	26140	1860	16.79	18.00	1.321	0.14	0.870	**1.150**
	LTE Band 25	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	26140	1860	16.79	18.00	1.321	-0.17	0.611	0.807
	LTE Band 25	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	26140	1860	16.79	18.00	1.321	0.02	0.658	0.869
	LTE Band 25	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	26340	1880	16.76	18.00	1.330	0.14	0.680	0.905
	LTE Band 25	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	26590	1905	16.71	18.00	1.346	0.01	0.706	0.950
	LTE Band 25	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	26340	1880	16.76	18.00	1.330	-0.05	0.733	0.975
	LTE Band 25	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	26590	1905	16.71	18.00	1.346	-0.15	0.715	0.962
	LTE Band 25	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	26340	1880	16.76	18.00	1.330	-0.06	0.557	0.741
	LTE Band 25	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	26590	1905	16.71	18.00	1.346	-0.02	0.515	0.693
	LTE Band 25	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	26340	1880	16.76	18.00	1.330	-0.03	0.635	0.845
	LTE Band 25	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	26590	1905	16.71	18.00	1.346	-0.07	0.552	0.743
	LTE Band 25	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	26140	1860	15.88	17.00	1.294	-0.15	0.703	0.910
	LTE Band 25	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	26140	1860	15.88	17.00	1.294	-0.09	0.779	1.008
	LTE Band 25	20M	QPSK	50	24	Left Cheek	0mm	Ant 2	Reduced	26140	1860	15.88	17.00	1.294	0.19	0.483	0.625
	LTE Band 25	20M	QPSK	50	24	Left Tilted	0mm	Ant 2	Reduced	26140	1860	15.88	17.00	1.294	0.02	0.535	0.692
	LTE Band 25	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	26340	1880	15.85	17.00	1.303	-0.11	0.655	0.854
	LTE Band 25	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	26590	1905	15.83	17.00	1.309	-0.07	0.585	0.766
	LTE Band 25	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	26340	1880	15.85	17.00	1.303	0.06	0.703	0.916
	LTE Band 25	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	26590	1905	15.83	17.00	1.309	-0.17	0.637	0.834
	LTE Band 25	20M	QPSK	100	0	Right Cheek	0mm	Ant 2	Reduced	26140	1860	15.83	17.00	1.309	0.02	0.690	0.903
	LTE Band 25	20M	QPSK	100	0	Right Tilted	0mm	Ant 2	Reduced	26140	1860	15.83	17.00	1.309	-0.14	0.763	0.999
	LTE Band 25	20M	QPSK	100	0	Left Cheek	0mm	Ant 2	Reduced	26140	1860	15.83	17.00	1.309	-0.07	0.448	0.587
	LTE Band 25	20M	QPSK	100	0	Left Tilted	0mm	Ant 2	Reduced	26140	1860	15.83	17.00	1.309	0.08	0.539	0.706
	LTE Band 7	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	21100	2535	22.85	24.00	1.303	-0.19	0.177	0.231
	LTE Band 7	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	21100	2535	22.85	24.00	1.303	0.07	0.087	0.113
	LTE Band 7	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	21100	2535	22.85	24.00	1.303	0.07	0.166	0.216
	LTE Band 7	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	21100	2535	22.85	24.00	1.303	0.16	0.102	0.133
	LTE Band 7	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	21100	2535	21.86	23.00	1.300	0.16	0.153	0.199
	LTE Band 7	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	21100	2535	21.86	23.00	1.300	-0.01	0.071	0.092
	LTE Band 7	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	21100	2535	21.86	23.00	1.300	0.15	0.136	0.177
	LTE Band 7	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	21100	2535	21.86	23.00	1.300	-0.06	0.083	0.108
	LTE Band 7	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	21100	2535	14.57	15.50	1.239	-0.17	0.703	0.871

	LTE Band 7	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	21100	2535	14.57	15.50	1.239	-0.19	0.743	0.920
	LTE Band 7	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	21100	2535	14.57	15.50	1.239	0.15	0.238	0.295
	LTE Band 7	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	21100	2535	14.57	15.50	1.239	0.02	0.301	0.373
	LTE Band 7	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	20850	2510	14.33	15.50	1.309	0.11	0.812	1.063
	LTE Band 7	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	21350	2560	14.44	15.50	1.276	0.04	0.647	0.826
12	LTE Band 7	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	20850	2510	14.33	15.50	1.309	0.16	0.912	**1.194**
	LTE Band 7	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	21350	2560	14.44	15.50	1.276	0.08	0.758	0.968
	LTE Band 7	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	21100	2535	13.49	14.50	1.262	0.11	0.551	0.695
	LTE Band 7	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	21100	2535	13.49	14.50	1.262	0.04	0.583	0.736
	LTE Band 7	20M	QPSK	50	24	Left Cheek	0mm	Ant 2	Reduced	21100	2535	13.49	14.50	1.262	0.02	0.187	0.236
	LTE Band 7	20M	QPSK	50	24	Left Tilted	0mm	Ant 2	Reduced	21100	2535	13.49	14.50	1.262	-0.09	0.236	0.298
	LTE Band 7	20M	QPSK	100	0	Right Cheek	0mm	Ant 2	Reduced	21100	2535	13.44	14.50	1.276	0.1	0.572	0.730
	LTE Band 7	20M	QPSK	100	0	Right Tilted	0mm	Ant 2	Reduced	21100	2535	13.44	14.50	1.276	0.15	0.681	0.869

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	40185	2549.5	22.97	24.00	1.268	62.9	1.006	-0.05	0.128	0.163
	LTE Band 41C-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	40185+39987	2549.5+2529.7	22.94	24.00	1.276	62.9	1.006	0.08	0.122	0.157
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	40185	2549.5	22.97	24.00	1.268	62.9	1.006	-0.09	0.047	0.060
	LTE Band 41-PC3	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	40185	2549.5	22.97	24.00	1.268	62.9	1.006	0.04	0.128	0.163
	LTE Band 41-PC3	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	40185	2549.5	22.97	24.00	1.268	62.9	1.006	-0.1	0.116	0.148
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	40185	2549.5	21.94	23.00	1.276	62.9	1.006	-0.19	0.108	0.139
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	40185	2549.5	21.94	23.00	1.276	62.9	1.006	0.15	0.038	0.049
	LTE Band 41-PC3	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	40185	2549.5	21.94	23.00	1.276	62.9	1.006	0.01	0.100	0.128
	LTE Band 41-PC3	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	40185	2549.5	21.94	23.00	1.276	62.9	1.006	-0.19	0.091	0.117
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	17.28	18.00	1.180	62.9	1.006	0.08	0.763	0.906
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	17.28	18.00	1.180	62.9	1.006	0.19	0.770	0.914
	LTE Band 41-PC3	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	40185	2549.5	17.28	18.00	1.180	62.9	1.006	-0.17	0.260	0.309
	LTE Band 41-PC3	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	40185	2549.5	17.28	18.00	1.180	62.9	1.006	0.18	0.318	0.378
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	39750	2506	16.87	18.00	1.297	62.9	1.006	0.08	0.844	1.101
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	40620	2593	17.24	18.00	1.191	62.9	1.006	0.19	0.557	0.668
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	41055	2636.5	17.11	18.00	1.227	62.9	1.006	0.12	0.463	0.572
	LTE Band 41-PC3	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	41490	2680	16.82	18.00	1.312	62.9	1.006	-0.12	0.427	0.564
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	39750	2506	16.87	18.00	1.297	62.9	1.006	0.13	0.844	1.101
	LTE Band 41C-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	39750+39948	2506+2525.8	16.97	18.00	1.268	62.9	1.006	-0.15	0.772	0.984
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	40620	2593	17.24	18.00	1.191	62.9	1.006	-0.17	0.657	0.787
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	41055	2636.5	17.11	18.00	1.227	62.9	1.006	0.08	0.525	0.648
	LTE Band 41-PC3	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	41490	2680	16.82	18.00	1.312	62.9	1.006	-0.12	0.403	0.532
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	16.23	17.00	1.194	62.9	1.006	0.15	0.611	0.734
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	16.23	17.00	1.194	62.9	1.006	0.17	0.603	0.724
	LTE Band 41-PC3	20M	QPSK	50	24	Left Cheek	0mm	Ant 2	Reduced	40185	2549.5	16.23	17.00	1.194	62.9	1.006	-0.07	0.202	0.243
	LTE Band 41-PC3	20M	QPSK	50	24	Left Tilted	0mm	Ant 2	Reduced	40185	2549.5	16.23	17.00	1.194	62.9	1.006	0.08	0.249	0.299
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	39750	2506	16.06	17.00	1.242	62.9	1.006	0.07	0.612	0.764
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	40620	2593	16.21	17.00	1.199	62.9	1.006	0.08	0.432	0.521
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	41055	2636.5	16.00	17.00	1.259	62.9	1.006	-0.08	0.362	0.458
	LTE Band 41-PC3	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	41490	2680	15.77	17.00	1.327	62.9	1.006	0.06	0.335	0.447
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	39750	2506	16.06	17.00	1.242	62.9	1.006	0.04	0.726	0.907
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	40620	2593	16.21	17.00	1.199	62.9	1.006	0.12	0.481	0.580
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	41055	2636.5	16.00	17.00	1.259	62.9	1.006	0.01	0.391	0.495
	LTE Band 41-PC3	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	41490	2680	15.77	17.00	1.327	62.9	1.006	0.18	0.342	0.457
	LTE Band 41-PC3	20M	QPSK	100	0	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	16.19	17.00	1.205	62.9	1.006	0.17	0.607	0.736
	LTE Band 41-PC3	20M	QPSK	100	0	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	16.19	17.00	1.205	62.9	1.006	-0.18	0.597	0.724

	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 1	Full	40185	2549.5	25.78	27.00	1.324	42.9	1.009	-0.02	0.182	0.243
	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 1	Full	40185	2549.5	25.78	27.00	1.324	42.9	1.009	0.11	0.066	0.088
	LTE Band 41-PC2	20M	QPSK	1	49	Left Cheek	0mm	Ant 1	Full	40185	2549.5	25.78	27.00	1.324	42.9	1.009	0.07	0.170	0.227
	LTE Band 41-PC2	20M	QPSK	1	49	Left Tilted	0mm	Ant 1	Full	40185	2549.5	25.78	27.00	1.324	42.9	1.009	0.08	0.145	0.194
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 1	Full	40185	2549.5	24.79	26.00	1.321	42.9	1.009	-0.14	0.144	0.192
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 1	Full	40185	2549.5	24.79	26.00	1.321	42.9	1.009	-0.16	0.051	0.068
	LTE Band 41-PC2	20M	QPSK	50	24	Left Cheek	0mm	Ant 1	Full	40185	2549.5	24.79	26.00	1.321	42.9	1.009	0.04	0.128	0.171
	LTE Band 41-PC2	20M	QPSK	50	24	Left Tilted	0mm	Ant 1	Full	40185	2549.5	24.79	26.00	1.321	42.9	1.009	-0.15	0.113	0.151
	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	18.60	19.50	1.230	42.9	1.009	-0.13	0.704	0.874
	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	18.60	19.50	1.230	42.9	1.009	0.13	0.778	0.966
	LTE Band 41-PC2	20M	QPSK	1	49	Left Cheek	0mm	Ant 2	Reduced	40185	2549.5	18.60	19.50	1.230	42.9	1.009	0.06	0.241	0.299
	LTE Band 41-PC2	20M	QPSK	1	49	Left Tilted	0mm	Ant 2	Reduced	40185	2549.5	18.60	19.50	1.230	42.9	1.009	-0.05	0.273	0.339
	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	39750	2506	18.22	19.50	1.343	42.9	1.009	-0.04	0.767	1.039
	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	40620	2593	18.56	19.50	1.242	42.9	1.009	-0.16	0.584	0.732
	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	41055	2636.5	18.54	19.50	1.247	42.9	1.009	-0.05	0.538	0.677
	LTE Band 41-PC2	20M	QPSK	1	49	Right Cheek	0mm	Ant 2	Reduced	41490	2680	18.15	19.50	1.365	42.9	1.009	0.09	0.559	0.770
13	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	39750	2506	18.22	19.50	1.343	42.9	1.009	-0.15	0.831	**1.126**
	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	40620	2593	18.56	19.50	1.242	42.9	1.009	0.07	0.608	0.762
	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	41055	2636.5	18.54	19.50	1.247	42.9	1.009	-0.04	0.512	0.644
	LTE Band 41-PC2	20M	QPSK	1	49	Right Tilted	0mm	Ant 2	Reduced	41490	2680	18.15	19.50	1.365	42.9	1.009	-0.1	0.508	0.699
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	17.63	18.50	1.222	42.9	1.009	0.16	0.572	0.705
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	17.63	18.50	1.222	42.9	1.009	-0.16	0.569	0.701
	LTE Band 41-PC2	20M	QPSK	50	24	Left Cheek	0mm	Ant 2	Reduced	40185	2549.5	17.63	18.50	1.222	42.9	1.009	-0.16	0.191	0.235
	LTE Band 41-PC2	20M	QPSK	50	24	Left Tilted	0mm	Ant 2	Reduced	40185	2549.5	17.63	18.50	1.222	42.9	1.009	-0.1	0.215	0.265
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	39750	2506	17.30	18.50	1.318	42.9	1.009	-0.06	0.634	0.843
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	40620	2593	17.60	18.50	1.230	42.9	1.009	0.08	0.497	0.617
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	41055	2636.5	17.41	18.50	1.285	42.9	1.009	0.09	0.437	0.567
	LTE Band 41-PC2	20M	QPSK	50	24	Right Cheek	0mm	Ant 2	Reduced	41490	2680	17.17	18.50	1.358	42.9	1.009	-0.15	0.430	0.589
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	39750	2506	17.30	18.50	1.318	42.9	1.009	-0.11	0.668	0.889
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	40620	2593	17.60	18.50	1.230	42.9	1.009	-0.06	0.442	0.549
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	41055	2636.5	17.41	18.50	1.285	42.9	1.009	-0.07	0.357	0.463
	LTE Band 41-PC2	20M	QPSK	50	24	Right Tilted	0mm	Ant 2	Reduced	41490	2680	17.17	18.50	1.358	42.9	1.009	-0.13	0.314	0.430
	LTE Band 41-PC2	20M	QPSK	100	0	Right Cheek	0mm	Ant 2	Reduced	40185	2549.5	17.53	18.50	1.250	42.9	1.009	0.08	0.548	0.691
	LTE Band 41-PC2	20M	QPSK	100	0	Right Tilted	0mm	Ant 2	Reduced	40185	2549.5	17.53	18.50	1.250	42.9	1.009	-0.17	0.560	0.706

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 3	Standalone	11	2462	18.50	20.50	1.585	99.4	1.006	0.17	0.297	0.474
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 3	Standalone	11	2462	18.50	20.50	1.585	99.4	1.006	-0.18	0.210	0.335
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	11	2462	18.50	20.50	1.585	99.4	1.006	0.08	0.661	1.054
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Standalone	11	2462	18.50	20.50	1.585	99.4	1.006	-0.05	0.512	0.816
14	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Standalone	1	2412	18.20	20.20	1.585	99.4	1.006	-0.07	0.717	**1.143**
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 3	Standalone	1	2412	18.20	20.20	1.585	99.4	1.006	-0.13	0.617	0.984
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 3	Simultaneous	11	2462	14.60	16.60	1.585	99.4	1.006	-0.06	0.224	0.357

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Right Cheek	0mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	-0.06	0.038	0.079
	Bluetooth	DH5 1Mbps	Right Tilted	0mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	0.08	0.035	0.073
15	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	0.12	0.055	**0.114**
	Bluetooth	DH5 1Mbps	Left Tilted	0mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	0.16	0.054	0.112

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Standalone	58	5290	16.55	18.50	1.568	87.79	1.139	-0.07	0.350	0.625
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Standalone	58	5290	16.55	18.50	1.568	87.79	1.139	0.08	0.433	0.774
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Standalone	58	5290	16.55	18.50	1.568	87.79	1.139	0.07	0.423	0.756
16	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Standalone	58	5290	16.55	18.50	1.568	87.79	1.139	0.08	0.633	**1.131**
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Simultaneous	58	5290	10.25	12.20	1.567	87.79	1.139	-0.08	0.158	0.282
	WLAN5.5GHz	802.11ac-VHT20 MCS0	Right Cheek	0mm	Ant 4	Full	140	5700	18.72	20.70	1.577	96.79	1.033	0.01	0.402	0.655
	WLAN5.5GHz	802.11ac-VHT20 MCS0	Right Tilted	0mm	Ant 4	Full	140	5700	18.72	20.70	1.577	96.79	1.033	-0.05	0.402	0.655
	WLAN5.5GHz	802.11ac-VHT20 MCS0	Left Cheek	0mm	Ant 4	Full	140	5700	18.72	20.70	1.577	96.79	1.033	-0.15	0.651	1.061
	WLAN5.5GHz	802.11ac-VHT20 MCS0	Left Tilted	0mm	Ant 4	Full	140	5700	18.72	20.70	1.577	96.79	1.033	-0.06	0.511	0.832
17	WLAN5.5GHz	802.11ac-VHT20 MCS0	Left Cheek	0mm	Ant 4	Full	116	5580	18.46	20.40	1.563	96.79	1.033	-0.02	0.739	**1.193**
	WLAN5.5GHz	802.11ac-VHT20 MCS0	Left Tilted	0mm	Ant 4	Full	116	5580	18.46	20.40	1.563	96.79	1.033	-0.03	0.579	0.935
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	106	5530	13.69	15.60	1.552	87.79	1.139	0.02	0.135	0.239
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 4	Standalone	155	5775	17.48	19.40	1.556	87.79	1.139	0.15	0.316	0.560
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 4	Standalone	155	5775	17.48	19.40	1.556	87.79	1.139	0.14	0.337	0.597
18	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Standalone	155	5775	17.48	19.40	1.556	87.79	1.139	-0.17	0.662	**1.173**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 4	Standalone	155	5775	17.48	19.40	1.556	87.79	1.139	0.02	0.365	0.647
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 4	Simultaneous	155	5775	12.38	14.30	1.556	87.79	1.139	0.14	0.154	0.273

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Front	5mm	Ant 1	Reduced	251	848.8	24.81	26.00	1.315	0.07	0.548	0.721
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	251	848.8	24.81	26.00	1.315	0.02	0.923	1.214
	GSM850	GPRS 4 Tx slots	Left Side	5mm	Ant 1	Reduced	251	848.8	24.81	26.00	1.315	0.14	0.234	0.308
	GSM850	GPRS 4 Tx slots	Right Side	5mm	Ant 1	Reduced	251	848.8	24.81	26.00	1.315	0.03	0.38	0.500
	GSM850	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	251	848.8	24.81	26.00	1.315	0.04	0.767	1.009
	GSM850	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	128	824.2	24.75	26.00	1.334	0.06	0.784	1.045
	GSM850	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	189	836.4	24.78	26.00	1.324	0.09	0.723	0.957
19	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	128	824.2	24.75	26.00	1.334	0.09	1.010	**1.347**
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	189	836.4	24.78	26.00	1.324	-0.04	0.902	1.195
	GSM850	GPRS 4 Tx slots	Front	5mm	Ant 2	Reduced	251	848.8	25.48	26.50	1.265	-0.02	0.488	0.617
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	251	848.8	25.48	26.50	1.265	0.1	0.865	1.094
	GSM850	GPRS 4 Tx slots	Left Side	5mm	Ant 2	Reduced	251	848.8	25.48	26.50	1.265	0.02	0.208	0.263
	GSM850	GPRS 4 Tx slots	Right Side	5mm	Ant 2	Reduced	251	848.8	25.48	26.50	1.265	-0.05	0.215	0.272
	GSM850	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	251	848.8	25.48	26.50	1.265	0.03	0.692	0.875
	GSM850	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	128	824.2	25.46	26.50	1.271	-0.01	0.705	0.896
	GSM850	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	189	836.4	25.39	26.50	1.291	0.08	0.68	0.878
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	128	824.2	25.46	26.50	1.271	-0.02	0.871	1.107
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	189	836.4	25.39	26.50	1.291	-0.01	0.850	1.098
	GSM1900	GPRS 4 Tx slots	Front	5mm	Ant 1	Reduced	661	1880	20.35	21.50	1.303	-0.06	0.582	0.758
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	661	1880	20.35	21.50	1.303	0.01	1.080	1.407
	GSM1900	GPRS 4 Tx slots	Left Side	5mm	Ant 1	Reduced	661	1880	19.80	21.00	1.318	0.08	0.354	0.467
	GSM1900	GPRS 4 Tx slots	Right Side	5mm	Ant 1	Reduced	661	1880	19.80	21.00	1.318	-0.03	0.116	0.153
	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	661	1880	19.80	21.00	1.318	0.04	1.030	1.358
	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	512	1850.2	19.63	21.00	1.371	0.03	1.000	1.371
20	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	Ant 1	Reduced	810	1909.8	19.74	21.00	1.337	-0.08	1.060	**1.417**
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	512	1850.2	20.21	21.50	1.346	-0.11	0.900	1.211
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	Reduced	810	1909.8	20.27	21.50	1.327	-0.06	0.898	1.192
	GSM1900	GPRS 4 Tx slots	Front	5mm	Ant 2	Reduced	661	1880	20.10	21.00	1.230	0.05	0.504	0.620
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	661	1880	20.10	21.00	1.230	0.01	0.763	0.939
	GSM1900	GPRS 4 Tx slots	Left Side	5mm	Ant 2	Reduced	661	1880	19.15	20.00	1.216	-0.09	0.161	0.196
	GSM1900	GPRS 4 Tx slots	Right Side	5mm	Ant 2	Reduced	661	1880	19.15	20.00	1.216	0.01	0.067	0.081
	GSM1900	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	661	1880	19.15	20.00	1.216	-0.12	0.730	0.888
	GSM1900	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	512	1850.2	19.10	20.00	1.230	-0.11	0.819	1.008
	GSM1900	GPRS 4 Tx slots	Top Side	5mm	Ant 2	Reduced	810	1909.8	19.06	20.00	1.242	-0.11	0.685	0.851
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	512	1850.2	20.04	21.00	1.247	-0.14	0.867	1.081
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	Reduced	810	1909.8	19.83	21.00	1.309	-0.05	0.772	1.011

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	4233	846.6	19.79	21.00	1.321	0.09	0.586	0.774
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4233	846.6	19.79	21.00	1.321	0.07	0.954	1.261
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	4233	846.6	19.79	21.00	1.321	-0.09	0.206	0.272
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	4233	846.6	19.79	21.00	1.321	-0.11	0.466	0.616
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4233	846.6	19.79	21.00	1.321	-0.06	0.840	1.110
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4132	826.4	19.77	21.00	1.327	0.08	0.817	1.084
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	4182	836.4	19.74	21.00	1.337	-0.14	0.872	1.166
21	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4132	826.4	19.77	21.00	1.327	0.01	1.070	**1.420**
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	4182	836.4	19.74	21.00	1.337	-0.11	0.970	1.296
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	4233	846.6	19.87	21.00	1.297	0.06	0.474	0.615
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4233	846.6	19.87	21.00	1.297	0.14	0.850	1.103
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	4233	846.6	19.87	21.00	1.297	0.06	0.186	0.241
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	4233	846.6	19.87	21.00	1.297	-0.01	0.190	0.246
	WCDMA V	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4233	846.6	19.87	21.00	1.297	0.15	0.650	0.843
	WCDMA V	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4132	826.4	19.77	21.00	1.327	0.02	0.665	0.883
	WCDMA V	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	4182	836.4	19.81	21.00	1.315	0.12	0.687	0.904
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4132	826.4	19.77	21.00	1.327	0.13	0.794	1.054
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	4182	836.4	19.81	21.00	1.315	0.06	0.865	1.138
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	1513	1752.6	17.06	18.50	1.393	0.09	0.484	0.674
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1513	1752.6	17.06	18.50	1.393	0.02	0.907	1.264
	WCDMA IV	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	1513	1752.6	17.06	18.50	1.393	0.07	0.257	0.358
	WCDMA IV	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	1513	1752.6	17.06	18.50	1.393	-0.06	0.131	0.183
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1513	1752.6	17.06	18.50	1.393	-0.08	0.853	1.188
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1312	1712.4	16.93	18.50	1.435	-0.13	0.879	1.262
	WCDMA IV	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	1413	1732.6	16.99	18.50	1.416	0.02	0.823	1.165
22	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1312	1712.4	16.93	18.50	1.435	0.12	0.955	**1.371**
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	1413	1732.6	16.99	18.50	1.416	0.03	0.822	1.164
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	9262	1852.4	17.43	18.50	1.279	-0.15	0.636	0.814
23	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9262	1852.4	17.43	18.50	1.279	0.09	1.110	**1.420**
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	Ant 1	Reduced	9262	1852.4	17.43	18.50	1.279	-0.04	0.401	0.513
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	Ant 1	Reduced	9262	1852.4	17.43	18.50	1.279	-0.12	0.136	0.174
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9262	1852.4	17.43	18.50	1.279	0.05	1.070	1.369
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9400	1880	17.39	18.50	1.291	-0.07	1.040	1.343
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 1	Reduced	9538	1907.6	17.38	18.50	1.294	-0.01	1.028	1.330
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	9400	1880	17.39	18.50	1.291	-0.12	0.621	0.802
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	Reduced	9538	1907.6	17.38	18.50	1.294	0.15	0.606	0.784
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9400	1880	17.39	18.50	1.291	0.05	0.996	1.286
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	Reduced	9538	1907.6	17.38	18.50	1.294	0.01	0.935	1.210
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 2	Reduced	9262	1852.4	17.07	18.50	1.390	0.08	0.490	0.681
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9262	1852.4	17.07	18.50	1.390	0.13	0.744	1.034
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	Ant 2	Reduced	9262	1852.4	16.13	17.50	1.371	0.02	0.128	0.175
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	Ant 2	Reduced	9262	1852.4	16.13	17.50	1.371	0.11	0.046	0.063
	WCDMA II	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9262	1852.4	16.13	17.50	1.371	0.12	0.712	0.976
	WCDMA II	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9400	1880	15.97	17.50	1.422	0.12	0.699	0.994
	WCDMA II	RMC 12.2Kbps	Top Side	5mm	Ant 2	Reduced	9538	1907.6	16.02	17.50	1.406	0.06	0.725	1.019
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9400	1880	17.01	18.50	1.409	0.11	0.758	1.068
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	Reduced	9538	1907.6	16.95	18.50	1.429	0.15	0.755	1.079

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 71	20M	QPSK	1	49	Front	5mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.08	0.395	0.524
24	LTE Band 71	20M	QPSK	1	49	Back	5mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.01	0.810	**1.075**
	LTE Band 71	20M	QPSK	1	49	Left Side	5mm	Ant 1	Full	133322	683	22.77	24.00	1.327	0.07	0.358	0.475
	LTE Band 71	20M	QPSK	1	49	Right Side	5mm	Ant 1	Full	133322	683	22.77	24.00	1.327	0.01	0.710	0.942
	LTE Band 71	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Full	133322	683	22.77	24.00	1.327	-0.07	0.388	0.515
	LTE Band 71	20M	QPSK	50	24	Front	5mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.17	0.323	0.434
	LTE Band 71	20M	QPSK	50	24	Back	5mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.04	0.669	0.898
	LTE Band 71	20M	QPSK	50	24	Left Side	5mm	Ant 1	Full	133322	683	21.72	23.00	1.343	0.01	0.297	0.399
	LTE Band 71	20M	QPSK	50	24	Right Side	5mm	Ant 1	Full	133322	683	21.72	23.00	1.343	-0.19	0.586	0.787
	LTE Band 71	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Full	133322	683	21.72	23.00	1.343	0.11	0.321	0.431
	LTE Band 71	20M	QPSK	100	0	Back	5mm	Ant 1	Full	133322	683	21.73	23.00	1.340	0.03	0.662	0.887
	LTE Band 71	20M	QPSK	100	0	Right Side	5mm	Ant 1	Full	133322	683	21.73	23.00	1.340	-0.08	0.580	0.777
	LTE Band 71	20M	QPSK	1	49	Front	5mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.16	0.132	0.161
	LTE Band 71	20M	QPSK	1	49	Back	5mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.11	0.309	0.376
	LTE Band 71	20M	QPSK	1	49	Left Side	5mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.03	0.177	0.215
	LTE Band 71	20M	QPSK	1	49	Right Side	5mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.19	0.086	0.105
	LTE Band 71	20M	QPSK	1	49	Top Side	5mm	Ant 2	Full	133322	683	22.15	23.00	1.216	0.14	0.141	0.171
	LTE Band 71	20M	QPSK	50	24	Front	5mm	Ant 2	Full	133322	683	21.13	22.00	1.222	0.15	0.108	0.132
	LTE Band 71	20M	QPSK	50	24	Back	5mm	Ant 2	Full	133322	683	21.13	22.00	1.222	0.14	0.242	0.296
	LTE Band 71	20M	QPSK	50	24	Left Side	5mm	Ant 2	Full	133322	683	21.13	22.00	1.222	-0.01	0.147	0.180
	LTE Band 71	20M	QPSK	50	24	Right Side	5mm	Ant 2	Full	133322	683	21.13	22.00	1.222	-0.05	0.073	0.089
	LTE Band 71	20M	QPSK	50	24	Top Side	5mm	Ant 2	Full	133322	683	21.13	22.00	1.222	-0.09	0.116	0.142
	LTE Band 12	10M	QPSK	1	25	Front	5mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	0.19	0.535	0.757
25	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	-0.05	0.918	**1.300**
	LTE Band 12	10M	QPSK	1	25	Left Side	5mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	-0.13	0.475	0.673
	LTE Band 12	10M	QPSK	1	25	Right Side	5mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	0.19	0.674	0.954
	LTE Band 12	10M	QPSK	1	25	Bottom Side	5mm	Ant 1	Full	23095	707.5	22.49	24.00	1.416	-0.12	0.684	0.968
	LTE Band 12	10M	QPSK	25	12	Front	5mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	0.03	0.438	0.626
	LTE Band 12	10M	QPSK	25	12	Back	5mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	-0.09	0.849	1.213
	LTE Band 12	10M	QPSK	25	12	Left Side	5mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	0.01	0.391	0.559
	LTE Band 12	10M	QPSK	25	12	Right Side	5mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	-0.11	0.653	0.933
	LTE Band 12	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Full	23095	707.5	21.45	23.00	1.429	0.09	0.559	0.799
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Ant 1	Full	23095	707.5	21.39	23.00	1.449	0.13	0.833	1.207
	LTE Band 12	10M	QPSK	50	0	Right Side	5mm	Ant 1	Full	23095	707.5	21.39	23.00	1.449	-0.03	0.651	0.943
	LTE Band 12	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Full	23095	707.5	21.39	23.00	1.449	0.01	0.545	0.790
	LTE Band 12	10M	QPSK	1	25	Front	5mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	0.03	0.237	0.303
	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.09	0.567	0.724
	LTE Band 12	10M	QPSK	1	25	Left Side	5mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	0.01	0.224	0.286
	LTE Band 12	10M	QPSK	1	25	Right Side	5mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.11	0.149	0.190
	LTE Band 12	10M	QPSK	1	25	Top Side	5mm	Ant 2	Full	23095	707.5	21.94	23.00	1.276	-0.13	0.383	0.489
	LTE Band 12	10M	QPSK	25	12	Front	5mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.19	0.193	0.248
	LTE Band 12	10M	QPSK	25	12	Back	5mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	-0.12	0.433	0.557
	LTE Band 12	10M	QPSK	25	12	Left Side	5mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.19	0.184	0.236
	LTE Band 12	10M	QPSK	25	12	Right Side	5mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	0.13	0.122	0.157
	LTE Band 12	10M	QPSK	25	12	Top Side	5mm	Ant 2	Full	23095	707.5	20.91	22.00	1.285	-0.03	0.310	0.398
	LTE Band 13	10M	QPSK	1	25	Front	5mm	Ant 1	Reduced	23230	782	21.75	23.00	1.334	0.01	0.639	0.852
26	LTE Band 13	10M	QPSK	1	25	Back	5mm	Ant 1	Reduced	23230	782	21.75	23.00	1.334	-0.02	1.050	**1.400**
	LTE Band 13	10M	QPSK	1	25	Left Side	5mm	Ant 1	Reduced	23230	782	21.75	23.00	1.334	-0.1	0.361	0.481
	LTE Band 13	10M	QPSK	1	25	Right Side	5mm	Ant 1	Reduced	23230	782	21.75	23.00	1.334	-0.16	0.731	0.975
	LTE Band 13	10M	QPSK	1	25	Bottom Side	5mm	Ant 1	Reduced	23230	782	21.75	23.00	1.334	0.02	0.826	1.101
	LTE Band 13	10M	QPSK	25	12	Front	5mm	Ant 1	Reduced	23230	782	20.72	22.00	1.343	0.03	0.513	0.689

	LTE Band 13	10M	QPSK	25	12	Back	5mm	Ant 1	Reduced	23230	782	20.72	22.00	1.343	-0.1	0.939	1.261
	LTE Band 13	10M	QPSK	25	12	Left Side	5mm	Ant 1	Reduced	23230	782	20.72	22.00	1.343	0.09	0.289	0.388
	LTE Band 13	10M	QPSK	25	12	Right Side	5mm	Ant 1	Reduced	23230	782	20.72	22.00	1.343	0.13	0.496	0.666
	LTE Band 13	10M	QPSK	25	12	Bottom Side	5mm	Ant 1	Reduced	23230	782	20.72	22.00	1.343	-0.19	0.662	0.889
	LTE Band 13	10M	QPSK	50	0	Front	5mm	Ant 1	Reduced	23230	782	20.71	22.00	1.346	-0.18	0.512	0.689
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 1	Reduced	23230	782	20.71	22.00	1.346	0.19	0.932	1.254
	LTE Band 13	10M	QPSK	50	0	Right Side	5mm	Ant 1	Reduced	23230	782	20.71	22.00	1.346	0.13	0.490	0.659
	LTE Band 13	10M	QPSK	50	0	Bottom Side	5mm	Ant 1	Reduced	23230	782	20.71	22.00	1.346	-0.11	0.663	0.892
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 1	Reduced	26865	831.5	20.22	21.50	1.343	0.11	0.661	0.888
27	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	Reduced	26865	831.5	20.22	21.50	1.343	-0.03	1.040	**1.396**
	LTE Band 26	15M	QPSK	1	37	Left Side	5mm	Ant 1	Reduced	26865	831.5	20.22	21.50	1.343	0.07	0.213	0.286
	LTE Band 26	15M	QPSK	1	37	Right Side	5mm	Ant 1	Reduced	26865	831.5	20.22	21.50	1.343	-0.06	0.370	0.497
	LTE Band 26	15M	QPSK	1	37	Bottom Side	5mm	Ant 1	Reduced	26865	831.5	20.22	21.50	1.343	0.11	0.809	1.086
	LTE Band 26	15M	QPSK	36	20	Front	5mm	Ant 1	Reduced	26865	831.5	19.23	20.50	1.340	0.02	0.483	0.647
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 1	Reduced	26865	831.5	19.23	20.50	1.340	0.04	0.780	1.045
	LTE Band 26	15M	QPSK	36	20	Left Side	5mm	Ant 1	Reduced	26865	831.5	19.23	20.50	1.340	-0.11	0.167	0.224
	LTE Band 26	15M	QPSK	36	20	Right Side	5mm	Ant 1	Reduced	26865	831.5	19.23	20.50	1.340	-0.12	0.290	0.389
	LTE Band 26	15M	QPSK	36	20	Bottom Side	5mm	Ant 1	Reduced	26865	831.5	19.23	20.50	1.340	0.13	0.642	0.860
	LTE Band 26	15M	QPSK	75	0	Front	5mm	Ant 1	Reduced	26865	831.5	19.17	20.50	1.358	0.06	0.482	0.655
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Ant 1	Reduced	26865	831.5	19.17	20.50	1.358	-0.14	0.776	1.054
	LTE Band 26	15M	QPSK	75	0	Bottom Side	5mm	Ant 1	Reduced	26865	831.5	19.17	20.50	1.358	0.16	0.637	0.865
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 2	Reduced	26865	831.5	19.57	20.50	1.239	0.03	0.360	0.446
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 2	Reduced	26865	831.5	19.57	20.50	1.239	-0.14	0.860	1.065
	LTE Band 26	15M	QPSK	1	37	Left Side	5mm	Ant 2	Reduced	26865	831.5	19.57	20.50	1.239	-0.03	0.130	0.161
	LTE Band 26	15M	QPSK	1	37	Right Side	5mm	Ant 2	Reduced	26865	831.5	19.57	20.50	1.239	0.11	0.129	0.160
	LTE Band 26	15M	QPSK	1	37	Top Side	5mm	Ant 2	Reduced	26865	831.5	19.57	20.50	1.239	-0.11	0.562	0.696
	LTE Band 26	15M	QPSK	36	20	Front	5mm	Ant 2	Reduced	26865	831.5	18.52	19.50	1.253	-0.05	0.283	0.355
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 2	Reduced	26865	831.5	18.52	19.50	1.253	0.14	0.608	0.762
	LTE Band 26	15M	QPSK	36	20	Left Side	5mm	Ant 2	Reduced	26865	831.5	18.52	19.50	1.253	-0.12	0.101	0.127
	LTE Band 26	15M	QPSK	36	20	Right Side	5mm	Ant 2	Reduced	26865	831.5	18.52	19.50	1.253	0.06	0.103	0.129
	LTE Band 26	15M	QPSK	36	20	Top Side	5mm	Ant 2	Reduced	26865	831.5	18.52	19.50	1.253	0.03	0.430	0.539
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Ant 2	Reduced	26865	831.5	18.39	19.50	1.291	0.04	0.594	0.767
	LTE Band 66	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	132572	1770	17.54	19.00	1.400	0.02	0.431	0.603
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	132572	1770	17.54	19.00	1.400	0.1	0.929	1.300
	LTE Band 66	20M	QPSK	1	49	Left Side	5mm	Ant 1	Reduced	132572	1770	16.61	18.00	1.377	0.03	0.218	0.300
	LTE Band 66	20M	QPSK	1	49	Right Side	5mm	Ant 1	Reduced	132572	1770	16.61	18.00	1.377	-0.08	0.116	0.160
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	132572	1770	16.61	18.00	1.377	0.04	0.891	1.227
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	132072	1720	16.39	18.00	1.449	0.19	0.833	1.207
	LTE Band 66	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	132322	1745	16.41	18.00	1.442	0.09	0.877	1.265
28	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	132072	1720	17.32	19.00	1.472	0.05	0.960	**1.413**
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	132322	1745	17.34	19.00	1.466	-0.16	0.932	1.366
	LTE Band 66	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	132572	1770	16.54	18.00	1.400	0.17	0.342	0.479
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132572	1770	16.54	18.00	1.400	-0.05	0.875	1.225
	LTE Band 66	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	132572	1770	15.61	17.00	1.377	0.08	0.174	0.240
	LTE Band 66	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	132572	1770	15.61	17.00	1.377	0.18	0.091	0.125
	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132572	1770	15.61	17.00	1.377	0.13	0.794	1.094
	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132072	1720	15.28	17.00	1.486	-0.03	0.785	1.166
	LTE Band 66	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	132322	1745	15.54	17.00	1.400	0.18	0.790	1.106
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132072	1720	16.21	18.00	1.510	0.12	0.842	1.271
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	132322	1745	16.47	18.00	1.422	0.13	0.845	1.202
	LTE Band 66	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	132572	1770	16.41	18.00	1.442	0.02	0.768	1.108
	LTE Band 66	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	132572	1770	15.48	17.00	1.419	0.08	0.693	0.983
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	26140	1860	17.78	19.00	1.324	-0.13	0.648	0.858
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	26140	1860	17.78	19.00	1.324	-0.05	0.972	1.287
	LTE Band 25	20M	QPSK	1	49	Left Side	5mm	Ant 1	Reduced	26140	1860	17.09	18.50	1.384	-0.18	0.356	0.493
	LTE Band 25	20M	QPSK	1	49	Right Side	5mm	Ant 1	Reduced	26140	1860	17.09	18.50	1.384	0.16	0.131	0.181

	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	26140	1860	17.09	18.50	1.384	-0.19	0.970	1.342
29	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	26340	1880	17.00	18.50	1.413	0.01	0.988	**1.396**
	LTE Band 25	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	26590	1905	17.08	18.50	1.387	0.11	0.910	1.262
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	26340	1880	17.68	19.00	1.355	0.05	0.623	0.844
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	26590	1905	17.72	19.00	1.343	0.15	0.601	0.807
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	26340	1880	17.68	19.00	1.355	-0.09	1.010	1.369
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	26590	1905	17.72	19.00	1.343	-0.16	0.924	1.241
	LTE Band 25	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	26140	1860	16.72	18.00	1.343	-0.17	0.516	0.693
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	26140	1860	16.72	18.00	1.343	0.13	0.829	1.113
	LTE Band 25	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	26140	1860	16.08	17.50	1.387	0.14	0.282	0.391
	LTE Band 25	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	26140	1860	16.08	17.50	1.387	0.12	0.103	0.143
	LTE Band 25	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	26140	1860	16.08	17.50	1.387	0.18	0.851	1.180
	LTE Band 25	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	26340	1880	15.99	17.50	1.416	0.18	0.893	1.264
	LTE Band 25	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	26590	1905	16.06	17.50	1.393	-0.18	0.881	1.227
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	26340	1880	16.68	18.00	1.355	-0.18	0.792	1.074
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	26590	1905	16.67	18.00	1.358	0.04	0.771	1.047
	LTE Band 25	20M	QPSK	100	0	Front	5mm	Ant 1	Reduced	26140	1860	16.72	18.00	1.343	0.12	0.512	0.687
	LTE Band 25	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	26140	1860	16.72	18.00	1.343	0.1	0.834	1.120
	LTE Band 25	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	26140	1860	16.06	17.50	1.393	0.13	0.859	1.197
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 2	Reduced	26140	1860	18.21	19.00	1.199	0.13	0.515	0.618
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	26140	1860	18.21	19.00	1.199	-0.19	0.952	1.142
	LTE Band 25	20M	QPSK	1	49	Left Side	5mm	Ant 2	Reduced	26140	1860	17.19	18.50	1.352	0.08	0.151	0.204
	LTE Band 25	20M	QPSK	1	49	Right Side	5mm	Ant 2	Reduced	26140	1860	17.19	18.50	1.352	0.16	0.050	0.068
	LTE Band 25	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	26140	1860	17.19	18.50	1.352	0.01	0.877	1.186
	LTE Band 25	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	26340	1880	17.16	18.50	1.361	0.07	0.843	1.148
	LTE Band 25	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	26590	1905	17.11	18.50	1.377	0.18	0.804	1.107
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	26340	1880	18.13	19.00	1.222	-0.03	0.849	1.037
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	26590	1905	17.85	19.00	1.303	0.08	0.869	1.132
	LTE Band 25	20M	QPSK	50	24	Front	5mm	Ant 2	Reduced	26140	1860	17.06	18.00	1.242	-0.06	0.406	0.504
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	26140	1860	17.06	18.00	1.242	-0.08	0.709	0.880
	LTE Band 25	20M	QPSK	50	24	Left Side	5mm	Ant 2	Reduced	26140	1860	16.28	17.50	1.324	0.14	0.120	0.159
	LTE Band 25	20M	QPSK	50	24	Right Side	5mm	Ant 2	Reduced	26140	1860	16.28	17.50	1.324	0.04	0.000	0.000
	LTE Band 25	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	26140	1860	16.28	17.50	1.324	0.04	0.788	1.044
	LTE Band 25	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	26340	1880	16.25	17.50	1.334	0.09	0.767	1.023
	LTE Band 25	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	26590	1905	16.23	17.50	1.340	0.03	0.757	1.014
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	26340	1880	17.01	18.00	1.256	-0.08	0.758	0.952
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	26590	1905	16.97	18.00	1.268	-0.08	0.774	0.981
	LTE Band 25	20M	QPSK	100	0	Back	5mm	Ant 2	Reduced	26140	1860	17.00	18.00	1.259	-0.16	0.703	0.885
	LTE Band 25	20M	QPSK	100	0	Top Side	5mm	Ant 2	Reduced	26140	1860	16.23	17.50	1.340	0.16	0.769	1.030
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	21100	2535	15.96	17.00	1.271	-0.11	0.351	0.446
30	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	21100	2535	15.96	17.00	1.271	-0.01	1.040	**1.321**
	LTE Band 7	20M	QPSK	1	49	Left Side	5mm	Ant 1	Reduced	21100	2535	14.84	16.00	1.306	0.05	0.080	0.104
	LTE Band 7	20M	QPSK	1	49	Right Side	5mm	Ant 1	Reduced	21100	2535	14.84	16.00	1.306	-0.17	0.079	0.103
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	21100	2535	14.84	16.00	1.306	0.05	0.837	1.093
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	20850	2510	14.72	16.00	1.343	0.03	0.825	1.108
	LTE Band 7	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	21350	2560	14.83	16.00	1.309	0.04	0.958	1.254
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	20850	2510	15.84	17.00	1.306	-0.11	1.010	1.319
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	21350	2560	15.95	17.00	1.274	0.18	1.020	1.299
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	21100	2535	14.89	16.00	1.291	-0.14	0.269	0.347
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	21100	2535	14.89	16.00	1.291	0.05	0.706	0.912
	LTE Band 7	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	21100	2535	13.77	15.00	1.327	0.03	0.060	0.080
	LTE Band 7	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	21100	2535	13.77	15.00	1.327	-	n/a	n/a
	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	21100	2535	13.77	15.00	1.327	0.18	0.700	0.929
	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	20850	2510	13.67	15.00	1.358	-0.05	0.603	0.819
	LTE Band 7	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	21350	2560	13.71	15.00	1.346	-0.16	0.718	0.966
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	20850	2510	14.79	16.00	1.321	-0.07	0.638	0.843

	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	21350	2560	14.83	16.00	1.309	-0.02	0.655	0.858
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	21100	2535	14.87	16.00	1.297	-0.19	0.701	0.909
	LTE Band 7	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	21100	2535	13.75	15.00	1.334	0.14	0.699	0.932
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 2	Reduced	21100	2535	13.13	14.00	1.222	-0.16	0.259	0.316
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	21100	2535	13.13	14.00	1.222	-0.06	0.851	1.040
	LTE Band 7	20M	QPSK	1	49	Left Side	5mm	Ant 2	Reduced	21100	2535	13.13	14.00	1.222	0.05	0.267	0.326
	LTE Band 7	20M	QPSK	1	49	Right Side	5mm	Ant 2	Reduced	21100	2535	13.13	14.00	1.222	-	n/a	n/a
	LTE Band 7	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	21100	2535	13.13	14.00	1.222	-0.06	0.929	1.135
	LTE Band 7	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	20850	2510	12.96	14.00	1.271	0.09	0.912	1.159
	LTE Band 7	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	21350	2560	13.01	14.00	1.256	0.01	0.807	1.014
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	20850	2510	12.96	14.00	1.271	-0.05	0.898	1.141
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	21350	2560	13.01	14.00	1.256	0.18	0.770	0.967
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 2	Reduced	21100	2535	12.03	13.00	1.250	0.07	0.202	0.253
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	21100	2535	12.03	13.00	1.250	-0.09	0.641	0.801
	LTE Band 7	20M	QPSK	50	24	Left Side	5mm	Ant 2	Reduced	21100	2535	12.03	13.00	1.250	0.18	0.209	0.261
	LTE Band 7	20M	QPSK	50	24	Right Side	5mm	Ant 2	Reduced	21100	2535	12.03	13.00	1.250	-	n/a	n/a
	LTE Band 7	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	21100	2535	12.03	13.00	1.250	0.03	0.666	0.833
	LTE Band 7	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	20850	2510	11.86	13.00	1.300	0.13	0.734	0.954
	LTE Band 7	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	21350	2560	11.96	13.00	1.271	-0.13	0.592	0.752
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	20850	2510	11.86	13.00	1.300	0.12	0.735	0.956
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	21350	2560	11.96	13.00	1.271	-0.06	0.637	0.809
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Ant 2	Reduced	21100	2535	12.01	13.00	1.256	0.11	0.638	0.801
	LTE Band 7	20M	QPSK	100	0	Top Side	5mm	Ant 2	Reduced	21100	2535	12.01	13.00	1.256	-0.09	0.692	0.869

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41-PC3	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	40185	2549.5	18.07	19.00	1.239	62.9	1.006	0.02	0.424	0.528
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40185	2549.5	18.07	19.00	1.239	62.9	1.006	0.01	1.030	1.284
	LTE Band 41C-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40185+ 39987	2549.5+ 2529.7	17.90	19.00	1.288	62.9	1.006	-0.12	0.980	1.270
	LTE Band 41C-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	39750+ 39948	2506+ 2525.8	17.66	19.00	1.361	62.9	1.006	-0.17	0.935	1.281
	LTE Band 41C-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40620+ 40422	2593+ 2573.2	17.76	19.00	1.330	62.9	1.006	-0.12	0.904	1.210
	LTE Band 41C-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41055+ 40857	2636.5+ 2616.7	17.67	19.00	1.358	62.9	1.006	0.18	0.919	1.256
	LTE Band 41C-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41490+ 41292	2680+ 2660.2	17.71	19.00	1.346	62.9	1.006	-0.15	0.909	1.231
	LTE Band 41-PC3	20M	QPSK	1	49	Left Side	5mm	Ant 1	Reduced	40185	2549.5	17.06	18.00	1.242	62.9	1.006	0.01	0.081	0.101
	LTE Band 41-PC3	20M	QPSK	1	49	Right Side	5mm	Ant 1	Reduced	40185	2549.5	17.06	18.00	1.242	62.9	1.006	-0.12	0.080	0.100
	LTE Band 41-PC3	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	17.06	18.00	1.242	62.9	1.006	-0.02	0.874	1.092
	LTE Band 41-PC3	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	39750	2506	16.88	18.00	1.294	62.9	1.006	-0.17	0.709	0.923
	LTE Band 41-PC3	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	40620	2593	17.03	18.00	1.250	62.9	1.006	0.11	0.957	1.204
	LTE Band 41-PC3	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	41055	2636.5	16.89	18.00	1.291	62.9	1.006	-0.12	0.885	1.150
	LTE Band 41-PC3	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	41490	2680	16.78	18.00	1.324	62.9	1.006	0.01	0.875	1.166
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	39750	2506	18.03	19.00	1.250	62.9	1.006	0.18	0.888	1.117
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40620	2593	17.94	19.00	1.276	62.9	1.006	-0.12	0.802	1.030
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41055	2636.5	17.94	19.00	1.276	62.9	1.006	0.01	0.668	0.858
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41490	2680	17.86	19.00	1.300	62.9	1.006	0.06	0.643	0.841
	LTE Band 41-PC3	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	40185	2549.5	17.05	18.00	1.245	62.9	1.006	-0.13	0.333	0.417
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	40185	2549.5	17.05	18.00	1.245	62.9	1.006	0.18	0.861	1.078
	LTE Band 41-PC3	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	40185	2549.5	15.99	17.00	1.262	62.9	1.006	0.08	0.063	0.080
	LTE Band 41-PC3	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	40185	2549.5	15.99	17.00	1.262	62.9	1.006	0.02	0.062	0.079
	LTE Band 41-PC3	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	15.99	17.00	1.262	62.9	1.006	0.06	0.695	0.882
	LTE Band 41-PC3	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	39750	2506	15.98	17.00	1.265	62.9	1.006	-0.14	0.560	0.713
	LTE Band 41-PC3	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	40620	2593	15.97	17.00	1.268	62.9	1.006	0.02	0.719	0.917

	LTE Band 41-PC3	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	41055	2636.5	15.87	17.00	1.297	62.9	1.006	0.01	0.716	0.934
	LTE Band 41-PC3	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	41490	2680	15.65	17.00	1.365	62.9	1.006	0.01	0.702	0.964
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	39750	2506	16.98	18.00	1.265	62.9	1.006	-0.12	0.765	0.973
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	40620	2593	17.03	18.00	1.250	62.9	1.006	-0.08	0.779	0.980
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	41055	2636.5	16.90	18.00	1.288	62.9	1.006	-0.13	0.676	0.876
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	41490	2680	16.88	18.00	1.294	62.9	1.006	0.18	0.598	0.779
	LTE Band 41-PC3	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	40185	2549.5	16.91	18.00	1.285	62.9	1.006	0.03	0.857	1.108
	LTE Band 41-PC3	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	15.94	17.00	1.276	62.9	1.006	0.08	0.696	0.894
	LTE Band 41-PC3	20M	QPSK	1	49	Front	5mm	Ant 2	Reduced	40185	2549.5	15.30	16.00	1.175	62.9	1.006	0.09	0.224	0.265
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	40185	2549.5	15.30	16.00	1.175	62.9	1.006	0.09	0.786	0.929
	LTE Band 41-PC3	20M	QPSK	1	49	Left Side	5mm	Ant 2	Reduced	40185	2549.5	15.30	16.00	1.175	62.9	1.006	0.05	0.264	0.312
	LTE Band 41-PC3	20M	QPSK	1	49	Right Side	5mm	Ant 2	Reduced	40185	2549.5	15.30	16.00	1.175	62.9	1.006	-	n/a	n/a
	LTE Band 41-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	40185	2549.5	15.30	16.00	1.175	62.9	1.006	0.07	0.761	0.899
	LTE Band 41-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	39750	2506	15.14	16.00	1.219	62.9	1.006	0.15	0.935	1.147
	LTE Band 41C-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	39750+ 39948	2506+ 2525.8	14.77	16.00	1.327	62.9	1.006	0.05	0.850	1.135
	LTE Band 41-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	40620	2593	15.28	16.00	1.180	62.9	1.006	0.07	0.609	0.723
	LTE Band 41-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	41055	2636.5	15.13	16.00	1.222	62.9	1.006	-0.18	0.466	0.573
	LTE Band 41-PC3	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	41490	2680	15.03	16.00	1.250	62.9	1.006	0.02	0.395	0.497
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	39750	2506	15.14	16.00	1.219	62.9	1.006	0.06	0.869	1.066
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	40620	2593	15.28	16.00	1.180	62.9	1.006	-0.05	0.674	0.800
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	41055	2636.5	15.13	16.00	1.222	62.9	1.006	0.02	0.559	0.687
	LTE Band 41-PC3	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	41490	2680	15.03	16.00	1.250	62.9	1.006	0.06	0.483	0.607
	LTE Band 41-PC3	20M	QPSK	50	24	Front	5mm	Ant 2	Reduced	40185	2549.5	14.28	15.00	1.180	62.9	1.006	-0.14	0.175	0.208
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	40185	2549.5	14.28	15.00	1.180	62.9	1.006	0.04	0.574	0.682
	LTE Band 41-PC3	20M	QPSK	50	24	Left Side	5mm	Ant 2	Reduced	40185	2549.5	14.28	15.00	1.180	62.9	1.006	0.09	0.204	0.242
	LTE Band 41-PC3	20M	QPSK	50	24	Right Side	5mm	Ant 2	Reduced	40185	2549.5	14.28	15.00	1.180	62.9	1.006	-	n/a	n/a
	LTE Band 41-PC3	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	40185	2549.5	14.28	15.00	1.180	62.9	1.006	0.06	0.586	0.696
	LTE Band 41-PC3	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	39750	2506	14.24	15.00	1.191	62.9	1.006	0.08	0.709	0.850
	LTE Band 41-PC3	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	40620	2593	14.20	15.00	1.202	62.9	1.006	0.02	0.490	0.593
	LTE Band 41-PC3	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	41055	2636.5	14.07	15.00	1.239	62.9	1.006	0.03	0.381	0.475
	LTE Band 41-PC3	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	41490	2680	13.91	15.00	1.285	62.9	1.006	-0.09	0.322	0.416
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	39750	2506	14.24	15.00	1.191	62.9	1.006	-0.09	0.677	0.811
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	40620	2593	14.20	15.00	1.202	62.9	1.006	0.02	0.528	0.639
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	41055	2636.5	14.07	15.00	1.239	62.9	1.006	0.06	0.435	0.542
	LTE Band 41-PC3	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	41490	2680	13.91	15.00	1.285	62.9	1.006	0.01	0.383	0.495
	LTE Band 41-PC3	20M	QPSK	100	0	Back	5mm	Ant 2	Reduced	40185	2549.5	14.15	15.00	1.216	62.9	1.006	-0.12	0.568	0.695
	LTE Band 41-PC3	20M	QPSK	100	0	Top Side	5mm	Ant 2	Reduced	40185	2549.5	14.15	15.00	1.216	62.9	1.006	-0.06	0.589	0.721
	LTE Band 41-PC2	20M	QPSK	1	49	Front	5mm	Ant 1	Reduced	40185	2549.5	19.41	20.50	1.285	42.9	1.009	0.05	0.411	0.533
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40185	2549.5	19.41	20.50	1.285	42.9	1.009	0.05	0.942	1.222
	LTE Band 41-PC2	20M	QPSK	1	49	Left Side	5mm	Ant 1	Reduced	40185	2549.5	18.86	20.00	1.300	42.9	1.009	0.07	0.083	0.109
	LTE Band 41-PC2	20M	QPSK	1	49	Right Side	5mm	Ant 1	Reduced	40185	2549.5	18.86	20.00	1.300	42.9	1.009	0.06	0.085	0.112
	LTE Band 41-PC2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	18.86	20.00	1.300	42.9	1.009	-0.04	0.905	1.187
	LTE Band 41-PC2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	39750	2506	18.73	20.00	1.340	42.9	1.009	-0.04	0.777	1.050
31	LTE Band 41-PC2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	40620	2593	18.82	20.00	1.312	42.9	1.009	0.01	1.010	**1.337**
	LTE Band 41-PC2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	41055	2636.5	18.78	20.00	1.324	42.9	1.009	0.14	0.944	1.261
	LTE Band 41-PC2	20M	QPSK	1	49	Bottom Side	5mm	Ant 1	Reduced	41490	2680	18.75	20.00	1.334	42.9	1.009	0.04	0.938	1.262
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	39750	2506	19.18	20.50	1.355	42.9	1.009	0.06	0.922	1.261
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	40620	2593	19.35	20.50	1.303	42.9	1.009	0.06	0.933	1.227
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41055	2636.5	19.33	20.50	1.309	42.9	1.009	0.13	0.784	1.036
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 1	Reduced	41490	2680	19.26	20.50	1.330	42.9	1.009	0.16	0.690	0.926
	LTE Band 41-PC2	20M	QPSK	50	24	Front	5mm	Ant 1	Reduced	40185	2549.5	18.36	19.50	1.300	42.9	1.009	0.13	0.327	0.429
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	40185	2549.5	18.36	19.50	1.300	42.9	1.009	0.14	0.816	1.070
	LTE Band 41-PC2	20M	QPSK	50	24	Left Side	5mm	Ant 1	Reduced	40185	2549.5	17.93	19.00	1.279	42.9	1.009	0.02	0.073	0.094
	LTE Band 41-PC2	20M	QPSK	50	24	Right Side	5mm	Ant 1	Reduced	40185	2549.5	17.93	19.00	1.279	42.9	1.009	0.08	0.066	0.085
	LTE Band 41-PC2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	17.93	19.00	1.279	42.9	1.009	-0.13	0.769	0.993
	LTE Band 41-PC2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	39750	2506	17.84	19.00	1.306	42.9	1.009	-0.18	0.613	0.808

	LTE Band 41-PC2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	40620	2593	17.85	19.00	1.303	42.9	1.009	0.15	0.772	1.015
	LTE Band 41-PC2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	41055	2636.5	17.83	19.00	1.309	42.9	1.009	0.06	0.765	1.011
	LTE Band 41-PC2	20M	QPSK	50	24	Bottom Side	5mm	Ant 1	Reduced	41490	2680	17.84	19.00	1.306	42.9	1.009	0.08	0.753	0.992
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	39750	2506	18.31	19.50	1.315	42.9	1.009	0.03	0.792	1.051
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	40620	2593	18.32	19.50	1.312	42.9	1.009	0.05	0.768	1.017
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	41055	2636.5	18.34	19.50	1.306	42.9	1.009	-0.13	0.656	0.865
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 1	Reduced	41490	2680	18.27	19.50	1.327	42.9	1.009	0.08	0.580	0.777
	LTE Band 41-PC2	20M	QPSK	100	0	Back	5mm	Ant 1	Reduced	40185	2549.5	18.35	19.50	1.303	42.9	1.009	0.17	0.812	1.068
	LTE Band 41-PC2	20M	QPSK	100	0	Bottom Side	5mm	Ant 1	Reduced	40185	2549.5	17.87	19.00	1.297	42.9	1.009	0.05	0.761	0.996
	LTE Band 41-PC2	20M	QPSK	1	49	Front	5mm	Ant 2	Reduced	40185	2549.5	16.48	17.50	1.265	42.9	1.009	0.03	0.265	0.338
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	40185	2549.5	16.48	17.50	1.265	42.9	1.009	0.18	0.907	1.157
	LTE Band 41-PC2	20M	QPSK	1	49	Left Side	5mm	Ant 2	Reduced	40185	2549.5	16.48	17.50	1.265	42.9	1.009	0.05	0.238	0.304
	LTE Band 41-PC2	20M	QPSK	1	49	Right Side	5mm	Ant 2	Reduced	40185	2549.5	16.48	17.50	1.265	42.9	1.009	-	n/a	n/a
	LTE Band 41-PC2	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	40185	2549.5	16.48	17.50	1.265	42.9	1.009	0.09	0.684	0.873
	LTE Band 41-PC2	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	39750	2506	16.15	17.50	1.365	42.9	1.009	0.06	0.855	1.177
	LTE Band 41-PC2	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	40620	2593	16.40	17.50	1.288	42.9	1.009	-0.12	0.575	0.747
	LTE Band 41-PC2	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	41055	2636.5	16.22	17.50	1.343	42.9	1.009	0.06	0.440	0.596
	LTE Band 41-PC2	20M	QPSK	1	49	Top Side	5mm	Ant 2	Reduced	41490	2680	16.15	17.50	1.365	42.9	1.009	0.03	0.373	0.514
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	39750	2506	16.15	17.50	1.365	42.9	1.009	0.08	0.850	1.170
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	40620	2593	16.40	17.50	1.288	42.9	1.009	0.05	0.733	0.953
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	41055	2636.5	16.22	17.50	1.343	42.9	1.009	-0.12	0.611	0.828
	LTE Band 41-PC2	20M	QPSK	1	49	Back	5mm	Ant 2	Reduced	41490	2680	16.15	17.50	1.365	42.9	1.009	-0.17	0.564	0.777
	LTE Band 41-PC2	20M	QPSK	50	24	Front	5mm	Ant 2	Reduced	40185	2549.5	15.51	16.50	1.256	42.9	1.009	0.05	0.212	0.269
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	40185	2549.5	15.51	16.50	1.256	42.9	1.009	0.08	0.681	0.863
	LTE Band 41-PC2	20M	QPSK	50	24	Left Side	5mm	Ant 2	Reduced	40185	2549.5	15.51	16.50	1.256	42.9	1.009	0.09	0.188	0.238
	LTE Band 41-PC2	20M	QPSK	50	24	Right Side	5mm	Ant 2	Reduced	40185	2549.5	15.51	16.50	1.256	42.9	1.009	-	n/a	n/a
	LTE Band 41-PC2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	40185	2549.5	15.51	16.50	1.256	42.9	1.009	-0.12	0.552	0.700
	LTE Band 41-PC2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	39750	2506	15.31	16.50	1.315	42.9	1.009	0.06	0.656	0.871
	LTE Band 41-PC2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	40620	2593	15.49	16.50	1.262	42.9	1.009	0.01	0.459	0.584
	LTE Band 41-PC2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	41055	2636.5	15.32	16.50	1.312	42.9	1.009	-0.07	0.318	0.421
	LTE Band 41-PC2	20M	QPSK	50	24	Top Side	5mm	Ant 2	Reduced	41490	2680	15.29	16.50	1.321	42.9	1.009	-0.17	0.268	0.357
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	39750	2506	15.31	16.50	1.315	42.9	1.009	-0.01	0.677	0.898
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	40620	2593	15.49	16.50	1.262	42.9	1.009	0.02	0.484	0.616
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	41055	2636.5	15.32	16.50	1.312	42.9	1.009	0.01	0.383	0.507
	LTE Band 41-PC2	20M	QPSK	50	24	Back	5mm	Ant 2	Reduced	41490	2680	15.29	16.50	1.321	42.9	1.009	0.07	0.309	0.412
	LTE Band 41-PC2	20M	QPSK	100	0	Back	5mm	Ant 2	Reduced	40185	2549.5	15.40	16.50	1.288	42.9	1.009	0.15	0.545	0.708
	LTE Band 41-PC2	20M	QPSK	100	0	Top Side	5mm	Ant 2	Reduced	40185	2549.5	15.40	16.50	1.288	42.9	1.009	0.12	0.670	0.871

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 3	Reduced	11	2462	13.60	15.60	1.585	99.4	1.006	0.05	0.105	0.167
32	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 3	Reduced	11	2462	13.60	15.60	1.585	99.4	1.006	0.03	0.188	**0.300**
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant 3	Reduced	11	2462	13.60	15.60	1.585	99.4	1.006	-0.07	0.117	0.187
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 3	Reduced	11	2462	13.60	15.60	1.585	99.4	1.006	0.12	0.131	0.209

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	DH5 1Mbps	Front	5mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	-0.08	0.032	0.066
33	Bluetooth	DH5 1Mbps	Back	5mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	0.06	0.050	**0.104**
	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	-0.03	0.021	0.043
	Bluetooth	DH5 1Mbps	Top Side	5mm	Ant 3	Full	39	2441	9.00	11.00	1.585	76.56	1.306	-0.17	0.033	0.068

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	42	5210	9.64	11.60	1.570	87.79	1.139	0.19	0.059	0.105
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	42	5210	9.64	11.60	1.570	87.79	1.139	0.07	0.056	0.101
	WLAN5.2GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	42	5210	9.64	11.60	1.570	87.79	1.139	0.09	0.152	0.272
34	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	42	5210	9.64	11.60	1.570	87.79	1.139	0.07	0.157	**0.281**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	5mm	Ant 4	Reduced	155	5775	8.58	10.50	1.556	87.79	1.139	0.08	0.062	0.110
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 4	Reduced	155	5775	8.58	10.50	1.556	87.79	1.139	0.14	0.167	0.296
35	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	5mm	Ant 4	Reduced	155	5775	8.58	10.50	1.556	87.79	1.139	-0.03	0.283	**0.502**
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 4	Reduced	155	5775	8.58	10.50	1.556	87.79	1.139	-0.07	0.054	0.096

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Front	5mm	Ant 1	-	Reduced	251	848.8	24.81	26.00	1.315	0.07	0.548	0.721
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	251	848.8	24.81	26.00	1.315	0.02	0.923	1.214
36	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	128	824.2	24.75	26.00	1.334	0.09	1.010	**1.347**
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	189	836.4	24.78	26.00	1.324	-0.04	0.902	1.195
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 1	Headset	Reduced	128	824.2	24.75	26.00	1.334	-0.03	0.997	1.330
	GSM850	GPRS 4 Tx slots	Front	19mm	Ant 1	-	Full	251	848.8	28.90	30.00	1.288	0.14	0.284	0.366
	GSM850	GPRS 4 Tx slots	Back	24mm	Ant 1	-	Full	128	824.2	28.69	30.00	1.352	0.03	0.339	0.458
	GSM850	GPRS 4 Tx slots	Front	5mm	Ant 2	-	Reduced	251	848.8	25.48	26.50	1.265	-0.02	0.488	0.617
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	251	848.8	25.48	26.50	1.265	0.1	0.865	1.094
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	128	824.2	25.46	26.50	1.271	-0.02	0.871	1.107
	GSM850	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	189	836.4	25.39	26.50	1.291	-0.01	0.850	1.098
	GSM850	GPRS 4 Tx slots	Front	19mm	Ant 2	-	Full	251	848.8	27.87	29.00	1.297	0.04	0.202	0.262
	GSM850	GPRS 4 Tx slots	Back	24mm	Ant 2	-	Full	128	824.2	27.86	29.00	1.300	0.11	0.191	0.248
	GSM1900	GPRS 4 Tx slots	Front	5mm	Ant 1	-	Reduced	661	1880	20.35	21.50	1.303	-0.06	0.582	0.758
37	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	661	1880	20.35	21.50	1.303	0.01	1.080	**1.407**
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	512	1850.2	20.21	21.50	1.346	-0.11	0.900	1.211
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	-	Reduced	810	1909.8	20.27	21.50	1.327	-0.06	0.898	1.192
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 1	Headset	Reduced	661	1880	20.35	21.50	1.303	-0.01	0.967	1.260
	GSM1900	GPRS 4 Tx slots	Front	19mm	Ant 1	-	Full	661	1880	26.42	27.50	1.282	0.08	0.490	0.628
	GSM1900	GPRS 4 Tx slots	Back	24mm	Ant 1	-	Full	661	1880	26.42	27.50	1.282	0.11	0.428	0.549
	GSM1900	GPRS 4 Tx slots	Front	5mm	Ant 2	-	Reduced	661	1880	20.10	21.00	1.230	0.05	0.504	0.620
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	661	1880	20.10	21.00	1.230	0.01	0.763	0.939
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	512	1850.2	20.04	21.00	1.247	-0.14	0.867	1.081
	GSM1900	GPRS 4 Tx slots	Back	5mm	Ant 2	-	Reduced	810	1909.8	19.83	21.00	1.309	-0.05	0.772	1.011
	GSM1900	GPRS 4 Tx slots	Front	19mm	Ant 2	-	Full	661	1880	24.17	25.00	1.211	-0.16	0.219	0.265
	GSM1900	GPRS 4 Tx slots	Back	24mm	Ant 2	-	Full	512	1850.2	24.09	25.00	1.233	0.03	0.151	0.186

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	4233	846.6	19.79	21.00	1.321	0.09	0.586	0.774
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4233	846.6	19.79	21.00	1.321	0.07	0.954	1.261
38	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4132	826.4	19.77	21.00	1.327	0.01	1.070	**1.420**
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	4182	836.4	19.74	21.00	1.337	-0.11	0.970	1.296
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	4132	826.4	19.77	21.00	1.327	0.09	0.986	1.309
	WCDMA V	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full	4233	846.6	22.77	24.00	1.327	-0.07	0.276	0.366
	WCDMA V	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	4132	826.4	22.74	24.00	1.337	0.07	0.314	0.420
	WCDMA V	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	4233	846.6	19.87	21.00	1.297	0.06	0.474	0.615
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4233	846.6	19.87	21.00	1.297	0.14	0.850	1.103
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4132	826.4	19.77	21.00	1.327	0.13	0.794	1.054
	WCDMA V	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	4182	836.4	19.81	21.00	1.315	0.06	0.865	1.138
	WCDMA V	RMC 12.2Kbps	Front	19mm	Ant 2	-	Full	4233	846.6	21.74	23.00	1.337	0.04	0.173	0.231
	WCDMA V	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full	4182	836.4	21.73	23.00	1.340	0.06	0.126	0.169
	WCDMA IV	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	1513	1752.6	17.06	18.50	1.393	0.09	0.484	0.674
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1513	1752.6	17.06	18.50	1.393	0.02	0.907	1.264
39	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1312	1712.4	16.93	18.50	1.435	0.12	0.955	**1.371**
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	1413	1732.6	16.99	18.50	1.416	0.03	0.822	1.164
	WCDMA IV	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	1312	1712.4	16.93	18.50	1.435	-0.14	0.940	1.349
	WCDMA IV	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full	1513	1752.6	22.68	24.00	1.355	0.04	0.283	0.384
	WCDMA IV	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	1312	1712.4	22.54	24.00	1.400	0.06	0.363	0.508
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	9262	1852.4	17.43	18.50	1.279	-0.15	0.636	0.814
40	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9262	1852.4	17.43	18.50	1.279	0.09	1.110	**1.420**
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	9400	1880	17.39	18.50	1.291	-0.12	0.621	0.802
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 1	-	Reduced	9538	1907.6	17.38	18.50	1.294	0.15	0.606	0.784
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9400	1880	17.39	18.50	1.291	0.05	0.996	1.286
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	-	Reduced	9538	1907.6	17.38	18.50	1.294	0.01	0.935	1.210
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 1	Headset	Reduced	9262	1852.4	17.43	18.50	1.279	-0.04	1.05	1.343
	WCDMA II	RMC 12.2Kbps	Front	19mm	Ant 1	-	Full	9262	1852.4	22.98	24.00	1.265	-0.11	0.382	0.483
	WCDMA II	RMC 12.2Kbps	Back	24mm	Ant 1	-	Full	9262	1852.4	22.98	24.00	1.265	0.08	0.327	0.414
	WCDMA II	RMC 12.2Kbps	Front	5mm	Ant 2	-	Reduced	9262	1852.4	17.07	18.50	1.390	0.08	0.490	0.681
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9262	1852.4	17.07	18.50	1.390	0.13	0.744	1.034
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9400	1880	17.01	18.50	1.409	0.11	0.758	1.068
	WCDMA II	RMC 12.2Kbps	Back	5mm	Ant 2	-	Reduced	9538	1907.6	16.95	18.50	1.429	0.15	0.755	1.079
	WCDMA II	RMC 12.2Kbps	Front	19mm	Ant 2	-	Full	9262	1852.4	20.94	22.50	1.432	-0.12	0.202	0.289
	WCDMA II	RMC 12.2Kbps	Back	24mm	Ant 2	-	Full	9538	1907.6	20.70	22.50	1.514	-0.12	0.127	0.192

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Headset	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 71	20M	QPSK	1	49	Front	5mm	Ant 1	-	Full	133322	683	22.77	24.00	1.327	-0.08	0.395	0.524
41	LTE Band 71	20M	QPSK	1	49	Back	5mm	Ant 1	-	Full	133322	683	22.77	24.00	1.327	-0.01	0.810	**1.075**
	LTE Band 71	20M	QPSK	50	24	Front	5mm	Ant 1	-	Full	133322	683	21.72	23.00	1.343	-0.17	0.323	0.434
	LTE Band 71	20M	QPSK	50	24	Back	5mm	Ant 1	-	Full	133322	683	21.72	23.00	1.343	-0.04	0.669	0.898
	LTE Band 71	20M	QPSK	100	0	Back	5mm	Ant 1	-	Full	133322	683	21.73	23.00	1.340	0.03	0.662	0.887
	LTE Band 71	20M	QPSK	1	49	Front	5mm	Ant 2	-	Full	133322	683	22.15	23.00	1.216	0.16	0.132	0.161
	LTE Band 71	20M	QPSK	1	49	Back	5mm	Ant 2	-	Full	133322	683	22.15	23.00	1.216	0.11	0.309	0.376
	LTE Band 71	20M	QPSK	50	24	Front	5mm	Ant 2	-	Full	133322	683	21.13	22.00	1.222	0.15	0.108	0.132
	LTE Band 71	20M	QPSK	50	24	Back	5mm	Ant 2	-	Full	133322	683	21.13	22.00	1.222	0.14	0.242	0.296
	LTE Band 12	10M	QPSK	1	25	Front	5mm	Ant 1	-	Full	23095	707.5	22.49	24.00	1.416	0.19	0.535	0.757
	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 1	-	Full	23095	707.5	22.49	24.00	1.416	-0.05	0.918	1.300
42	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 1	Headset	Full	23095	707.5	22.49	24.00	1.416	-0.08	1.020	**1.444**
	LTE Band 12	10M	QPSK	25	12	Front	5mm	Ant 1	-	Full	23095	707.5	21.45	23.00	1.429	0.03	0.438	0.626
	LTE Band 12	10M	QPSK	25	12	Back	5mm	Ant 1	-	Full	23095	707.5	21.45	23.00	1.429	-0.09	0.849	1.213
	LTE Band 12	10M	QPSK	50	0	Back	5mm	Ant 1	-	Full	23095	707.5	21.39	23.00	1.449	0.13	0.833	1.207
	LTE Band 12	10M	QPSK	1	25	Front	5mm	Ant 2	-	Full	23095	707.5	21.94	23.00	1.276	0.03	0.237	0.303
	LTE Band 12	10M	QPSK	1	25	Back	5mm	Ant 2	-	Full	23095	707.5	21.94	23.00	1.276	-0.09	0.567	0.724
	LTE Band 12	10M	QPSK	25	12	Front	5mm	Ant 2	-	Full	23095	707.5	20.91	22.00	1.285	0.19	0.193	0.248
	LTE Band 12	10M	QPSK	25	12	Back	5mm	Ant 2	-	Full	23095	707.5	20.91	22.00	1.285	-0.12	0.433	0.557
	LTE Band 13	10M	QPSK	1	25	Front	5mm	Ant 1	-	Reduced	23230	782	21.75	23.00	1.334	0.01	0.639	0.852
43	LTE Band 13	10M	QPSK	1	25	Back	5mm	Ant 1	-	Reduced	23230	782	21.75	23.00	1.334	-0.02	1.050	**1.400**
	LTE Band 13	10M	QPSK	1	25	Back	5mm	Ant 1	Headset	Reduced	23230	782	21.75	23.00	1.334	0.04	1.030	1.374
	LTE Band 13	10M	QPSK	1	25	Front	19mm	Ant 1	-	Full	23230	782	22.81	24.00	1.315	0.19	0.219	0.288
	LTE Band 13	10M	QPSK	1	25	Back	24mm	Ant 1	-	Full	23230	782	22.81	24.00	1.315	-0.12	0.232	0.305
	LTE Band 13	10M	QPSK	25	12	Front	5mm	Ant 1	-	Reduced	23230	782	20.72	22.00	1.343	0.03	0.513	0.689
	LTE Band 13	10M	QPSK	25	12	Back	5mm	Ant 1	-	Reduced	23230	782	20.72	22.00	1.343	-0.1	0.939	1.261
	LTE Band 13	10M	QPSK	50	0	Front	5mm	Ant 1	-	Reduced	23230	782	20.71	22.00	1.346	-0.18	0.512	0.689
	LTE Band 13	10M	QPSK	50	0	Back	5mm	Ant 1	-	Reduced	23230	782	20.71	22.00	1.346	0.19	0.932	1.254
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 1	-	Reduced	26865	831.5	20.22	21.50	1.343	0.11	0.661	0.888
44	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	-	Reduced	26865	831.5	20.22	21.50	1.343	-0.03	1.040	**1.396**
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 1	Headset	Reduced	26865	831.5	20.22	21.50	1.343	0.06	1.030	1.383
	LTE Band 26	15M	QPSK	1	37	Front	19mm	Ant 1	-	Full	26865	831.5	22.76	24.00	1.330	-0.12	0.213	0.283
	LTE Band 26	15M	QPSK	1	37	Back	24mm	Ant 1	-	Full	26865	831.5	22.76	24.00	1.330	0.19	0.196	0.261
	LTE Band 26	15M	QPSK	36	20	Front	5mm	Ant 1	-	Reduced	26865	831.5	19.23	20.50	1.340	0.02	0.483	0.647
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 1	-	Reduced	26865	831.5	19.23	20.50	1.340	0.04	0.780	1.045
	LTE Band 26	15M	QPSK	75	0	Front	5mm	Ant 1	-	Reduced	26865	831.5	19.17	20.50	1.358	0.06	0.482	0.655
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Ant 1	-	Reduced	26865	831.5	19.17	20.50	1.358	-0.14	0.776	1.054
	LTE Band 26	15M	QPSK	1	37	Front	5mm	Ant 2	-	Reduced	26865	831.5	19.57	20.50	1.239	0.03	0.360	0.446
	LTE Band 26	15M	QPSK	1	37	Back	5mm	Ant 2	-	Reduced	26865	831.5	19.57	20.50	1.239	-0.14	0.860	1.065
	LTE Band 26	15M	QPSK	1	37	Front	19mm	Ant 2	-	Full	26865	831.5	22.01	23.00	1.256	0.03	0.120	0.151
	LTE Band 26	15M	QPSK	1	37	Back	24mm	Ant 2	-	Full	26865	831.5	22.01	23.00	1.256	0.03	0.103	0.129
	LTE Band 26	15M	QPSK	36	20	Front	5mm	Ant 2	-	Reduced	26865	831.5	18.52	19.50	1.253	-0.05	0.283	0.355
	LTE Band 26	15M	QPSK	36	20	Back	5mm	Ant 2	-	Reduced	26865	831.5	18.52	19.50	1.253	0.14	0.608	0.762
	LTE Band 26	15M	QPSK	75	0	Back	5mm	Ant 2	-	Reduced	26865	831.5	18.39	19.50	1.291	0.04	0.594	0.767
	LTE Band 66	20M	QPSK	1	49	Front	5mm	Ant 1	-	Reduced	132572	1770	17.54	19.00	1.400	0.02	0.431	0.603
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	132572	1770	17.54	19.00	1.400	0.1	0.929	1.300
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	132072	1720	17.32	19.00	1.472	0.05	0.960	1.413
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	132322	1745	17.34	19.00	1.466	-0.16	0.932	1.366
45	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Headset	Reduced	132072	1720	17.32	19.00	1.472	-0.01	0.966	**1.422**
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Headset	Reduced	132322	1745	17.34	19.00	1.466	-0.11	0.962	1.410
	LTE Band 66	20M	QPSK	1	49	Back	5mm	Ant 1	Headset	Reduced	132572	1770	17.54	19.00	1.400	0.1	0.960	1.344

	LTE Band 66	20M	QPSK	1	49	Front	19mm	Ant 1	-	Full	132572	1770	22.50	24.00	1.413	0.1	0.303	0.428
	LTE Band 66	20M	QPSK	1	49	Back	24mm	Ant 1	Headset	Full	132072	1720	22.37	24.00	1.455	0.03	0.307	0.447
	LTE Band 66	20M	QPSK	50	24	Front	5mm	Ant 1	-	Reduced	132572	1770	16.54	18.00	1.400	0.17	0.342	0.479
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132572	1770	16.54	18.00	1.400	-0.05	0.875	1.225
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132072	1720	16.21	18.00	1.510	0.12	0.842	1.271
	LTE Band 66	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	132322	1745	16.47	18.00	1.422	0.13	0.845	1.202
	LTE Band 66	20M	QPSK	100	0	Back	5mm	Ant 1	-	Reduced	132572	1770	16.41	18.00	1.442	0.02	0.768	1.108
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	-	Reduced	26140	1860	17.78	19.00	1.324	-0.13	0.648	0.858
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	26140	1860	17.78	19.00	1.324	-0.05	0.972	1.287
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	-	Reduced	26340	1880	17.68	19.00	1.355	0.05	0.623	0.844
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 1	-	Reduced	26590	1905	17.72	19.00	1.343	0.15	0.601	0.807
46	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	26340	1880	17.68	19.00	1.355	-0.09	1.010	**1.369**
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	26590	1905	17.72	19.00	1.343	-0.16	0.924	1.241
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 1	Headset	Reduced	26340	1880	17.68	19.00	1.355	0.07	0.947	1.283
	LTE Band 25	20M	QPSK	1	49	Front	19mm	Ant 1	-	Full	26140	1860	22.78	24.00	1.324	-0.16	0.342	0.453
	LTE Band 25	20M	QPSK	1	49	Back	24mm	Ant 1	-	Full	26340	1880	22.66	24.00	1.361	-0.18	0.353	0.481
	LTE Band 25	20M	QPSK	50	24	Front	5mm	Ant 1	-	Reduced	26140	1860	16.72	18.00	1.343	-0.17	0.516	0.693
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	26140	1860	16.72	18.00	1.343	0.13	0.829	1.113
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	26340	1880	16.68	18.00	1.355	-0.18	0.792	1.074
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	26590	1905	16.67	18.00	1.358	0.04	0.771	1.047
	LTE Band 25	20M	QPSK	100	0	Front	5mm	Ant 1	-	Reduced	26140	1860	16.72	18.00	1.343	0.12	0.512	0.687
	LTE Band 25	20M	QPSK	100	0	Back	5mm	Ant 1	-	Reduced	26140	1860	16.72	18.00	1.343	0.1	0.834	1.120
	LTE Band 25	20M	QPSK	1	49	Front	5mm	Ant 2	-	Reduced	26140	1860	18.21	19.00	1.199	0.13	0.515	0.618
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	26140	1860	18.21	19.00	1.199	-0.19	0.952	1.142
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	26340	1880	18.13	19.00	1.222	-0.03	0.849	1.037
	LTE Band 25	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	26590	1905	17.85	19.00	1.303	0.08	0.869	1.132
	LTE Band 25	20M	QPSK	1	49	Front	19mm	Ant 2	-	Full	26140	1860	21.14	22.00	1.219	-0.05	0.164	0.200
	LTE Band 25	20M	QPSK	1	49	Back	24mm	Ant 2	-	Full	26140	1860	21.14	22.00	1.219	0.08	0.172	0.210
	LTE Band 25	20M	QPSK	50	24	Front	5mm	Ant 2	-	Reduced	26140	1860	17.06	18.00	1.242	-0.06	0.406	0.504
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	26140	1860	17.06	18.00	1.242	-0.08	0.709	0.880
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	26340	1880	17.01	18.00	1.256	-0.08	0.758	0.952
	LTE Band 25	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	26590	1905	16.97	18.00	1.268	-0.08	0.774	0.981
	LTE Band 25	20M	QPSK	100	0	Back	5mm	Ant 2	-	Reduced	26140	1860	17.00	18.00	1.259	-0.16	0.703	0.885
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 1	-	Reduced	21100	2535	15.96	17.00	1.271	-0.11	0.351	0.446
47	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	21100	2535	15.96	17.00	1.271	-0.01	1.040	**1.321**
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	20850	2510	15.84	17.00	1.306	-0.11	1.010	1.319
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	-	Reduced	21350	2560	15.95	17.00	1.274	0.18	1.020	1.299
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 1	Headset	Reduced	21100	2535	15.96	17.00	1.271	-0.16	1.020	1.296
	LTE Band 7	20M	QPSK	1	49	Front	19mm	Ant 1	-	Full	21100	2535	22.85	24.00	1.303	-0.02	0.403	0.525
	LTE Band 7	20M	QPSK	1	49	Back	24mm	Ant 1	-	Full	21100	2535	22.85	24.00	1.303	0.02	0.597	0.778
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 1	-	Reduced	21100	2535	14.89	16.00	1.291	-0.14	0.269	0.347
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	21100	2535	14.89	16.00	1.291	0.05	0.706	0.912
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	20850	2510	14.79	16.00	1.321	-0.07	0.638	0.843
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 1	-	Reduced	21350	2560	14.83	16.00	1.309	-0.02	0.655	0.858
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Ant 1	-	Reduced	21100	2535	14.87	16.00	1.297	-0.19	0.701	0.909
	LTE Band 7	20M	QPSK	1	49	Front	5mm	Ant 2	-	Reduced	21100	2535	13.13	14.00	1.222	-0.16	0.259	0.316
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	21100	2535	13.13	14.00	1.222	-0.06	0.851	1.040
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	20850	2510	12.96	14.00	1.271	-0.05	0.898	1.141
	LTE Band 7	20M	QPSK	1	49	Back	5mm	Ant 2	-	Reduced	21350	2560	13.01	14.00	1.256	0.18	0.770	0.967
	LTE Band 7	20M	QPSK	1	49	Front	19mm	Ant 2	-	Full	21100	2535	21.16	22.00	1.213	0.06	0.294	0.357
	LTE Band 7	20M	QPSK	1	49	Back	24mm	Ant 2	-	Full	20850	2510	20.91	22.00	1.285	-0.06	0.413	0.531
	LTE Band 7	20M	QPSK	50	24	Front	5mm	Ant 2	-	Reduced	21100	2535	12.03	13.00	1.250	0.07	0.202	0.253
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	21100	2535	12.03	13.00	1.250	-0.09	0.641	0.801
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	20850	2510	11.86	13.00	1.300	0.12	0.735	0.956
	LTE Band 7	20M	QPSK	50	24	Back	5mm	Ant 2	-	Reduced	21350	2560	11.96	13.00	1.271	-0.06	0.637	0.809
	LTE Band 7	20M	QPSK	100	0	Back	5mm	Ant 2	-	Reduced	21100	2535	12.01	13.00	1.256	0.11	0.638	0.801