FCC SAR Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2075-1
FCC ID	:	IHDT56ZC1
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

The product was received on May 27, 2020 and testing was started from Jul. 10, 2020 and completed on Jul. 26, 2020. We, Sporton International (Kunshan) Inc, would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

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

Rose Wang

Reviewed by: Rose Wang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager

ACCREDITED Cert #5145.02

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

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA051103-01	Rev. 01	Initial issue of report	Aug. 11, 2020

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2075-1,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body-worn (Separation 5mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.18	0.91	0.91	1.37
		GSM1900	0.03	0.92	0.80	
	WCDMA	Band II	0.10	0.74	0.57	
		Band V	0.34	0.78	0.80	
	LTE	Band 2	0.83	0.79	0.57	
		Band 5	0.74	0.82	0.82	
		Band 12/ Band 17	0.25	0.67	0.56	
		Band 13	0.28	0.76	0.77	
		Band 7	0.11	0.84	0.50	
		Band 66/Band 4	0.76	0.80	0.50	
	5G NR	n2	**0.98**	1.05	0.77	
		n5	0.79	0.74	0.74	
		n66	**0.98**	1.03	0.71	
DTS	WLAN	2.4GHz WLAN	0.97	1.05	1.05	1.37
NII		5GHz WLAN	0.13	**1.16**	**1.16**	1.30
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	0.18	0.18	1.23

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	GSM	GSM1900	2.41	3.49
	WCDMA	Band II	2.00	
	LTE	Band 2	1.92	
		Band 7	1.80	
		Band 66/Band 4	1.99	
	5G NR	n2	2.80	
		n66	2.77	
DTS	WLAN	2.4GHz WLAN	0.90	3.39
NII		5GHz WLAN	**3.21**	3.49
Date of Testing:			2020/7/10~2020/7/26	
Remark: This device supports LTE B4 / B17 and B66 / B12. Since the supported frequency span for LTE B4 / B17 falls completely within the supports frequency span for LTE B66 / B12, 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 / B12.				

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

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

2. Administration Data

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

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

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

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

3. Guidance Applied

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

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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2075-1
FCC ID	IHDT56ZC1
IMEI Code	353614110011278
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz 5G NR n2 : 1852.5 MHz ~ 1907.5 MHz 5G NR n5 : 826.5 MHz ~ 846.5 MHz 5G NR n66 : 1712.5 MHz ~ 1777.5 MHz 5G NR n260: 37000 MHz ~ 40000MHz 5G NR n261: 27500 MHz ~ 28350MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	DVT2
SW Version	QPN30.37
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. 802.11n-HT40 is not supported in 2.4GHz WLAN.
2. 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 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).

5. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 12.
6. The device implements the power management and sensor detection for SAR compliance at different exposure conditions (head, body-worn, hotspot/extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description.
7. For WLAN when transmit simultaneous with WWAN LAT or UAT, power reduction will be activated to head / hotspot / body-worn / extremity.
8. The 2.4GHz/5GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.
9. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the WCDMA, LTE and 5GNR modes. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing. The detail descriptions of the antenna tuner and supplemental data for additional information on section16.
10. This device supports 5GNR FR1 bands as following table.
11. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
12. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
13. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary
14. This device supports 5GNR FR1 bands as following table,5GNR FR2 described at another SAR test report part0.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20
	n5	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20

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>IHDT56ZC1</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: 1850.7 MHz ~ 1909.3 MHz
LTE Band 4: 1710.7 MHz ~ 1754.3 MHz
LTE Band 5: 824.7 MHz ~ 848.3 MHz
LTE Band 7: 2502.5 MHz ~ 2567.5 MHz
LTE Band 12: 699.7 MHz ~ 715.3 MHz
LTE Band 13: 779.5 MHz ~ 784.5 MHz
LTE Band 17: 706.5 MHz ~ 713.5 MHz
LTE Band 66: 1710.7 MHz ~ 1779.3 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 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R15, Cat12</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
The device has several different power modes for body-worn, hotspot/extremity conditions SAR compliance; power selection is determined by the device's positioning and usage scenarios.</td></tr>
<tr><td>LTE Carrier Aggregation Combinations</td><td>Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 14.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>1. This device supports LTE Carrier Aggregation (CA) in the uplink for Inter band and Intra band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance.
2. This device supports maximum of 4 carriers in the downlink. 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 66												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1852.5 MHz ~ 1907.5 MHz 5G NR n5 : 826.5 MHz ~ 846.5 MHz 5G NR n66 : 1712.5 MHz ~ 1777.5 MHz
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz
SCS	FDD: SCS15KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
L TE Anchor Bands for n2 Top Ant.	LTE B13/5/66
L TE Anchor Bands for n2 Bottom Ant.	LTE B5
LTE Anchor Bands for n5 Top/Bottom Ant.	LTE B66/2
LTE Anchor Bands for n66 Top Ant.	LTE B2/5/13
LTE Anchor Bands for n66 Bottom Ant.	LTE B5

Transmission (H, M, L) channel numbers and frequencies in each 5G NR band

NR Band 2

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900

NR Band 5

	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 66

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

5. Smart Transmit feature for RF Exposure compliance

WWAN bands and mmWave are all enabled with Qualcomm Smart Transmit feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time.
Note that WLAN operations are not enabled with Smart Transmit.

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

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

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

<Terminologies in this report>

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

<SAR Characterization>

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

<SAR design target and uncertainty>

The detail SAR design target relate to each exposure conditions pls refer to operation description

	Uncertainty dB (k=2)
Total uncertainty	1.5

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

$$SAR\_design\_target < SAR_{regulatory\_limit} \times 10^{\frac{-total\ uncertainty}{10}}$$

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target or PD_design_target, below the predefined time-averaged power limit (i.e., input.power.limit for 5G mmW NR), for each characterized technology and band (refer to RF exposure part0 report).

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

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

Band	Antenna	Head DSI 2	Body Worn sensor on (Front/Back) / Hotspot on DSI 3	Extremity sensor on DSI 6	Sensor Off DSI 4	Pmax*
GSM850**	1	25.50	23.30	27.50	32.50	24.00
GSM1900 **	1	35.90	17.10	21.40	28.30	21.24
WCDMA II	1	32.20	15.30	19.20	25.50	23.00
WCDMA V	1	26.90	23.30	23.60	43.00	23.00
LTE Band 2	1	31.50	14.90	19.30	25.20	23.00
LTE Band 2	2	13.3	14.80	19.50	23.80	22.00
LTE Band 66/4	1	30.90	15.10	19.50	25.80	23.00
LTE Band 66/4	2	13.9	15.50	19.00	26.10	22.00
LTE Band 5	1	28.30	22.70	23.20	31.60	23.00
LTE Band 5	2	23.0	25.20	26.30	42.50	22.50
LTE Band 7	1	31.90	13.20	18.50	25.30	23.00
LTE Band 12/17	1	28.20	24.00	24.70	43.00	23.00
LTE Band 13	1	27.70	23.40	24.60	43.00	23.00
5G FR1 n2	1	35.10	16.80	21.30	27.30	23.00
5G FR1 n2	2	14.50	15.00	20.00	25.50	23.00
5G FR1 n5	1	30.90	24.60	27.40	43.00	23.00
5G FR1 n5	2	24.00	25.60	28.20	43.00	23.00
5G FR1 n66	1	35.40	18.00	21.80	28.50	23.00
5G FR1 n66	2	15.50	16.00	20.00	24.70	23.00

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1dB uncertainty.

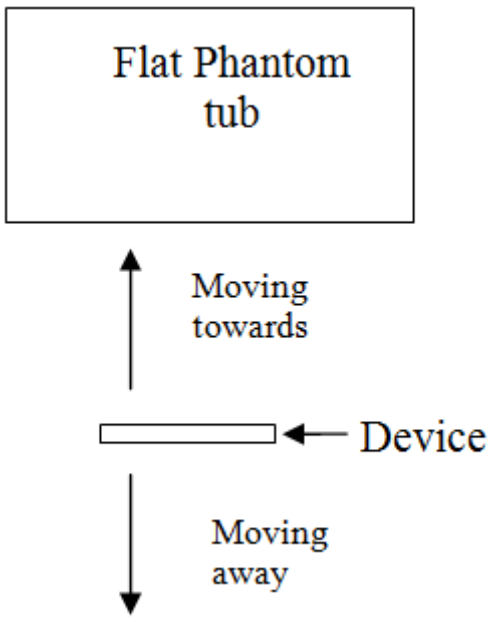
**All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & NR TDD).

The max allowed output power is the P_{limit} + 1dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

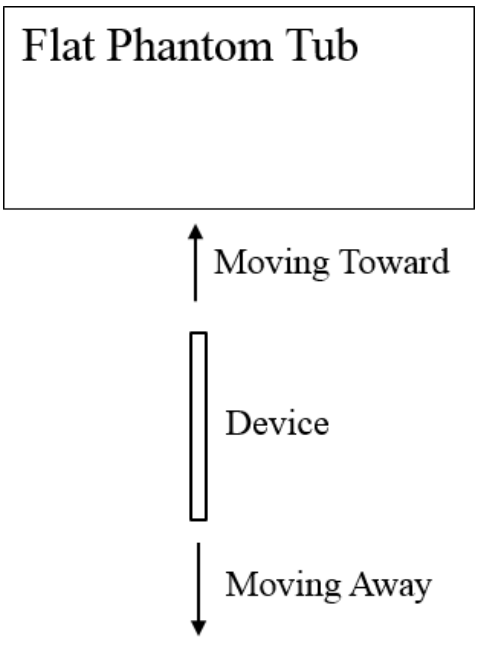
6. Proximity Sensor Triggering Test

6.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5825MHz) and lowest (850MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensor placed coincident with antenna elements at the bottom end of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back or bottom or top side surface of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
3. When the proximity sensor is active, GSM850/1900, WCDMA BII, LTE band 2 / 4 / 5 (Ant 1) / 7 / 66, 5GNR n2 / n66 and WLAN2.4G / 5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz reduced power will be active for front/ back body worn SAR.
4. P-sensor can detect handheld state, WCDMA BII, LTE band 2/4/7/66 and 5GNR n2 / n66 for front/back/bottom/top sides of product specific 10g SAR condition reduced powers will be active for handheld SAR.
5. The proximity sensors used to detect the proximity of the user's body at the front or back or bottom or top side surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s).
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:
   Front: 19 mm
   Back: 25 mm
7. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for handheld:
   Front: 5 mm
   Back: 9 mm
   Bottom side: 10 mm
   Top Side: 10 mm



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



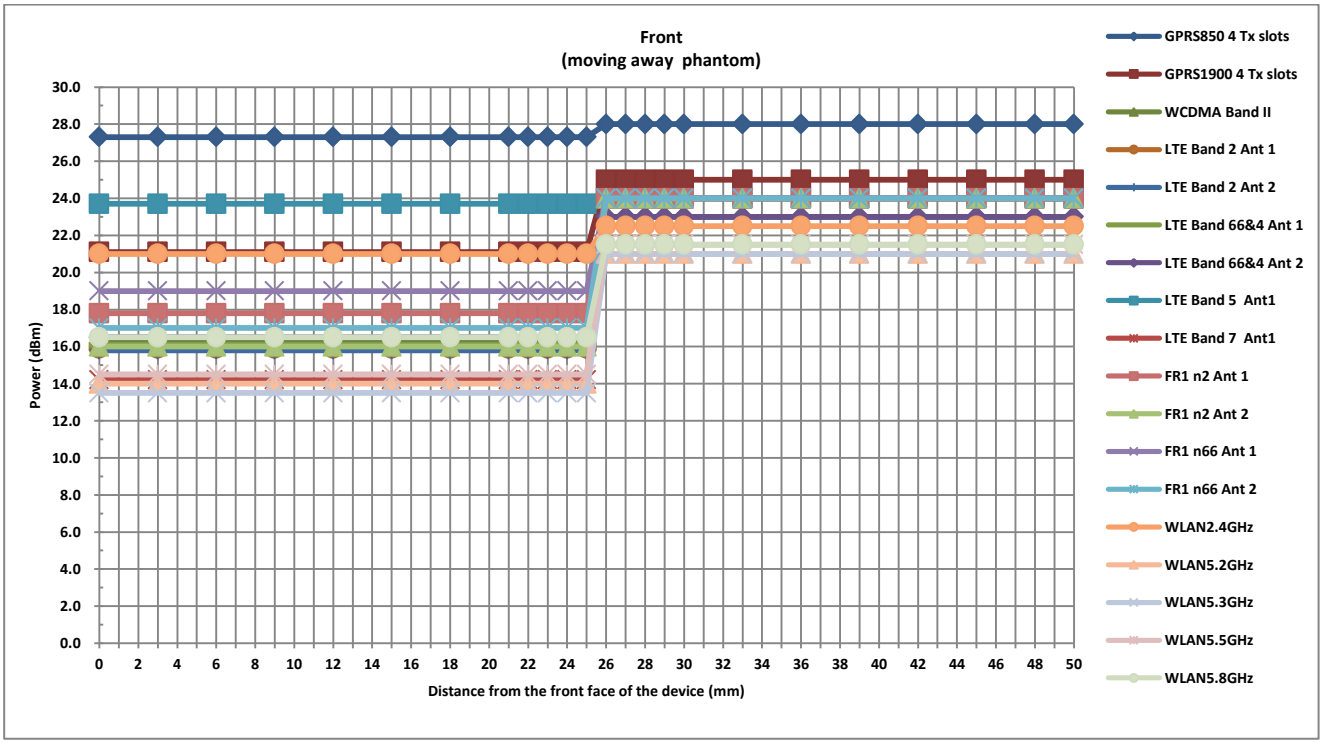
handheld detection test set-up, bottom side and top side

<P-Sensor>

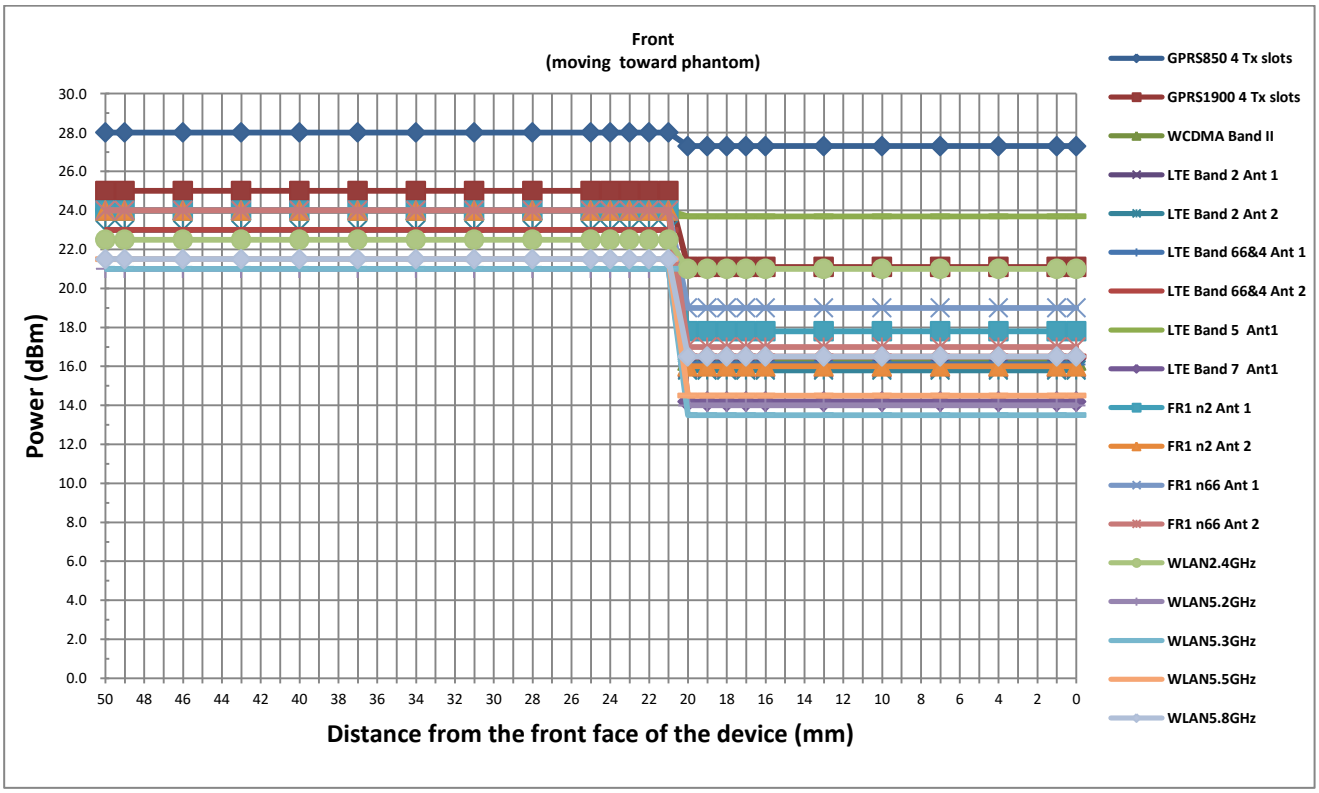
Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving away	Moving towards	Moving away	Moving towards
Minimum	25	20	31	26

TX. Band	Proximity Sensor Triggering Power (dBm)		
	Full	Reduced	power reduction (dB)
	max. tune up limit (dBm)	max. tune up limit(dBm)	
GPRS850 4 Tx slots	28.00	27.30	0.70
GPRS1900 4 Tx slots	25.00	21.10	3.90
WCDMA Band II	24.00	16.30	7.70
LTE Band 2 Ant 1	24.00	15.90	8.10
LTE Band 2 Ant 2	23.00	15.80	7.20
LTE Band 66&4 Ant 1	24.00	16.10	7.90
LTE Band 66&4 Ant 2	23.00	16.50	6.50
LTE Band 5 Ant 1	24.00	23.70	0.30
LTE Band 7 Ant 1	24.00	14.20	9.80
FR1 n2 Ant 1	24.00	17.80	6.20
FR1 n2 Ant 2	24.00	16.00	8.00
FR1 n66 Ant 1	24.00	19.00	5.00
FR1 n66 Ant 2	24.00	17.00	7.00
WLAN2.4GHz	22.50	21.00	1.50
WLAN5.2GHz	21.00	14.00	7.00
WLAN5.3GHz	21.00	13.50	7.50
WLAN5.5GHz	21.50	14.50	7.00
WLAN5.8GHz	21.50	16.50	5.00

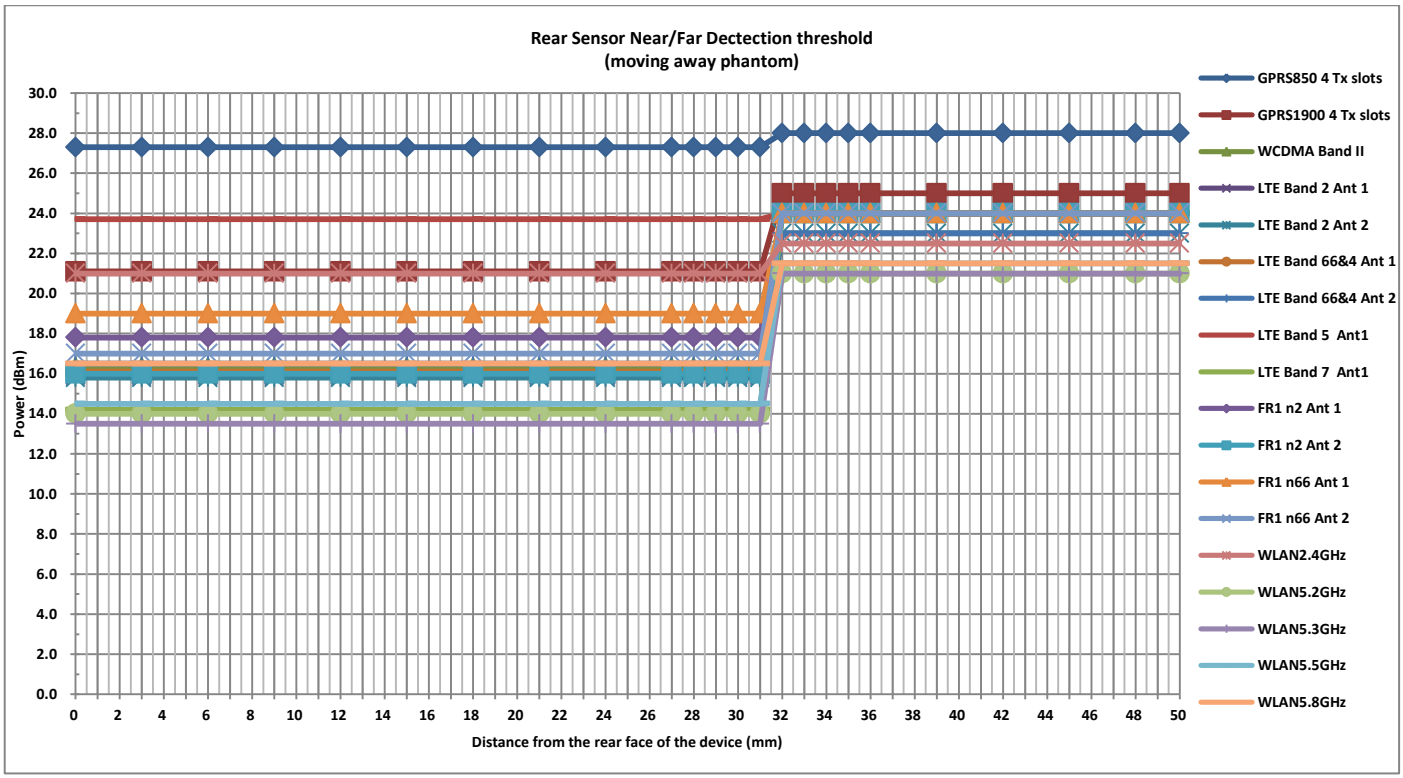
Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																								
Front																								
Distance	50	48	45	42	39	36	33	30	29	28	27	26	25	24	23	22	21	18	15	12	9	6	3	0
GPRS850 4 Tx slots	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30
GPRS1900 4 Tx slots	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90
LTE Band 2 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10
LTE Band 66&4 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
LTE Band 5 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80
FR1 n2 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
FR1 n66 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
WLAN2.4GHz	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
WLAN5.2GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
WLAN5.3GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
WLAN5.5GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
WLAN5.8GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50



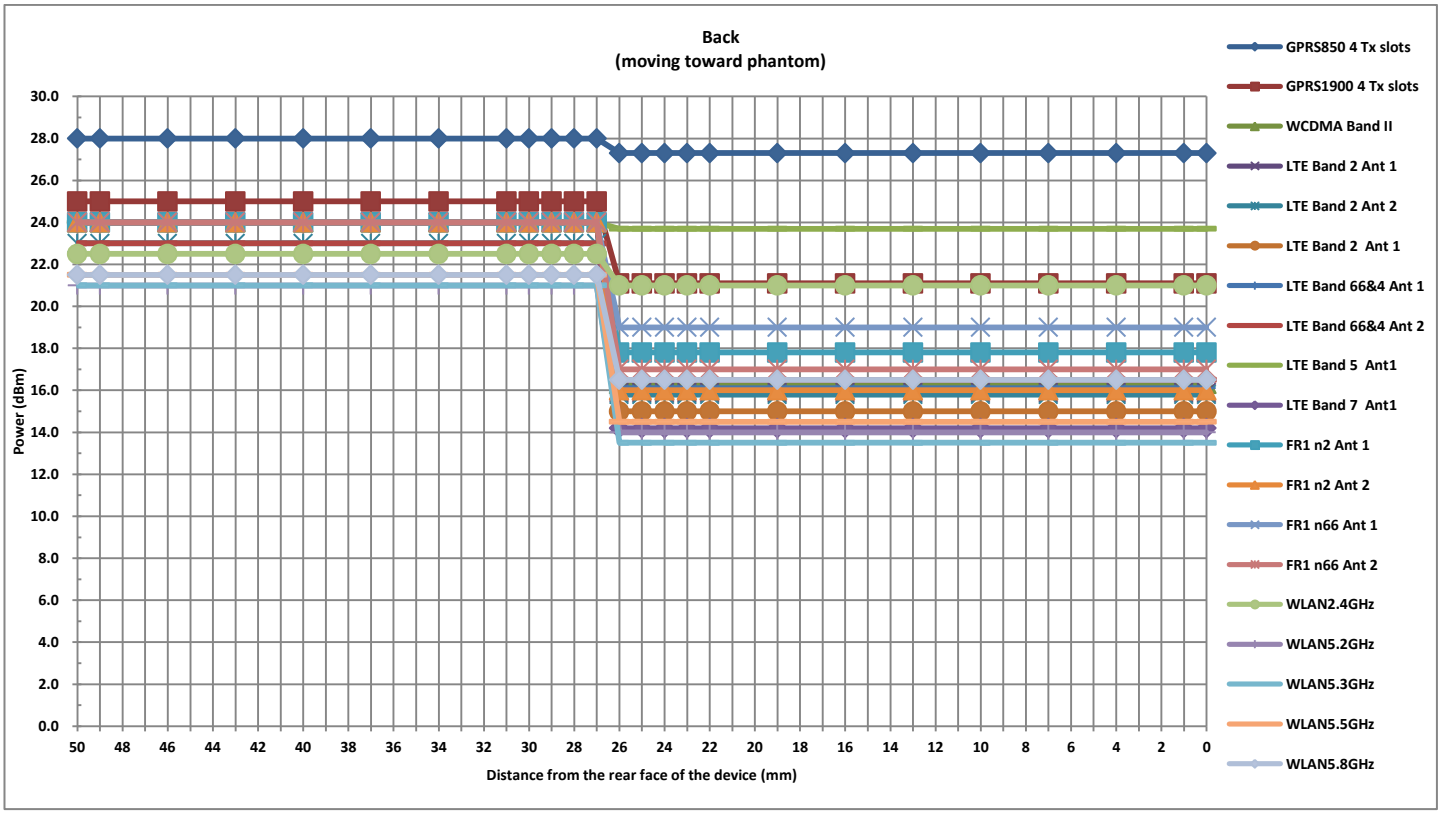
Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																									
Front																									
Distance	50	49	46	43	40	37	34	31	28	25	24	23	22	21	20	19	18	16	15	13	10	7	4	1	0
GPRS850 4 Tx slots	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30
GPRS1900 4 Tx slots	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90
LTE Band 2 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10
LTE Band 66&4 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
LTE Band 5 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80
FR1 n2 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
FR1 n66 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
WLAN2.4GHz	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
WLAN5.2GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
WLAN5.3GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
WLAN5.5GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
WLAN5.8GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50



Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																								
Back																								
Distance	50	48	45	42	39	36	35	34	33	32	31	30	29	28	27	24	21	18	15	12	9	6	3	0
GPRS850 4 Tx slots	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30
GPRS1900 4 Tx slots	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90
LTE Band 2 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10
LTE Band 66&4 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
LTE Band 5 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80
FR1 n2 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
FR1 n66 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
WLAN2.4GHz	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
WLAN5.2GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
WLAN5.3GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
WLAN5.5GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
WLAN5.8GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50



Proximity Sensor Triggering Distance (mm) and Triggering Power (dBm)																									
Back																									
Distance	50	49	46	43	40	37	34	31	30	29	28	27	26	25	24	23	22	19	16	13	10	7	4	1	0
GPRS850 4 Tx slots	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30	27.30
GPRS1900 4 Tx slots	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10	21.10
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30	16.30
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90	15.90
LTE Band 2 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80	15.80
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10	16.10
LTE Band 66&4 Ant 2	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50
LTE Band 5 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70	23.70
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80	17.80
FR1 n2 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00	19.00
FR1 n66 Ant 2	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00	17.00
WLAN2.4GHz	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00
WLAN5.2GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
WLAN5.3GHz	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
WLAN5.5GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
WLAN5.8GHz	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	21.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50

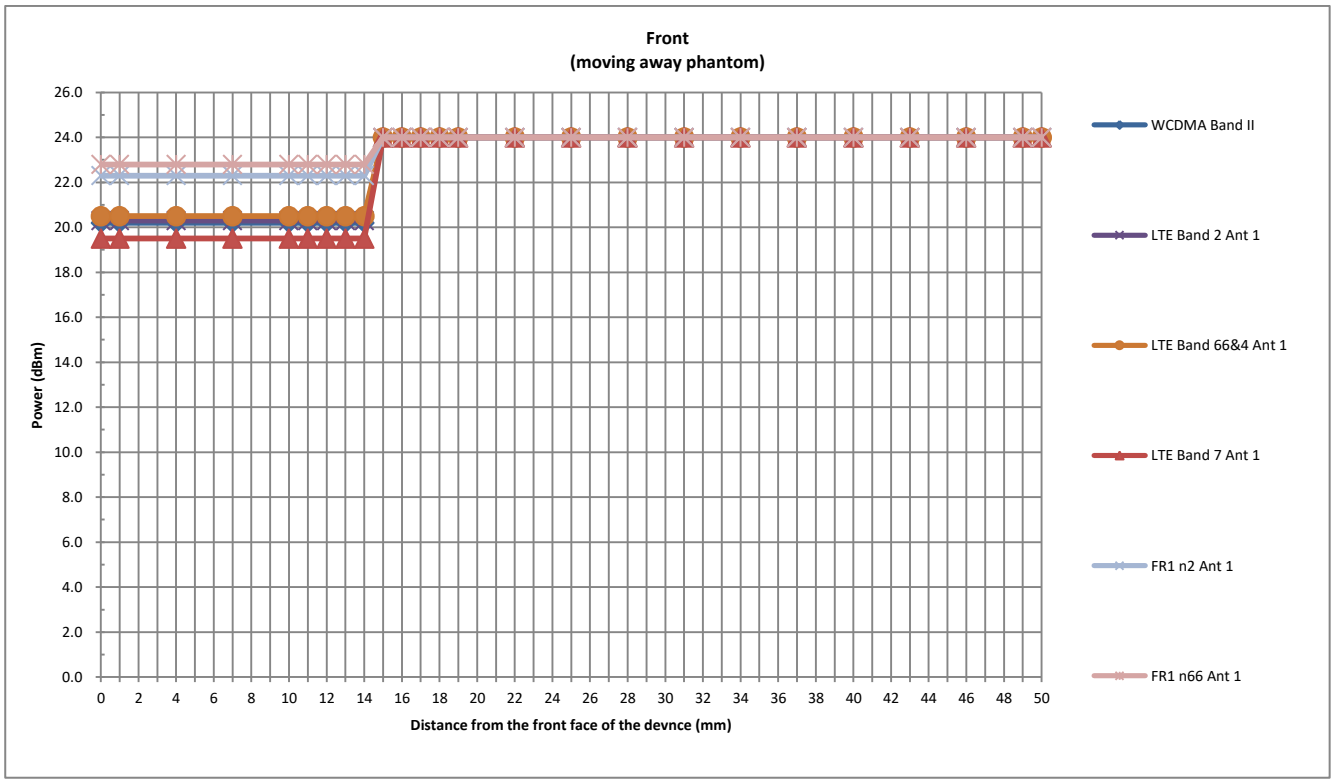


<Handheld-Ant 1>

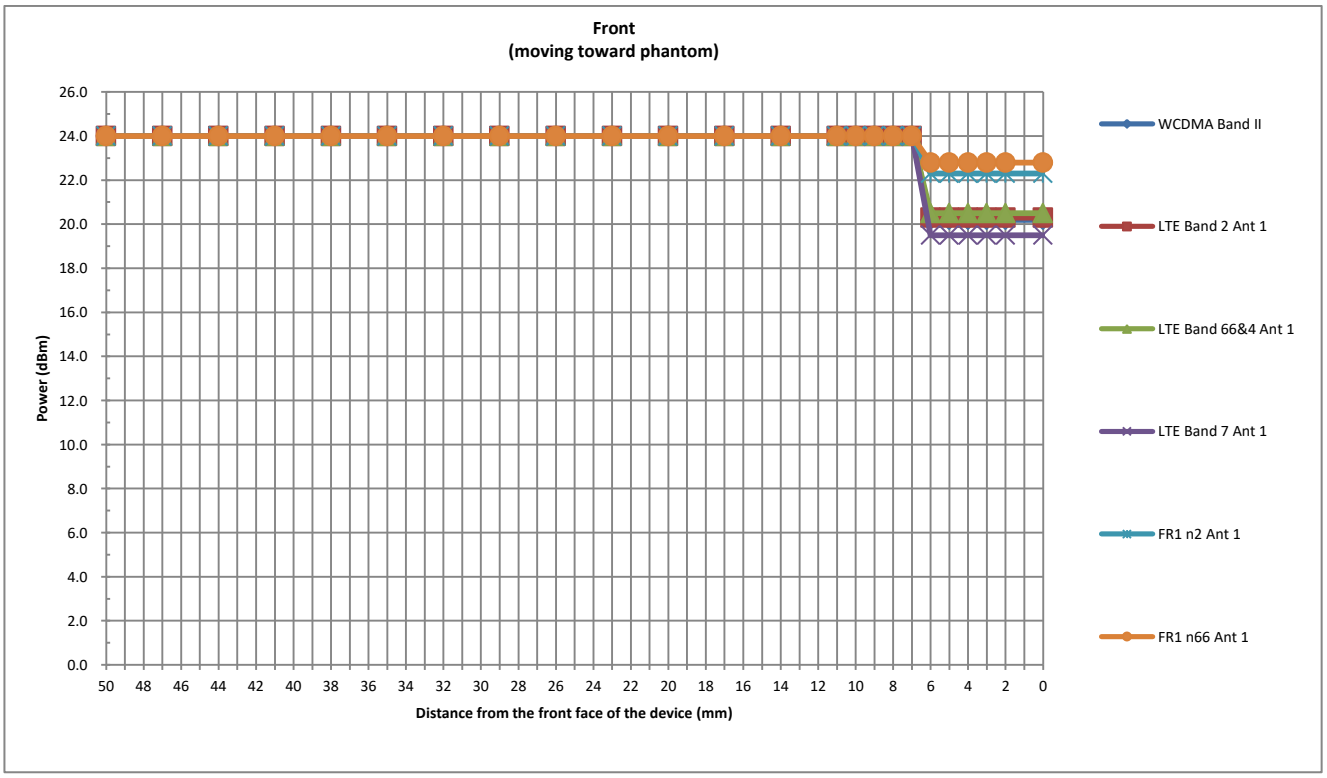
Position	Front		Back		Bottom Side	
	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards
Minimum	14	6	18	12	18	11

TX. Band	Handheld Triggering Power (dBm)		
	Full	Reduced	power reduction (dB)
	max. tune up limit (dBm)	max. tune up limit(dBm)	
WCDMA Band II	24.00	20.20	3.80
LTE Band 2 Ant 1	24.00	20.30	3.70
LTE Band 66&4 Ant 1	24.00	20.50	3.50
LTE Band 7 Ant 1	24.00	19.50	4.50
FR1 n2 Ant 1	24.00	22.30	1.70
FR1 n66 Ant 1	24.00	22.80	1.20

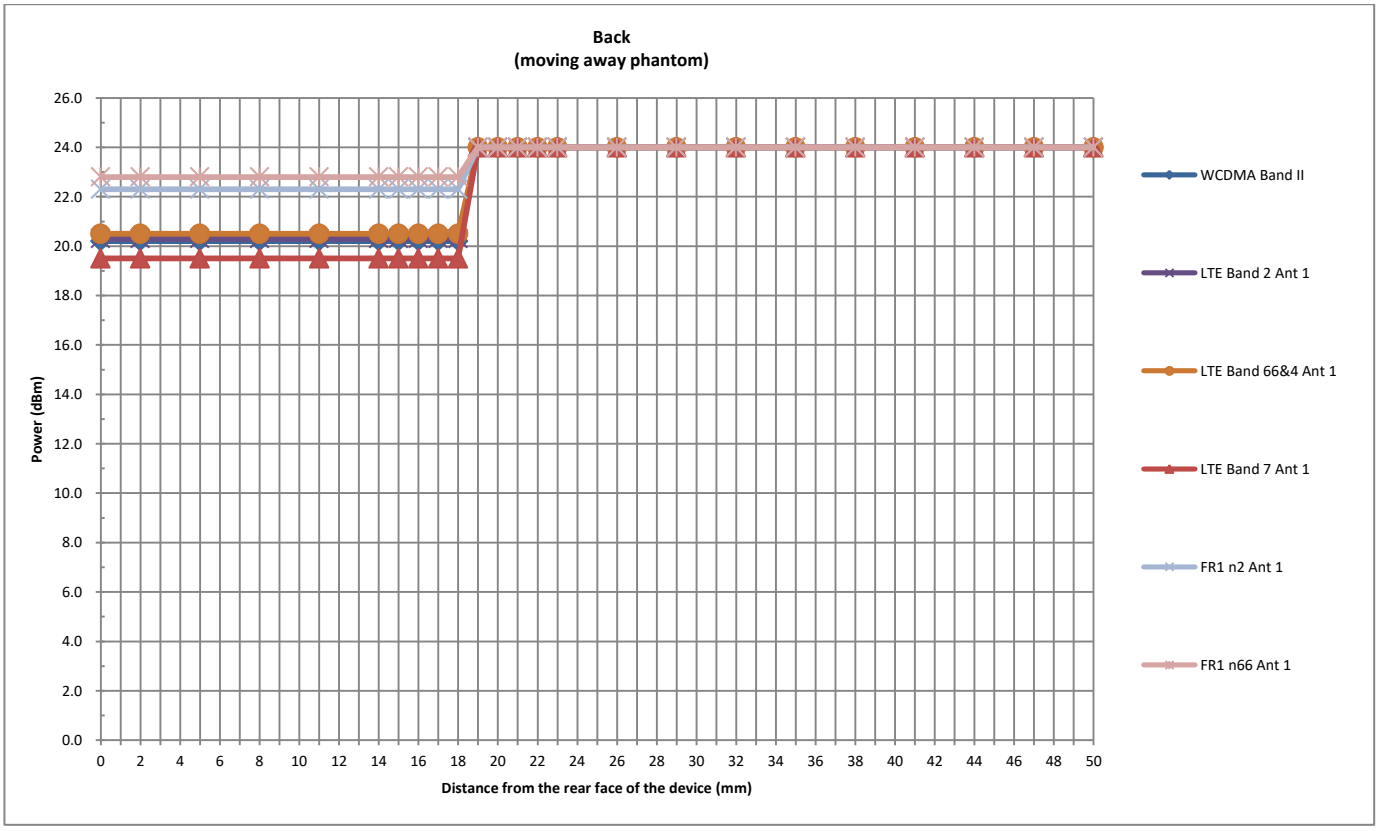
Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Front																								
Distance	50	48	45	42	39	36	33	30	27	24	21	18	15	12	11	14	13	12	11	10	7	4	1	0
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80



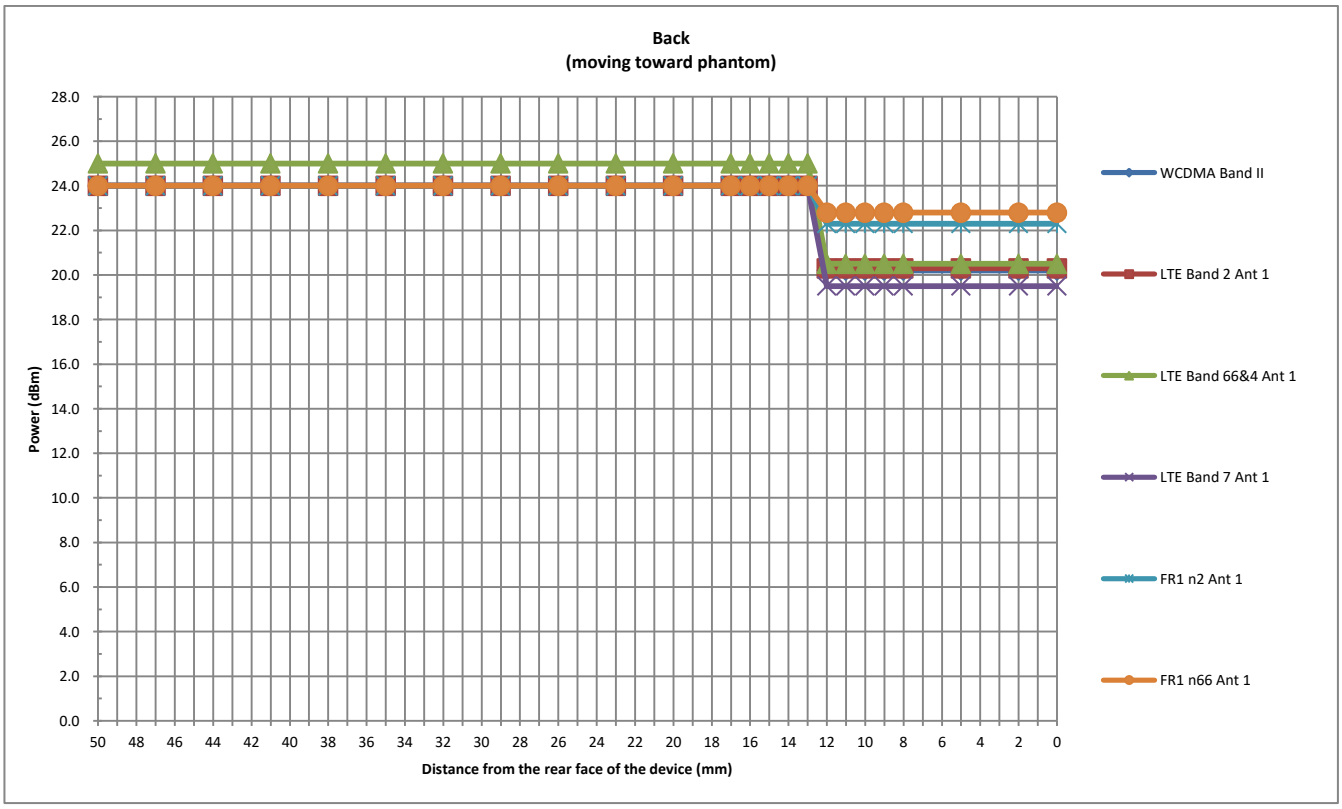
Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Front																								
Distance	50	47	44	41	38	35	32	29	26	23	20	17	14	11	10	9	8	7	6	5	4	3	2	0
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.80	22.80	22.80	22.80	22.80	22.80



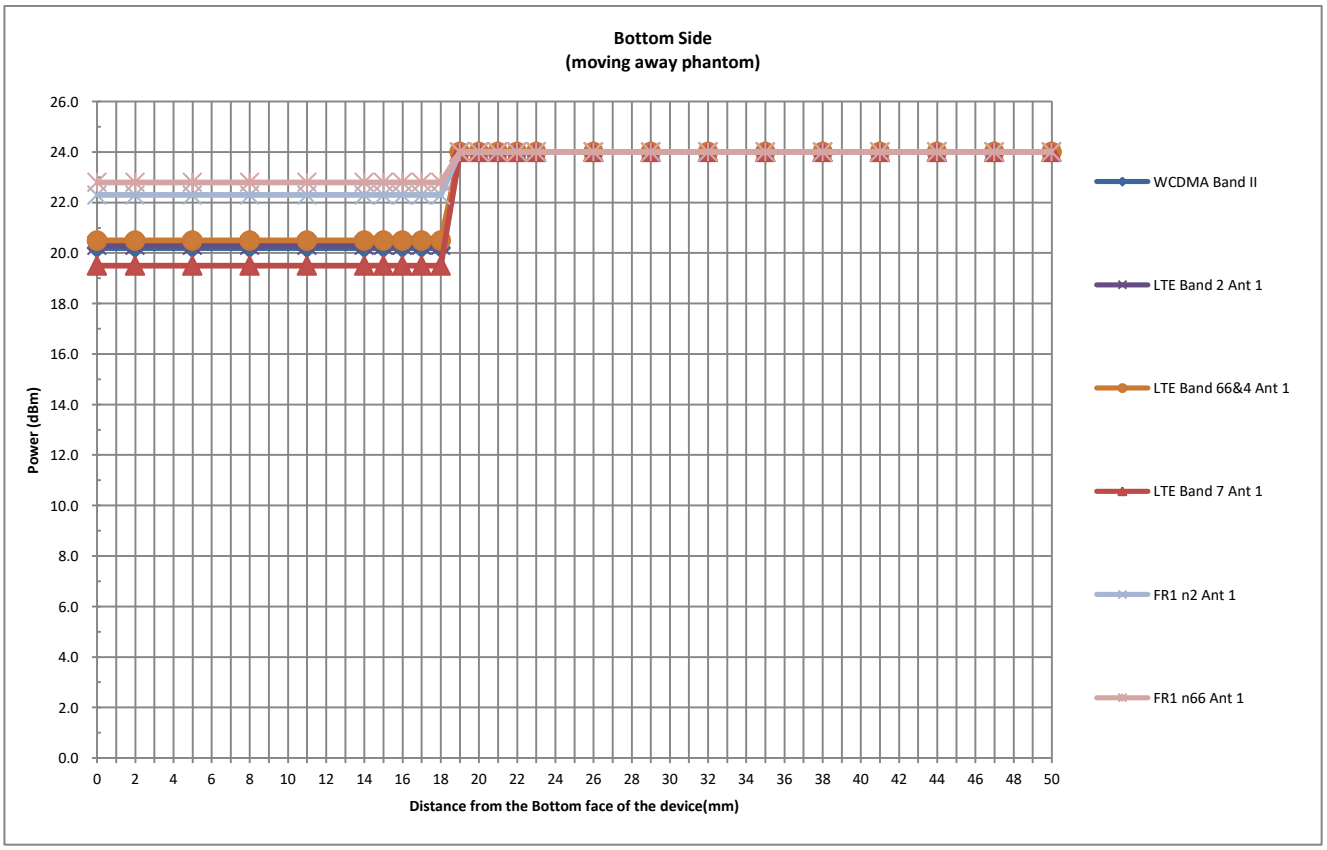
Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Back																								
Distance	50	47	44	41	38	35	32	29	26	23	22	21	20	19	18	17	16	15	14	11	8	5	2	0
WCDMA Band II	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80



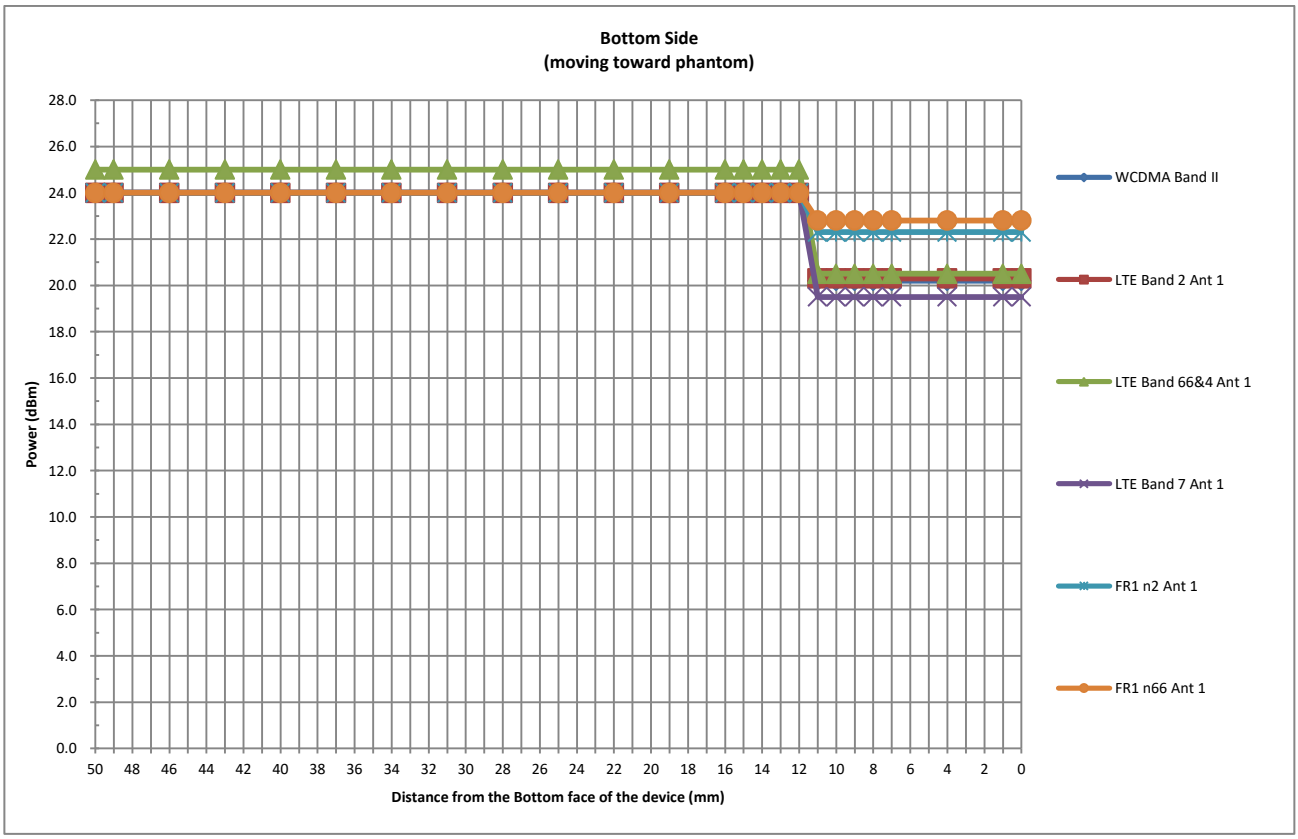
Handheld Triggering Distance (mm) and Triggering Power (dBm)																							
Back																							
Distance	50	47	44	41	38	35	32	29	26	23	20	17	16	15	14	13	12	11	10	9	8	5	2	0
WCDMA Band II	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80



Handheld Triggering Distance (mm) and Triggering Power (dBm)																								
Bottom Side																								
Distance	50	47	44	41	38	35	32	29	26	23	22	21	20	19	18	17	16	15	14	11	8	5	2	0
WCDMA Band II	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80



Handheld Triggering Distance (mm) and Triggering Power (dBm)																									
Bottom Side																									
Distance	50	49	46	43	40	37	34	31	28	25	22	19	16	15	14	13	12	11	10	9	8	7	4	1	0
WCDMA Band II	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.20	20.20	20.20	20.20	20.20	20.20	20.20	20.20
LTE Band 2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.30	20.30	20.30	20.30	20.30	20.30	20.30	20.30
LTE Band 66&4 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	20.50	20.50	20.50	20.50	20.50	20.50	20.50	20.50
LTE Band 7 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
FR1 n2 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.30	22.30	22.30	22.30	22.30	22.30	22.30	22.30
FR1 n66 Ant 1	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80

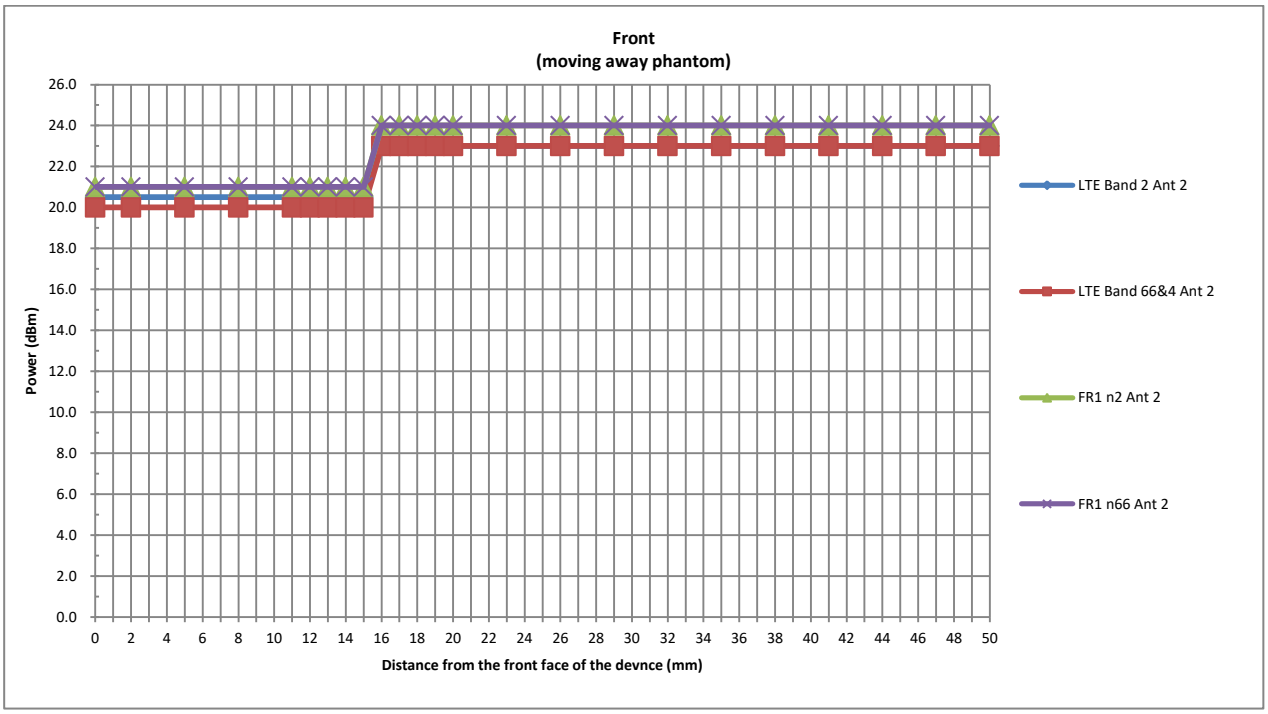


<Handheld-Ant 2>

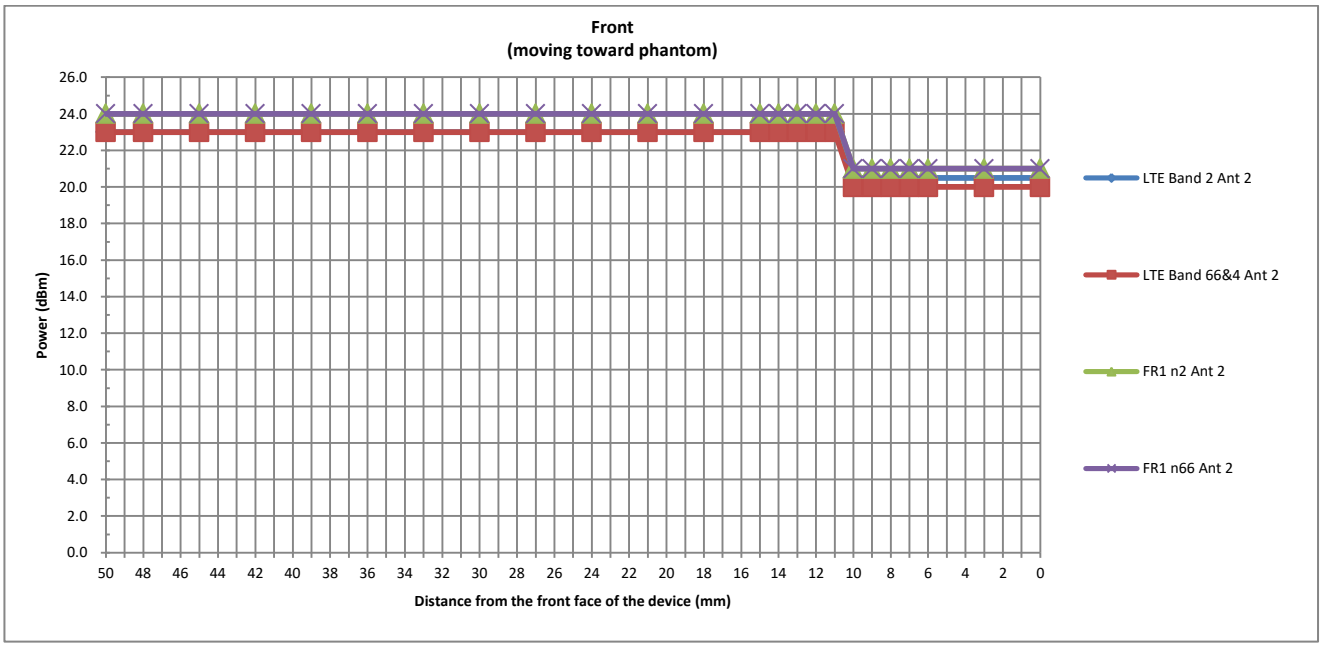
Position	Front		Back		Top Side	
	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards
Minimum	15	10	16	10	17	11

TX. Band	Handheld Triggering Power (dBm)		
	Full	Reduced	power reduction (dB)
	max. tune up limit (dBm)	max. tune up limit(dBm)	
LTE Band 2 Ant 2	23.0	20.5	2.50
LTE Band 66&4 Ant 2	23.0	20.0	3.00
FR1 n2 Ant 2	24.0	21.0	3.00
FR1 n66 Ant 2	24.0	21.0	3.00

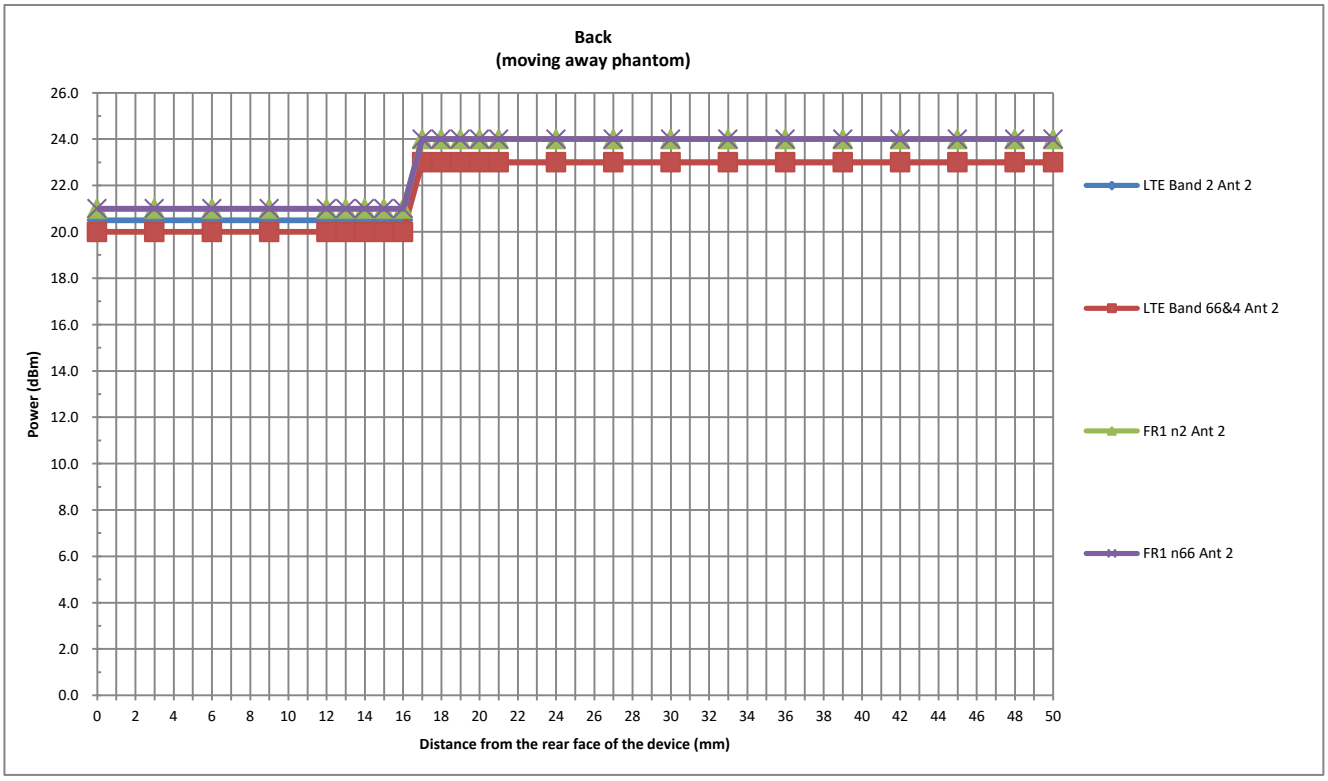
Handheld Triggering Distance (mm) and Triggering Power (dBm)																							
Front																							
Distance	50	47	44	41	38	35	32	29	26	23	20	19	18	17	16	15	14	13	12	11	8	5	2	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



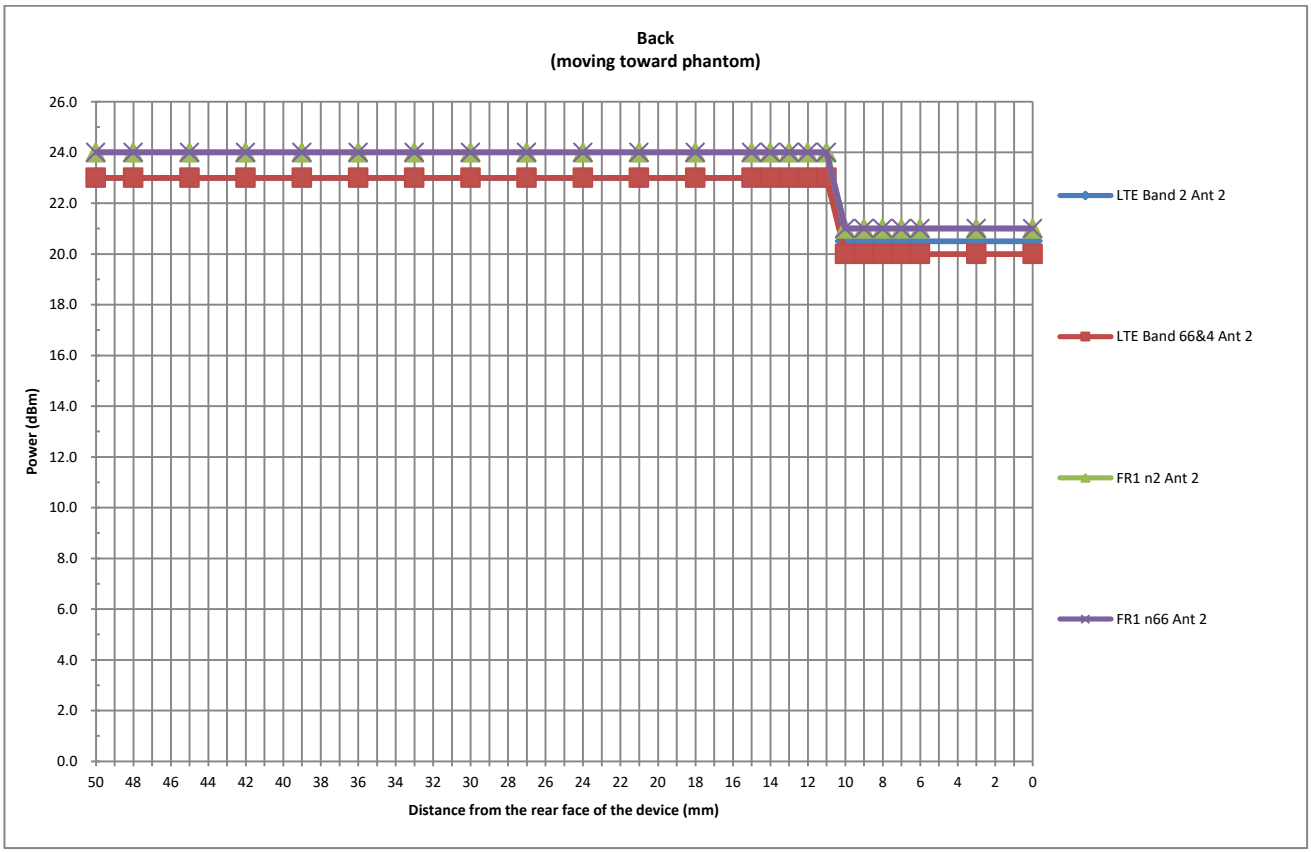
Handheld Triggering Distance (mm) and Triggering Power (dBm)																							
Front																							
Distance	50	48	45	42	39	36	33	30	27	24	21	18	15	14	13	12	11	10	19	8	7	6	3	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



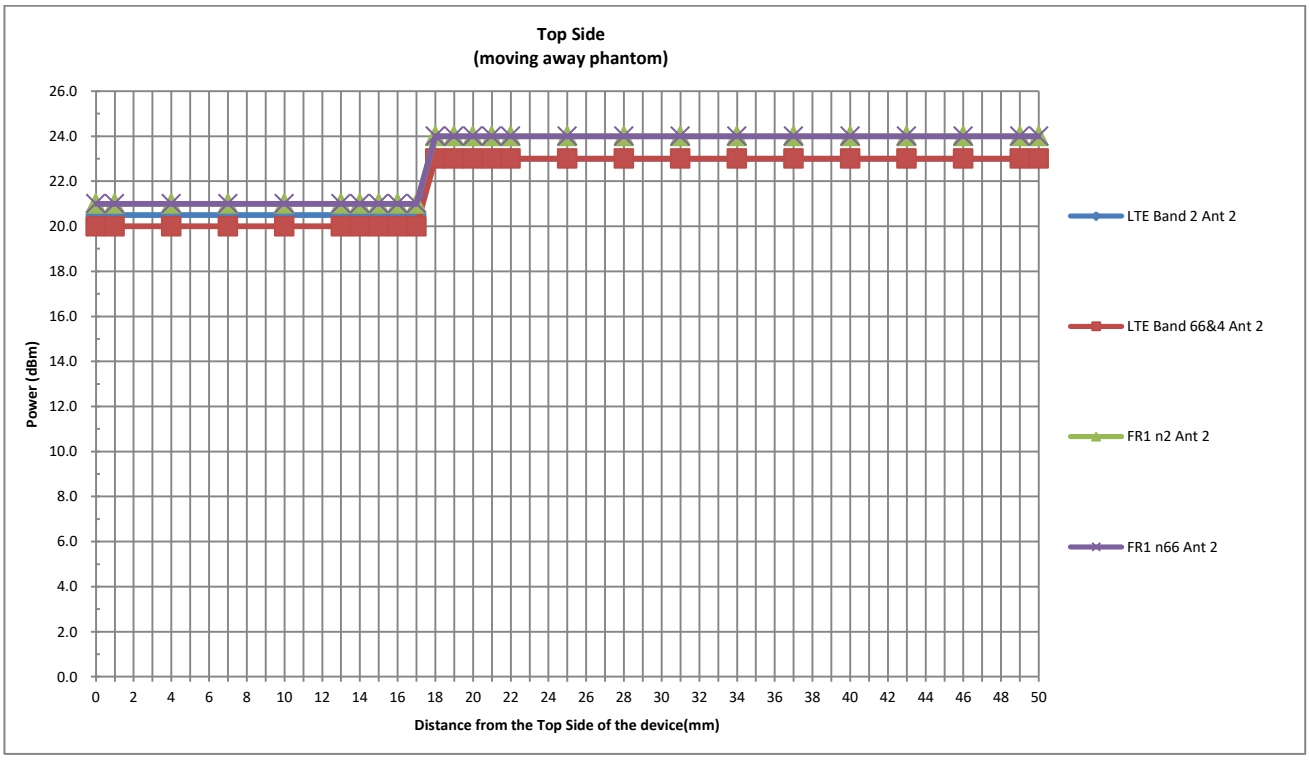
Handheld Triggering Distance (mm) and Triggering Power (dBm)																							
Back																							
Distance	50	48	45	42	39	36	33	30	27	24	21	20	19	18	17	16	15	14	13	12	9	6	3	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



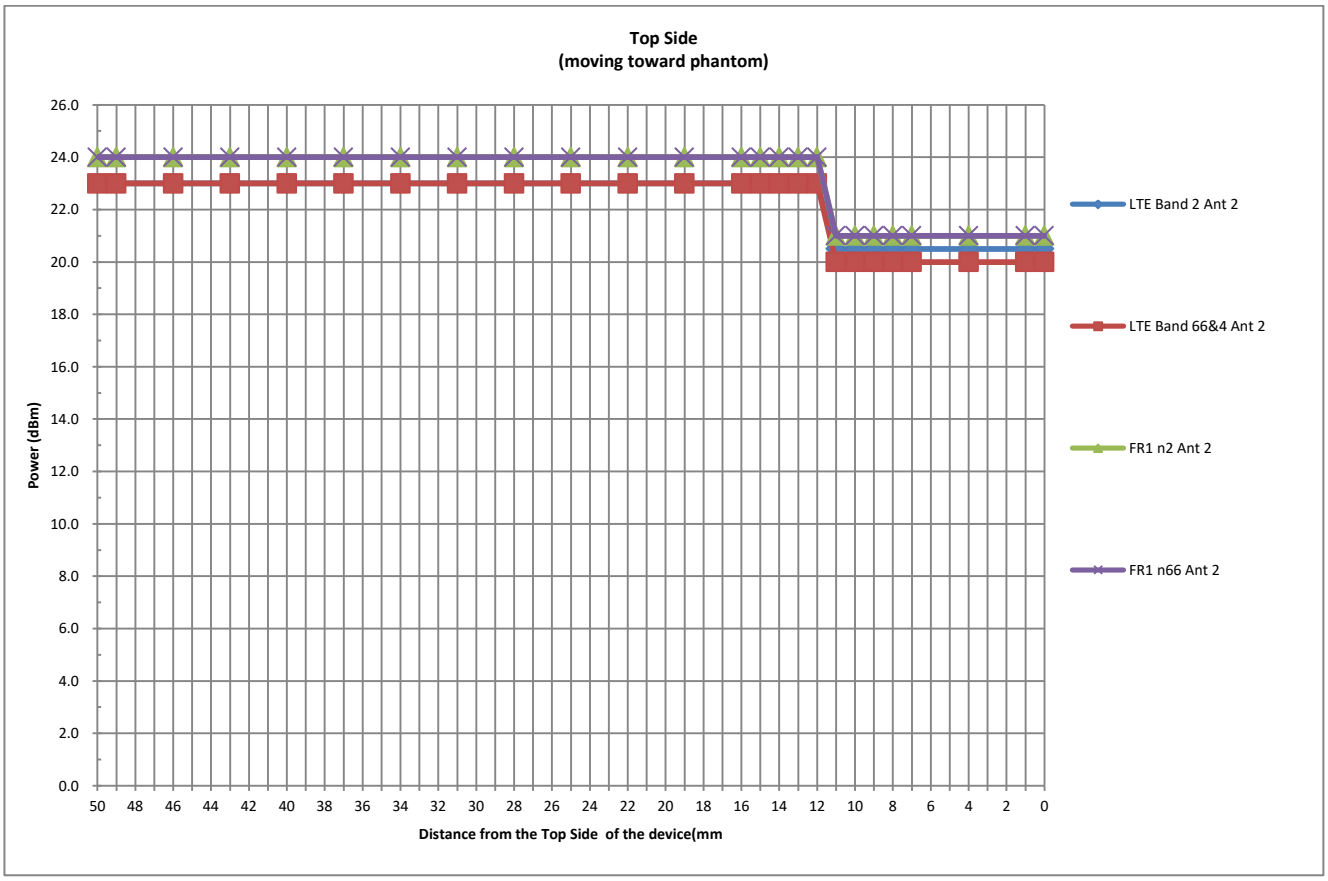
Handheld Triggering Distance (mm) and Triggering Power (dBm)																							
Back																							
Distance	50	48	45	42	39	36	33	30	27	24	21	18	15	14	13	12	11	10	9	8	7	6	3	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



Handheld Triggering Distance (mm) and Triggering Power (dBm)																									
Top Side																									
Distance	50	49	46	43	40	37	34	31	28	25	22	21	20	19	18	17	16	15	14	13	10	7	4	1	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



Handheld Triggering Distance (mm) and Triggering Power (dBm)																									
Top Side																									
Distance	50	49	46	43	40	37	34	31	28	25	22	19	16	15	14	13	12	11	10	9	8	7	4	1	0
LTE Band 2 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
LTE Band 66&4 Ant 2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n2 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
FR1 n66 Ant 2	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0



7. RF Exposure Limits

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

8. Specific Absorption Rate (SAR)

8.1 Introduction

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

8.2 SAR Definition

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

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

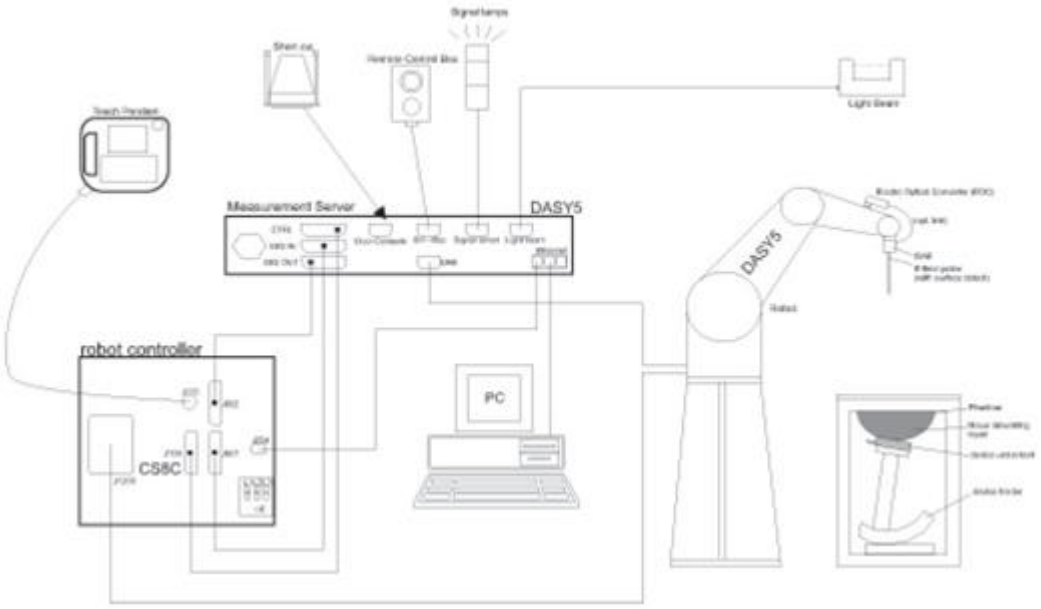
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

9. System Description and Setup

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



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

9.1 E-Field Probe

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

<EX3DV4 Probe>

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

9.2 Data Acquisition Electronics (DAE)

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

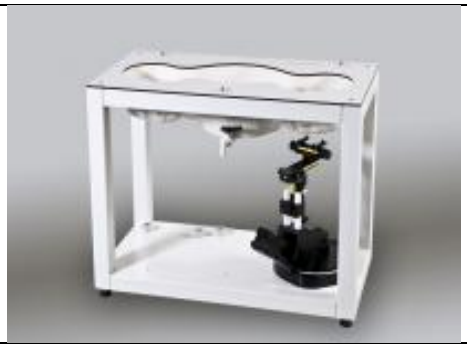
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Photo of DAE

9.3 Phantom

<SAM Twin Phantom>

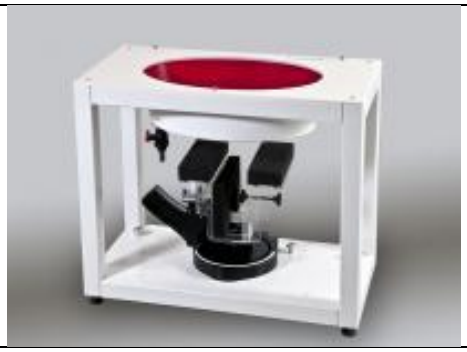
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



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

<ELI Phantom>

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



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

9.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

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

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

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

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

Mounting Device for Laptops

10. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

10.1 Spatial Peak SAR Evaluation

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

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

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

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

10.2 Power Reference Measurement

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

10.3 Area Scan

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

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

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

10.4 Zoom Scan

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

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

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

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

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

10.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

10.6 Power Drift Monitoring

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

11. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2019/3/27	2022/3/26
SPEAG	835MHz System Validation Kit	D835V2	4d151	2019/3/27	2022/3/26
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/26
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/25
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2022/3/24
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2018/12/7	2021/12/6
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2020/9/23
SPEAG	Data Acquisition Electronics	DAE4	1358	2020/4/28	2021/4/27
SPEAG	Data Acquisition Electronics	DAE4	656	2019/12/17	2020/12/16
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	2020/5/27	2021/5/26
SPEAG	Dosimetric E-Field Probe	EX3DV4	7592	2020/5/22	2021/5/21
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1697	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2020/4/16	2021/4/15
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2020/4/16	2021/4/15
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2020/4/16	2021/4/15
SPEAG	Dielectric Probe Kit	DAK-3.5	1071	2019/10/28	2020/10/27
Anritsu	Vector Signal Generator	MG3710A	6201682672	2020/1/8	2021/1/7
Rohde & Schwarz	Power Meter	NRVD	102081	2019/8/15	2020/8/14
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2019/8/14	2020/8/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2019/8/14	2020/8/13
R&S	CBT BLUETOOTH TESTER	CBT	101641	2020/1/8	2021/1/7
EXA	Spectrum Analyzer	FSV7	101631	2020/1/8	2021/1/7
Testo	Hygrometer	608-H1	1241332088	2020/1/8	2021/1/7
FLUKE	DIGITAC THERMOMETER	51II	97240029	2019/8/15	2020/8/14
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	

Note:

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

12. System Verification

12.1 Tissue Simulating Liquids

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

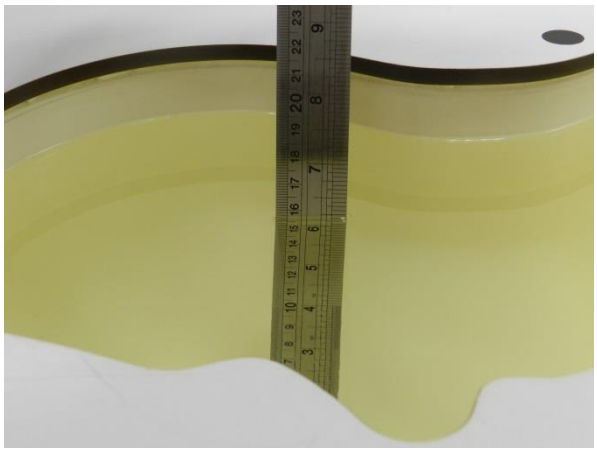


Fig 11.1 Photo of Liquid Height for Head SAR

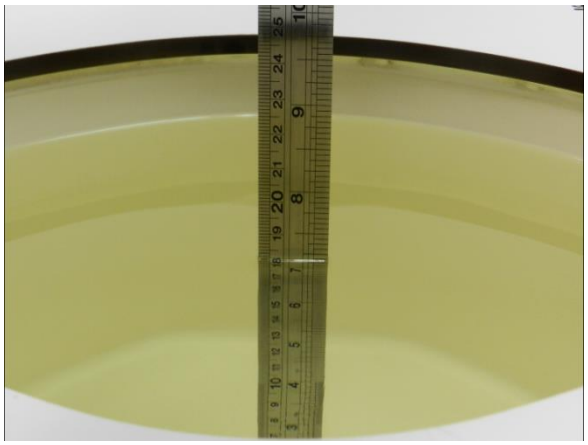


Fig 11.2 Photo of Liquid Height for Body SAR

12.2 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.7	0.891	43.672	0.89	41.90	0.11	4.23	±5	2020/7/10
835	Head	22.8	0.928	43.453	0.90	41.50	3.11	4.71	±5	2020/7/12
1750	Head	22.8	1.367	41.091	1.37	40.10	-0.22	2.47	±5	2020/7/14
1900	Head	22.7	1.455	40.875	1.40	40.00	3.93	2.19	±5	2020/7/15
2450	Head	22.6	1.858	40.199	1.80	39.20	3.22	2.55	±5	2020/7/13
2600	Head	22.9	1.982	39.933	1.96	39.00	1.12	2.39	±5	2020/7/12
5250	Head	22.9	4.673	35.232	4.71	35.90	-0.79	-1.86	±5	2020/7/16
5600	Head	22.7	5.018	34.697	5.07	35.50	-1.03	-2.26	±5	2020/7/18
5750	Head	22.6	5.180	34.452	5.22	35.40	-0.77	-2.68	±5	2020/7/17
750	Head	22.8	0.923	41.921	0.89	41.90	3.71	0.05	±5	2020/7/20
835	Head	22.9	0.924	41.444	0.90	41.50	2.67	-0.13	±5	2020/7/19
1750	Head	22.6	1.351	40.380	1.37	40.10	-1.39	0.70	±5	2020/7/21
1900	Head	22.7	1.462	40.088	1.40	40.00	4.43	0.22	±5	2020/7/18
2450	Head	22.6	1.850	39.054	1.80	39.20	2.78	-0.37	±5	2020/7/23
2600	Head	22.7	1.980	39.055	1.96	39.00	1.02	0.14	±5	2020/7/22
5250	Head	22.8	4.678	36.999	4.71	35.90	-0.68	3.06	±5	2020/7/24
5600	Head	22.6	5.037	36.493	5.07	35.50	-0.65	2.80	±5	2020/7/26
5750	Head	22.8	5.200	36.307	5.22	35.40	-0.38	2.56	±5	2020/7/25

12.3 System Performance Check Results

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

<1g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2020/7/10	750	Head	250	1087	7592	656	2.01	8.36	8.04	-3.83
2020/7/12	835	Head	250	4d151	7592	656	2.33	9.30	9.32	0.22
2020/7/14	1750	Head	250	1090	7592	656	9.09	36.40	36.36	-0.11
2020/7/15	1900	Head	250	5d170	7592	656	9.77	39.00	39.08	0.21
2020/7/13	2450	Head	250	908	7592	656	13.10	52.80	52.4	-0.76
2020/7/12	2600	Head	250	1061	7592	656	14.30	57.70	57.2	-0.87
2020/7/16	5250	Head	100	1113	7592	656	7.98	80.50	79.8	-0.87
2020/7/18	5600	Head	100	1113	7592	656	8.31	83.40	83.1	-0.36
2020/7/17	5750	Head	100	1113	7592	656	7.83	80.00	78.3	-2.13
2020/7/20	750	Head	250	1087	3935	1358	2.08	8.36	8.32	-0.48
2020/7/19	835	Head	250	4d151	3935	1358	2.52	9.30	10.08	8.39
2020/7/21	1750	Head	250	1090	3935	1358	8.99	36.40	35.96	-1.21
2020/7/18	1900	Head	250	5d170	3935	1358	10.10	39.00	40.4	3.59
2020/7/23	2450	Head	250	908	3935	1358	12.80	52.80	51.2	-3.03
2020/7/22	2600	Head	250	1061	3935	1358	13.90	57.70	55.6	-3.64
2020/7/24	5250	Head	100	1113	3935	1358	7.92	80.50	79.2	-1.61
2020/7/26	5600	Head	100	1113	3935	1358	8.74	83.40	87.4	4.80
2020/7/25	5750	Head	100	1113	3935	1358	7.68	80.00	76.8	-4.00

<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 (%)
2020/7/14	1750	Head	250	1090	7592	656	4.98	19.20	19.92	3.75
2020/7/15	1900	Head	250	5d170	7592	656	5.05	20.30	20.2	-0.49
2020/7/13	2450	Head	250	908	7592	656	6.21	24.20	24.84	2.64
2020/7/12	2600	Head	250	1061	7592	656	6.69	25.90	26.76	3.32
2020/7/16	5250	Head	100	1113	7592	656	2.32	23.10	23.2	0.43
2020/7/18	5600	Head	100	1113	7592	656	2.39	23.80	23.9	0.42
2020/7/17	5750	Head	100	1113	7592	656	2.24	22.80	22.4	-1.75
2020/7/21	1750	Head	250	1090	3935	1358	4.91	19.20	19.64	2.29
2020/7/18	1900	Head	250	5d170	3935	1358	5.21	20.30	20.84	2.66
2020/7/23	2450	Head	250	908	3935	1358	6.12	24.20	24.48	1.16
2020/7/22	2600	Head	250	1061	3935	1358	6.51	25.90	26.04	0.54
2020/7/24	5250	Head	100	1113	3935	1358	2.30	23.10	23	-0.43
2020/7/26	5600	Head	100	1113	3935	1358	2.52	23.80	25.2	5.88
2020/7/25	5750	Head	100	1113	3935	1358	2.19	22.80	21.9	-3.95

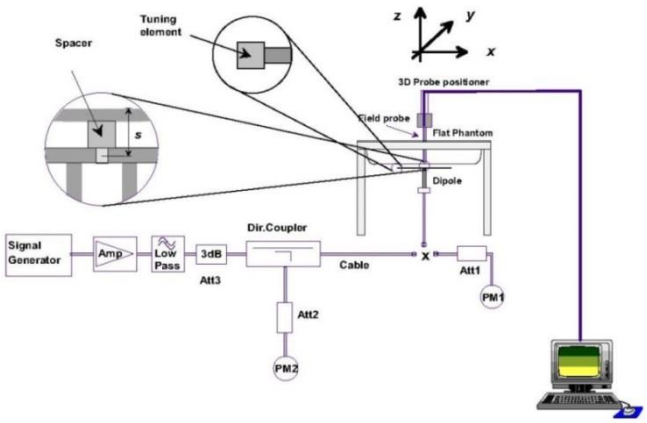


Fig 11.3.1 System Performance Check Setup

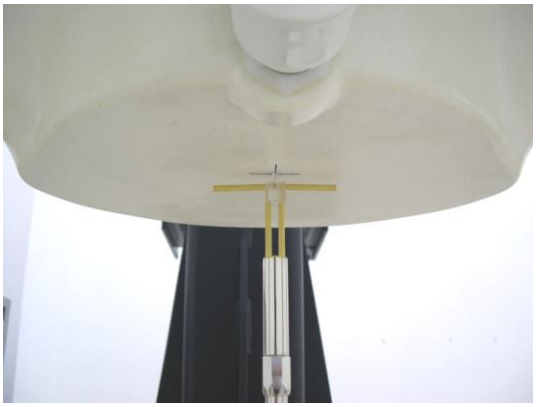


Fig 11.3.2 Setup Photo

13. RF Exposure Positions

13.1 Ear and handset reference point

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

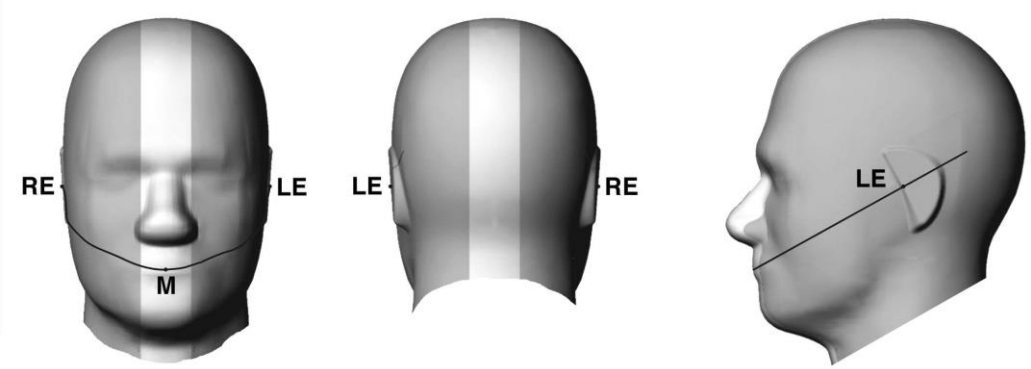


Fig 12.1.1 Front, back, and side views of SAM twin phantom

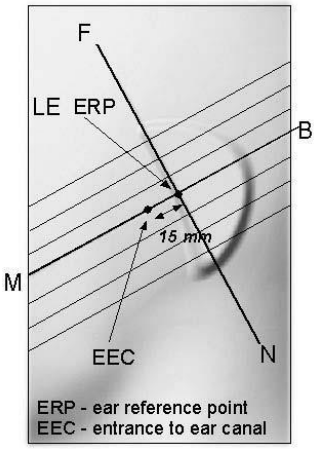


Fig 12.1.2 Close-up side view of phantom showing the ear region.

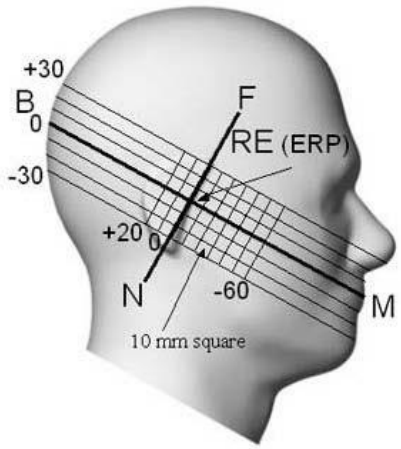


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

13.2 Definition of the cheek position

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

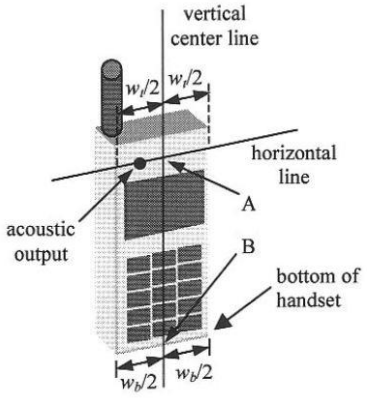


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

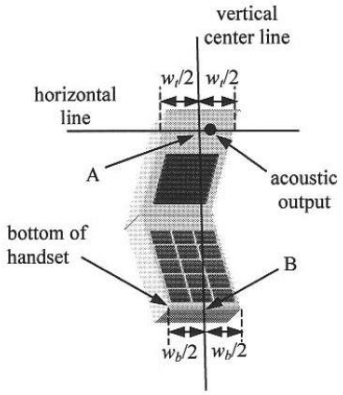


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

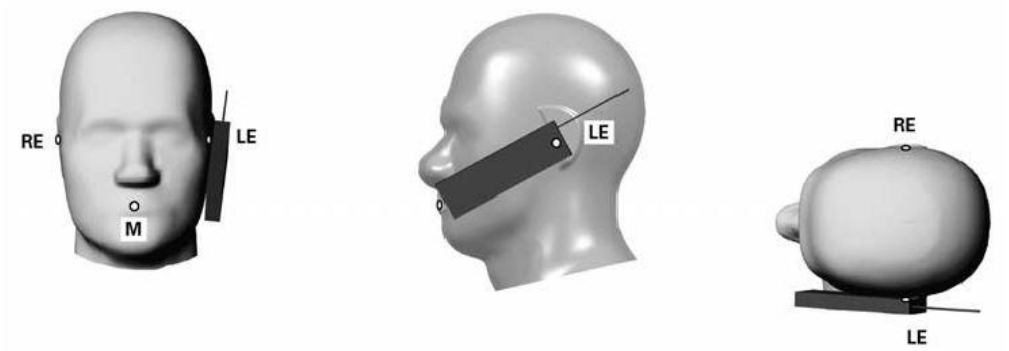


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

13.3 Definition of the tilt position

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

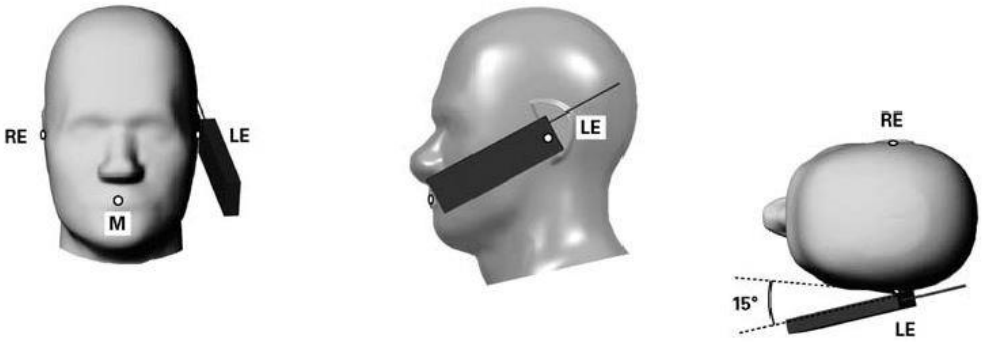


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

13.4 Body Worn Accessory

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

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

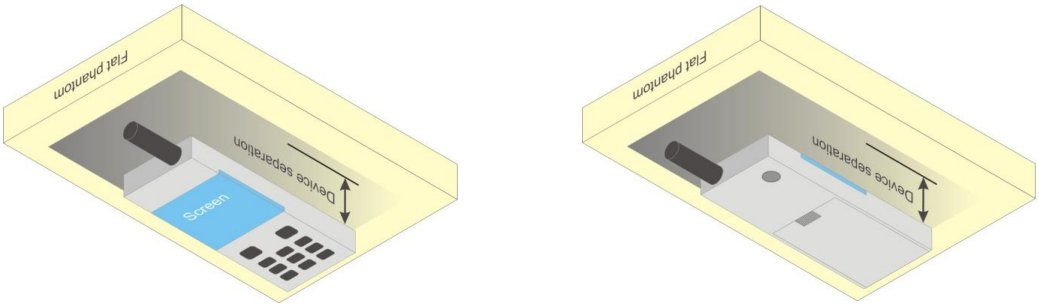


Fig 12.4 Body Worn Position

13.5 Product Specific 10g SAR Exposure

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

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

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

13.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

14. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 4 Tx slots for GSM850, 3Tx slots for GSM1900 are considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

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

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

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

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

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

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

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

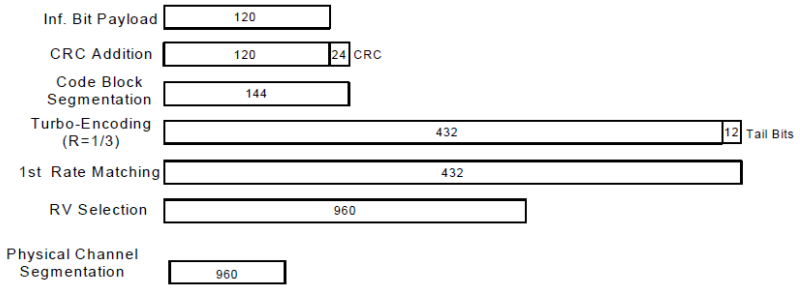


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

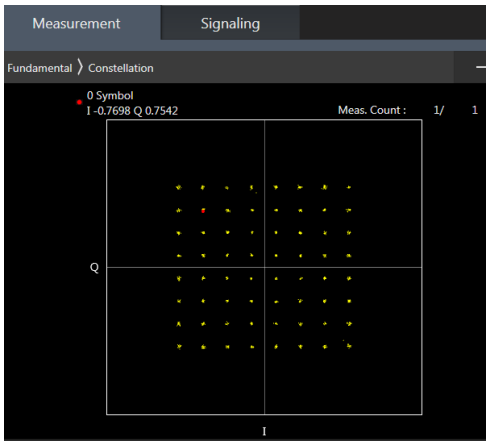
General Note:

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

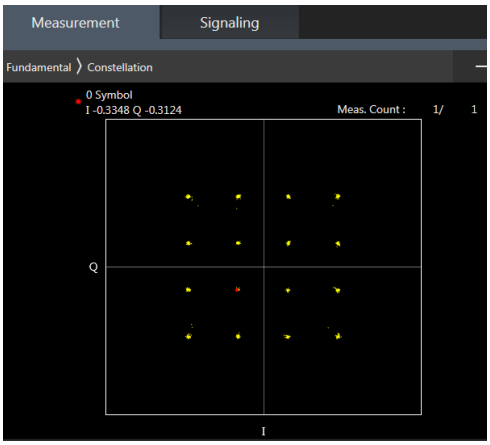
<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 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 / B17 SAR test was covered by B66 / B12; 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

<LTE Carrier Aggregation>

General Note:

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

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
2CC #1	CA_2A-2A	3CC #1	3CC #1	CA_2A-2A-4A	4CC #1	4CC #1	CA_2A-2A-4A-4A	
2CC #2	CA_2A-4A	3CC #1	3CC #2	CA_2A-2A-5A	4CC #2	4CC #2	CA_2A-2A-4A-5A	
2CC #3	CA_2A-5A	3CC #2	3CC #3	CA_2A-2A-13A	4CC #5	4CC #3	CA_2A-2A-5B	
2CC #4	CA_2A-13A	3CC #3	3CC #4	CA_2A-2A-66A	4CC #5	4CC #4	CA_2A-2A-5A-66A	
2CC #5	CA_2A-66A	3CC #4	3CC #5	CA_2A-4A-4A	4CC #1	4CC #5	CA_2A-2A-13A-66A	
2CC #6	CA_4A-4A	3CC #5	3CC #6	CA_2A-4A-5A	4CC #2	4CC #6	CA_2A-2A-66B	
2CC #7	CA_4A-5A	3CC #6	3CC #7	CA_2A-4A-13A		4CC #7	CA_2A-2A-66C	
2CC #8	CA_4A-13A	3CC #7	3CC #8	CA_2A-5B	4CC #3	4CC #8	CA_2A-2A-66A-66A	
2CC #9	CA_5B	3CC #8	3CC #9	CA_2A-5A-66A	4CC #4	4CC #9	CA_2A-4A-4A-5A	
2CC #10	CA_5A-5A	3CC #18	3CC #10	CA_2A-13A-66A	4CC #5	4CC #10	CA_2A-4A-5B	
2CC #11	CA_5A-66A	3CC #18	3CC #11	CA_2A-66B	4CC #6	4CC #11	CA_2A-5B-66A	
2CC #12	CA_13A-66A	3CC #10	3CC #12	CA_2A-66C	4CC #7	4CC #12	CA_2A-5A-66B	
2CC #13	CA_66B	3CC #22	3CC #13	CA_2A-66A-66A	4CC #8	4CC #13	CA_2A-5A-66C	
2CC #14	CA_66C	3CC #23	3CC #14	CA_4A-4A-5A	4CC #9	4CC #14	CA_2A-5A-66A-66A	
2CC #15	CA_66A_66A	3CC #24	3CC #15	CA_4A-4A-13A		4CC #15	CA_2A-13A-66B	
			3CC #16	CA_4A-5B	4CC #10	4CC #16	CA_2A-13A-66C	
			3CC #17	CA_5B-66A	4CC #11	4CC #17	CA_2A-13A-66A-66A	
			3CC #18	CA_5A-5A-66A	4CC #25	4CC #18	CA_2A-66A-66A-66A	
			3CC #19	CA_5A-66B	4CC #23	4CC #19	CA_4A-4A-5B	
			3CC #20	CA_5A-66C	4CC #24	4CC #20	CA_5B-66B	
			3CC #21	CA_5A-66A-66A	4CC #25	4CC #21	CA_5B-66C	
			3CC #22	CA_13A-66B	4CC #15	4CC #22	CA_5B-66A-66A	
			3CC #23	CA_13A-66C	4CC #16	4CC #23	CA_5A-5A-66B	
			3CC #24	CA_13A-66A-66A	4CC #17	4CC #24	CA_5A-5A-66C	
			3CC #25	CA_66D		4CC #25	CA_5A-5A-66A-66A	
			3CC #26	CA_66A-66B		4CC #26	CA_13A-66A-66A-66A	
			3CC #27	CA_66A-66C				
			3CC #28	CA_66A-66A-66A	4CC #18			

4X4 MIMO	WWAN Band
	LTE Band: B2 / B4 / B66

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_5B, CA_66B and CA_66C 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>

<Inter-band uplink carrier aggregation consideration>

2CC Uplink Carrier Aggregation			
Number	Combination	Top	Bottom
1	2A_4A	2A	4A
2	2A_5A	2A	5A
		5A	2A
3	2A_13A	2A	13A
4	2A_66A	2A	66A
5	4A_5A	4A	5A
		5A	4A
6	4A_13A	4A	13A
7	5A_66A	5A	66A
		66A	5A
8	13A_66A	66A	13A

General Note:

1. According to October 2018 TCB workshop, uplink CA SAR test guidance as follows:
   a. Provide the single uplink SAR values you have obtained for the relevant SAR configuration and frequency bands that employ inter-band uplink carrier aggregation.
   b. If the single uplink 1g SAR values for each band are both less than 0.8W/kg and the algebraic summation of the 1g SAR values are less than 1.45W/kg no additional measurements need to be performed.
   c. If one on the single uplink 1g SAR values is greater than 0.8W/kg, instead of algebraically summing the 1g SAR values, sum up the SAR distributions, similar to the enlarged zoom scan (volume scan) procedures found in FCC KDB publication 865664 D01 SAR measurement 100MHz to 6GHz V01r04.
   d. If the algebraic sum of the 1g SAR values is > 1.45W/kg additional measurements may have to be made. Submit a KDB inquiry for additional guidance.
2. The single uplink 1g SAR values for each band are both less than 0.8W/kg and the algebraic summation of the 1g SAR value are less than 1.45W/kg, additional measurements are not required

5G NR Output Power (Unit: dBm)

General Note:

1. Following 5G NR n2/n5/n66 support SCS 15KHz DFT/CP-OFDM, PI/2 BPSK/QPSK/16QAM/64QAM/256QAM, Bandwidth 5M/10M/15M/20M.
2. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
   b. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure
   c. PI/2 BPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
   d. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
3. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

<3GPP 38.101 MPR for EN-DC>

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

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

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

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

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

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

EN-DC configuration	Top Antenna	Bottom Antenna
DC_2A_n5A	LTE 2	n5
	n5	LTE 2
DC_2A_n66A	n66	LTE 2
DC_13A_n66A	n66	LTE 13
DC_13A_n2A	n2	LTE 13
DC_5A_n2A	LTE 5	n2
	n2	LTE 5
DC_5A_n66A	LTE 5	n66
	n66	LTE 5
DC_66A_n2A	n2	LTE 66
DC_66A_n5A	LTE 66	n5
	n5	LTE 66

<WLAN Conducted Power>

General Note:

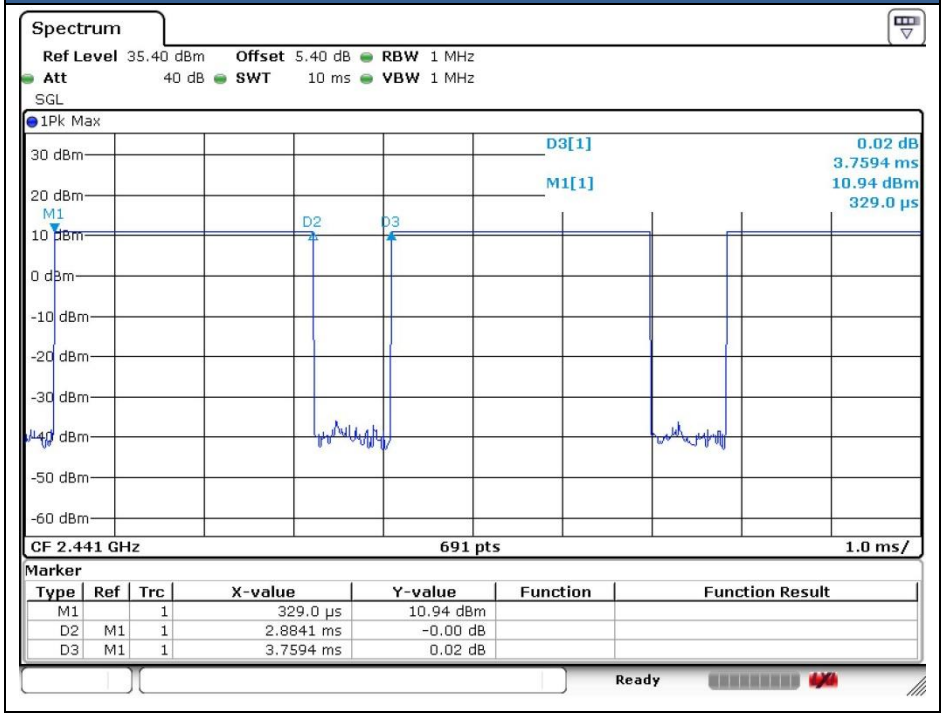
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. 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 76.72 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the theoretical duty cycle is 83.3%, therefore the actual duty cycle will be scaled up to the theoretical value of Bluetooth reported SAR calculation

Bluetooth time-domain plot



15. Antenna Location

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

16. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. Pre KDB648474 D04v01r03, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset. When headset SAR is less than or equal than without headset SAR, no need to verify the remaining channels for headset SAR.
5. The device implements the power management and sensor detection for SAR compliance at different exposure conditions (head, body-worn, hotspot/extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description.
6. For WLAN when transmit simultaneous with WWAN LAT or UAT, power reduction will be activated to head / hotspot / body-worn / extremity.
7. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power (for handheld on state, the maximum full power means reduced power), including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
   a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM1900, WCDMA Band II, LTE Band 2/4/7/66, 5GNR n2/n66 and WLAN 2.4GHz /WLAN 5.2/5.8GHz therefore product specific 10g SAR is necessary.
   b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
   c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
8. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for body worn:
   Front: 19 mm
   Back: 25 mm
9. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed for handheld:
   Front: 5 mm
   Back: 9 mm
   Bottom side: 10 mm
   Top Side: 10 mm
10. UAT means Up Antenna (ANT2); LAT means Lower Antenna/Bottom Antenna (ANT1).

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

WCDMA Note:

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

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. This device supports HPUE for LTE band 41 with class 2 level, so HPUE SAR has been performed.
7. For LTE B4 / B5 / B12 / B17 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.
8. LTE B4 / B17 SAR test was covered by B66 / B12; 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/Bluetooth Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. Based on WLAN2.4GHz and Bluetooth share the same antenna, so Bluetooth RF exposure evaluation chose the worst positon of WLAN 2.4GHz Ant to perform Bluetooth SAR test, and used this Bluetooth SAR value conservatively represent other position do co-located analysis with WWAN.

16.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850	GPRS 4 Tx slots	Right Cheek	DSI2	189	836.4	26.52	28.00	1.406	0.02	0.127	**0.179**
	GSM850	GPRS 4 Tx slots	Right Tilted	DSI2	189	836.4	26.52	28.00	1.406	0.03	0.062	0.087
	GSM850	GPRS 4 Tx slots	Left Cheek	DSI2	189	836.4	26.52	28.00	1.406	-0.01	0.094	0.132
	GSM850	GPRS 4 Tx slots	Left Tilted	DSI2	189	836.4	26.52	28.00	1.406	0.02	0.053	0.074
02	GSM1900	GPRS 3 Tx slots	Right Cheek	DSI2	661	1880	25.58	26.50	1.236	0.02	0.027	**0.034**
	GSM1900	GPRS 3 Tx slots	Right Tilted	DSI2	661	1880	25.58	26.50	1.236	-0.03	0.014	0.017
	GSM1900	GPRS 3 Tx slots	Left Cheek	DSI2	661	1880	25.58	26.50	1.236	0.01	0.022	0.027
	GSM1900	GPRS 3 Tx slots	Left Tilted	DSI2	661	1880	25.58	26.50	1.236	0.06	0.022	0.027

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Right Cheek	DSI2	9400	1880	23.46	24.00	1.132	0.06	0.038	0.043
	WCDMA II	RMC 12.2Kbps	Right Tilted	DSI2	9400	1880	23.46	24.00	1.132	0.15	0.054	0.061
	WCDMA II	RMC 12.2Kbps	Left Cheek	DSI2	9400	1880	23.46	24.00	1.132	0.12	0.073	0.083
03	WCDMA II	RMC 12.2Kbps	Left Tilted	DSI2	9400	1880	23.46	24.00	1.132	-0.05	0.090	**0.102**
04	WCDMA V	RMC 12.2Kbps	Right Cheek	DSI2	4182	836.4	23.39	24.00	1.151	0.04	0.297	**0.342**
	WCDMA V	RMC 12.2Kbps	Right Tilted	DSI2	4182	836.4	23.39	24.00	1.151	0.03	0.136	0.157
	WCDMA V	RMC 12.2Kbps	Left Cheek	DSI2	4182	836.4	23.39	24.00	1.151	-0.07	0.232	0.267
	WCDMA V	RMC 12.2Kbps	Left Tilted	DSI2	4182	836.4	23.39	24.00	1.151	0.02	0.145	0.167

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2-LAT	20M	QPSK	1	0	Right Cheek	DSI2	18900	1880	23.02	24.00	1.253	-0.01	0.095	0.119
	LTE Band 2-LAT	20M	QPSK	50	0	Right Cheek	DSI2	18900	1880	22.09	23.00	1.233	0.03	0.040	0.049
	LTE Band 2-LAT	20M	QPSK	1	0	Right Tilted	DSI2	18900	1880	23.02	24.00	1.253	0.02	0.060	0.075
	LTE Band 2-LAT	20M	QPSK	50	0	Right Tilted	DSI2	18900	1880	22.09	23.00	1.233	-0.01	0.029	0.036
	LTE Band 2-LAT	20M	QPSK	1	0	Left Cheek	DSI2	18900	1880	23.02	24.00	1.253	0.06	0.051	0.064
	LTE Band 2-LAT	20M	QPSK	50	0	Left Cheek	DSI2	18900	1880	22.09	23.00	1.233	0.01	0.031	0.038
	LTE Band 2-LAT	20M	QPSK	1	0	Left Tilted	DSI2	18900	1880	23.02	24.00	1.253	0.09	0.073	0.092
	LTE Band 2-LAT	20M	QPSK	50	0	Left Tilted	DSI2	18900	1880	22.09	23.00	1.233	0.02	0.036	0.045
	LTE Band 2-UAT	20M	QPSK	1	0	Right Cheek	DSI2	18900	1880	13.48	14.30	1.208	0.01	0.334	0.403
	LTE Band 2-UAT	20M	QPSK	50	0	Right Cheek	DSI2	18900	1880	13.40	14.30	1.230	0.03	0.332	0.408
	LTE Band 2-UAT	20M	QPSK	1	0	Right Tilted	DSI2	18900	1880	13.48	14.30	1.208	0.02	0.375	0.453
	LTE Band 2-UAT	20M	QPSK	50	0	Right Tilted	DSI2	18900	1880	13.40	14.30	1.230	-0.01	0.378	0.465
	LTE Band 2-UAT	20M	QPSK	1	0	Left Cheek	DSI2	18900	1880	13.48	14.30	1.208	0.09	0.536	0.647
	LTE Band 2-UAT	20M	QPSK	50	0	Left Cheek	DSI2	18900	1880	13.40	14.30	1.230	0.02	0.556	0.684
05	LTE Band 2-UAT	20M	QPSK	1	0	Left Tilted	DSI2	18900	1880	13.48	14.30	1.208	0.02	0.685	**0.827**
	LTE Band 2-UAT	20M	QPSK	1	0	Left Tilted	DSI2	18700	1860	13.34	14.30	1.247	0.03	0.587	0.732
	LTE Band 2-UAT	20M	QPSK	1	0	Left Tilted	DSI2	19100	1900	13.31	14.30	1.256	-0.07	0.562	0.706
	LTE Band 2-UAT	20M	QPSK	50	0	Left Tilted	DSI2	18900	1880	13.40	14.30	1.230	0.01	0.596	0.733
	LTE Band 2-UAT	20M	QPSK	100	0	Left Tilted	DSI2	18900	1880	13.34	14.30	1.247	0.06	0.581	0.725
	LTE Band 5-LAT	10M	QPSK	1	0	Right Cheek	DSI2	20525	836.5	22.94	24.00	1.276	0.03	0.087	0.111
	LTE Band 5-LAT	10M	QPSK	25	0	Right Cheek	DSI2	20525	836.5	21.90	23.00	1.288	0.01	0.052	0.067
	LTE Band 5-LAT	10M	QPSK	1	0	Right Tilted	DSI2	20525	836.5	22.94	24.00	1.276	-0.03	0.197	0.251
	LTE CA_5B-LAT	10M	QPSK	1	0	Right Tilted	DSI2	20575+20476	841.5+831.6	22.91	24.00	1.285	0.03	0.168	0.216
	LTE Band 5-LAT	10M	QPSK	25	0	Right Tilted	DSI2	20525	836.5	21.90	23.00	1.288	0.05	0.051	0.066
	LTE Band 5-LAT	10M	QPSK	1	0	Left Cheek	DSI2	20525	836.5	22.94	24.00	1.276	-0.02	0.138	0.176
	LTE Band 5-LAT	10M	QPSK	25	0	Left Cheek	DSI2	20525	836.5	21.90	23.00	1.288	0.01	0.079	0.102
	LTE Band 5-LAT	10M	QPSK	1	0	Left Tilted	DSI2	20525	836.5	22.94	24.00	1.276	0.06	0.131	0.167
	LTE Band 5-LAT	10M	QPSK	25	0	Left Tilted	DSI2	20525	836.5	21.90	23.00	1.288	-0.02	0.076	0.098
	LTE Band 5-UAT	10M	QPSK	1	0	Right Cheek	DSI2	20525	836.5	22.64	23.50	1.219	0.02	0.416	0.507
	LTE Band 5-UAT	10M	QPSK	25	0	Right Cheek	DSI2	20525	836.5	21.65	22.50	1.216	0.01	0.247	0.300
	LTE Band 5-UAT	10M	QPSK	1	0	Right Tilted	DSI2	20525	836.5	22.64	23.50	1.219	0.03	0.390	0.475
	LTE Band 5-UAT	10M	QPSK	25	0	Right Tilted	DSI2	20525	836.5	21.65	22.50	1.216	0.02	0.232	0.282
06	LTE Band 5-UAT	10M	QPSK	1	0	Left Cheek	DSI2	20525	836.5	22.64	23.50	1.219	-0.03	0.610	**0.744**
	LTE CA_5B-UAT	10M	QPSK	1	0	Left Cheek	DSI2	20575+20476	841.5+831.6	22.64	23.50	1.219	-0.01	0.556	0.678
	LTE Band 5-UAT	10M	QPSK	25	0	Left Cheek	DSI2	20525	836.5	21.65	22.50	1.216	-0.06	0.380	0.462
	LTE Band 5-UAT	10M	QPSK	1	0	Left Tilted	DSI2	20525	836.5	22.64	23.50	1.219	0.02	0.583	0.711
	LTE Band 5-UAT	10M	QPSK	25	0	Left Tilted	DSI2	20525	836.5	21.65	22.50	1.216	0.01	0.578	0.703
	LTE Band 12	10M	QPSK	1	0	Right Cheek	DSI2	23095	707.5	22.92	24.00	1.282	0.06	0.176	0.226
	LTE Band 12	10M	QPSK	25	0	Right Cheek	DSI2	23095	707.5	21.96	23.00	1.271	-0.02	0.099	0.126
	LTE Band 12	10M	QPSK	1	0	Right Tilted	DSI2	23095	707.5	22.92	24.00	1.282	0.01	0.104	0.133
	LTE Band 12	10M	QPSK	25	0	Right Tilted	DSI2	23095	707.5	21.96	23.00	1.271	0.06	0.057	0.072
07	LTE Band 12	10M	QPSK	1	0	Left Cheek	DSI2	23095	707.5	22.92	24.00	1.282	0.02	0.198	**0.254**
	LTE Band 12	10M	QPSK	25	0	Left Cheek	DSI2	23095	707.5	21.96	23.00	1.271	0.01	0.105	0.133
	LTE Band 12	10M	QPSK	1	0	Left Tilted	DSI2	23095	707.5	22.92	24.00	1.282	-0.03	0.111	0.142
	LTE Band 12	10M	QPSK	25	0	Left Tilted	DSI2	23095	707.5	21.96	23.00	1.271	0.08	0.062	0.079

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
08	LTE Band 13	10M	QPSK	1	0	Right Cheek	DSI2	23230	782	22.82	24.00	1.312	-0.02	0.216	**0.283**
	LTE Band 13	10M	QPSK	25	0	Right Cheek	DSI2	23230	782	21.94	23.00	1.276	0.03	0.079	0.101
	LTE Band 13	10M	QPSK	1	0	Right Tilted	DSI2	23230	782	22.82	24.00	1.312	-0.01	0.166	0.218
	LTE Band 13	10M	QPSK	25	0	Right Tilted	DSI2	23230	782	21.94	23.00	1.276	0.09	0.045	0.057
	LTE Band 13	10M	QPSK	1	0	Left Cheek	DSI2	23230	782	22.82	24.00	1.312	0.01	0.177	0.232
	LTE Band 13	10M	QPSK	25	0	Left Cheek	DSI2	23230	782	21.94	23.00	1.276	-0.03	0.098	0.125
	LTE Band 13	10M	QPSK	1	0	Left Tilted	DSI2	23230	782	22.82	24.00	1.312	-0.02	0.102	0.134
	LTE Band 13	10M	QPSK	25	0	Left Tilted	DSI2	23230	782	21.94	23.00	1.276	0.06	0.058	0.074
	LTE Band 7	20M	QPSK	1	0	Right Cheek	DSI2	21100	2535	23.06	24.00	1.242	-0.03	0.072	0.089
	LTE Band 7	20M	QPSK	50	0	Right Cheek	DSI2	21100	2535	22.11	23.00	1.227	0.02	0.052	0.064
	LTE Band 7	20M	QPSK	1	0	Right Tilted	DSI2	21100	2535	23.06	24.00	1.242	0.06	0.045	0.056
	LTE Band 7	20M	QPSK	50	0	Right Tilted	DSI2	21100	2535	22.11	23.00	1.227	0.02	0.038	0.047
	LTE Band 7	20M	QPSK	1	0	Left Cheek	DSI2	21100	2535	23.06	24.00	1.242	0.01	0.087	0.108
	LTE Band 7	20M	QPSK	50	0	Left Cheek	DSI2	21100	2535	22.11	23.00	1.227	0.09	0.042	0.052
09	LTE Band 7	20M	QPSK	1	0	Left Tilted	DSI2	21100	2535	23.06	24.00	1.242	0.02	0.088	**0.109**
	LTE Band 7	20M	QPSK	50	0	Left Tilted	DSI2	21100	2535	22.11	23.00	1.227	0.01	0.045	0.055
	LTE Band 66-LAT	20M	QPSK	1	0	Right Cheek	DSI2	132322	1745	22.64	24.00	1.368	0.01	0.101	0.138
	LTE CA_66B-LAT	15M	QPSK	1	0	Right Cheek	DSI2	132322+132229	1745+1735.7	22.79	24.00	1.321	0.02	0.080	0.105
	LTE CA_66C-LAT	20M	QPSK	1	0	Right Cheek	DSI2	132322+132124	1745+1725.2	22.93	24.00	1.279	0.09	0.085	0.109
	LTE Band 66-LAT	20M	QPSK	50	0	Right Cheek	DSI2	132322	1745	21.45	23.00	1.429	-0.03	0.052	0.075
	LTE Band 66-LAT	20M	QPSK	1	0	Right Tilted	DSI2	132322	1745	22.64	24.00	1.368	0.02	0.029	0.039
	LTE Band 66-LAT	20M	QPSK	50	0	Right Tilted	DSI2	132322	1745	21.45	23.00	1.429	0.01	0.019	0.026
	LTE Band 66-LAT	20M	QPSK	1	0	Left Cheek	DSI2	132322	1745	22.64	24.00	1.368	0.05	0.078	0.107
	LTE Band 66-LAT	20M	QPSK	50	0	Left Cheek	DSI2	132322	1745	21.45	23.00	1.429	0.02	0.050	0.071
	LTE Band 66-LAT	20M	QPSK	1	0	Left Tilted	DSI2	132322	1745	22.64	24.00	1.368	0.01	0.012	0.017
	LTE Band 66-LAT	20M	QPSK	50	0	Left Tilted	DSI2	132322	1745	21.45	23.00	1.429	0.03	0.033	0.047
	LTE Band 66-UAT	20M	QPSK	1	0	Left Cheek	DSI2	132322	1745	14.35	14.90	1.135	0.06	0.451	0.512
	LTE Band 66-UAT	20M	QPSK	50	0	Left Cheek	DSI2	132322	1745	14.14	14.90	1.191	-0.01	0.485	0.578
10	LTE Band 66-UAT	20M	QPSK	1	0	Left Tilted	DSI2	132322	1745	14.35	14.90	1.135	0.11	0.672	**0.763**
	LTE Band 66-UAT	20M	QPSK	1	0	Left Tilted	DSI2	132072	1720	14.32	14.90	1.143	0.06	0.570	0.651
	LTE Band 66-UAT	20M	QPSK	1	0	Left Tilted	DSI2	132572	1770	14.09	14.90	1.205	0.02	0.630	0.759
	LTE CA_66B-UAT	15M	QPSK	1	0	Left Tilted	DSI2	132322+132229	1745+1735.7	13.94	14.90	1.247	0.02	0.611	0.762
	LTE CA_66C-UAT	20M	QPSK	1	0	Left Tilted	DSI2	132322+132124	1745+1725.2	14.31	14.90	1.146	0.03	0.632	0.724
	LTE Band 66-UAT	20M	QPSK	50	0	Left Tilted	DSI2	132322	1745	14.14	14.90	1.191	0.06	0.556	0.662
	LTE Band 66-UAT	20M	QPSK	100	0	Left Tilted	DSI2	132322	1745	14.08	14.90	1.208	-0.03	0.631	0.762
	LTE Band 66-UAT	20M	QPSK	1	0	Right Cheek	DSI2	132322	1745	14.35	14.90	1.135	0.02	0.244	0.277
	LTE Band 66-UAT	20M	QPSK	50	0	Right Cheek	DSI2	132322	1745	14.14	14.90	1.191	0.12	0.264	0.314
	LTE Band 66-UAT	20M	QPSK	1	0	Right Tilted	DSI2	132322	1720	14.35	14.90	1.135	0.06	0.321	0.364
	LTE Band 66-UAT	20M	QPSK	50	0	Right Tilted	DSI2	132322	1770	14.14	14.90	1.191	0.01	0.348	0.415

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	376000	1880	23.25	24.00	1.189	0.06	0.043	0.051
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	376000	1880	23.16	24.00	1.213	-0.03	0.044	0.053
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	376000	1880	23.25	24.00	1.189	0.01	0.038	0.045
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	376000	1880	23.16	24.00	1.213	-0.01	0.027	0.033
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	376000	1880	23.25	24.00	1.189	0.07	0.056	0.067
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	376000	1880	23.16	24.00	1.213	-0.06	0.045	0.055
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	376000	1880	23.25	24.00	1.189	0.02	0.045	0.053
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	376000	1880	23.16	24.00	1.213	0.01	0.038	0.046
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	376000	1880	15.32	15.50	1.042	-0.02	0.349	0.364
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	376000	1880	15.25	15.50	1.059	0.03	0.339	0.359
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	376000	1880	15.32	15.50	1.042	0.01	0.381	0.397
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	376000	1880	15.25	15.50	1.059	0.09	0.397	0.421
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	376000	1880	15.32	15.50	1.042	0.02	0.630	0.657
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	376000	1880	15.25	15.50	1.059	0.01	0.629	0.666
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	376000	1880	15.32	15.50	1.042	-0.1	0.890	0.928
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	372000	1860	15.24	15.50	1.062	0.03	0.874	0.928
	FR1 n2	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	380000	1900	15.27	15.50	1.054	0.09	0.909	0.958
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	376000	1880	15.25	15.50	1.059	-0.1	0.914	0.968
	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	372000	1860	15.17	15.50	1.079	-0.04	0.750	0.809
11	FR1 n2	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	380000	1900	15.23	15.50	1.064	0.04	0.920	**0.979**
	FR1 n2	20M	QPSK	100	0	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	376000	1880	15.18	15.50	1.076	-0.11	0.815	0.877
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	-0.1	0.146	0.174
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	0.03	0.132	0.158
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	0.02	0.114	0.136
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	-0.02	0.103	0.123
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	0.09	0.134	0.160
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	-0.13	0.126	0.150
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	0.02	0.095	0.113
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	167300	836.5	23.23	24.00	1.194	0.01	0.083	0.099
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	167300	836.5	23.25	24.00	1.189	0.03	0.460	0.547
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	167300	836.5	23.22	24.00	1.197	0.02	0.401	0.480
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	167300	836.5	23.25	24.00	1.189	0.01	0.360	0.428
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	167300	836.5	23.22	24.00	1.197	0.09	0.377	0.451
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	167300	836.5	23.25	24.00	1.189	-0.08	0.541	0.643
12	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	167300	836.5	23.22	24.00	1.197	0.05	0.657	**0.786**
	FR1 n5	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	167300	836.5	23.25	24.00	1.189	-0.06	0.544	0.647
	FR1 n5	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	167300	836.5	23.22	24.00	1.197	-0.02	0.541	0.647
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	349000	1745	23.06	24.00	1.242	0.09	0.046	0.057
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 1	DSI2	349000	1745	23.00	24.00	1.259	0.02	0.041	0.052
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	349000	1745	23.06	24.00	1.242	0.09	0.012	0.014
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 1	DSI2	349000	1745	23.00	24.00	1.259	-0.01	0.012	0.015
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	349000	1745	23.06	24.00	1.242	0.01	0.050	0.062
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 1	DSI2	349000	1745	23.00	24.00	1.259	0.03	0.031	0.039
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	349000	1745	23.06	24.00	1.242	0.02	0.042	0.052
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 1	DSI2	349000	1745	23.00	24.00	1.259	0.09	0.042	0.053
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	349000	1745	15.91	16.50	1.146	0.01	0.193	0.221
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Cheek	ANT 2	DSI2	349000	1745	15.78	16.50	1.180	-0.03	0.315	0.372
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	349000	1745	15.91	16.50	1.146	0.02	0.218	0.250
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Right Tilted	ANT 2	DSI2	349000	1745	15.78	16.50	1.180	0.01	0.412	0.486
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	349000	1745	15.91	16.50	1.146	-0.03	0.321	0.368
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Cheek	ANT 2	DSI2	349000	1745	15.78	16.50	1.180	0.02	0.580	0.685
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	349000	1745	15.91	16.50	1.146	0.08	0.814	0.932
	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	344000	1720	15.84	16.50	1.164	-0.02	0.773	0.900
13	FR1 n66	20M	QPSK	1	1	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	354000	1770	15.86	16.50	1.159	-0.03	0.842	**0.976**
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	349000	1745	15.78	16.50	1.180	-0.02	0.822	0.970
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	344000	1720	15.67	16.50	1.211	0.02	0.771	0.933
	FR1 n66	20M	QPSK	50	28	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	354000	1770	15.63	16.50	1.222	-0.04	0.716	0.875
	FR1 n66	20M	QPSK	100	0	DFT-s-OFDM SCS15KHz	Left Tilted	ANT 2	DSI2	349000	1745	15.67	16.50	1.211	-0.02	0.734	0.889

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
14	WLAN2.4GHz-	802.11b 1Mbps	Right Cheek	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	0.02	0.937	**0.970**
	WLAN2.4GHz-	802.11b 1Mbps	Right Cheek	Ant3+6	Reduced	6	2412	20.85	21.00	1.035	100	1.000	0.04	0.713	0.738
	WLAN2.4GHz-	802.11b 1Mbps	Right Tilted	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	-0.02	0.683	0.707
	WLAN2.4GHz-	802.11b 1Mbps	Left Cheek	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	0.11	0.551	0.570
	WLAN2.4GHz-	802.11b 1Mbps	Left Tilted	Ant3+6	Reduced	1	2437	20.31	21.00	1.172	100	1.000	0.07	0.607	0.712
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.01	0.346	0.348
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.09	0.297	0.299
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	-0.11	0.211	0.212
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.06	0.209	0.210

<WLAN 5G SAR>

Plot No.	Band	Mode	Test Position	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.3GHz	802.11a 6Mbps	Right Cheek	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.07	0.033	0.038
	WLAN5.3GHz	802.11a 6Mbps	Right Tilted	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.05	0.044	0.051
	WLAN5.3GHz	802.11a 6Mbps	Left Cheek	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	-0.01	0.041	0.048
15	WLAN5.3GHz	802.11a 6Mbps	Left Tilted	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.03	0.065	**0.075**
	WLAN5.5GHz	802.11a 6Mbps	Right Cheek	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.09	0.078	0.094
	WLAN5.5GHz	802.11a 6Mbps	Right Tilted	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.11	0.082	0.098
	WLAN5.5GHz	802.11a 6Mbps	Left Cheek	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	-0.02	0.080	0.096
16	WLAN5.5GHz	802.11a 6Mbps	Left Tilted	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.08	0.107	**0.128**
	WLAN5.8GHz	802.11a 6Mbps	Right Cheek	Ant5+6	Full	149	5745	20.98	21.50	1.127	98.62	1.014	0.09	0.088	0.101
17	WLAN5.8GHz	802.11a 6Mbps	Right Tilted	Ant5+6	Full	149	5745	20.98	21.50	1.127	98.62	1.014	-0.11	0.115	**0.131**
	WLAN5.8GHz	802.11a 6Mbps	Left Cheek	Ant5+6	Full	149	5745	20.98	21.50	1.127	98.62	1.014	0.12	0.063	0.072
	WLAN5.8GHz	802.11a 6Mbps	Left Tilted	Ant5+6	Full	149	5745	20.98	21.50	1.127	98.62	1.014	0.11	0.065	0.074

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
18	Bluetooth	1Mbps	Right Cheek	Ant6	Full	39	2441	11.40	12.00	1.148	76.72	1.086	0.09	0.043	**0.054**

16.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	189	836.4	26.28	27.30	1.265	-0.09	0.667	0.844
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	128	824.2	26.26	27.30	1.271	0.01	0.432	0.549
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	251	848.8	25.95	27.30	1.365	0.05	0.448	0.611
19	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	189	836.4	26.28	27.30	1.265	-0.09	0.721	**0.912**
	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	128	824.2	26.26	27.30	1.271	-0.05	0.523	0.665
	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	251	848.8	25.95	27.30	1.365	0.01	0.661	0.902
	GSM850	GPRS 4 Tx slots	Left Side	5mm	DSI3	189	836.4	26.28	27.30	1.265	0.03	0.102	0.129
	GSM850	GPRS 4 Tx slots	Right Side	5mm	DSI3	189	836.4	26.28	27.30	1.265	-0.02	0.172	0.218
	GSM850	GPRS 4 Tx slots	Bottom Side	5mm	DSI3	189	836.4	26.28	27.30	1.265	0.01	0.563	0.712
	GSM1900	GPRS 4 Tx slots	Front	5mm	DSI3	661	1880	20.25	21.10	1.216	0.03	0.428	0.521
	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	661	1880	20.25	21.10	1.216	-0.02	0.639	0.777
	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	512	1850.2	20.00	21.10	1.288	0.06	0.569	0.733
	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	810	1909.8	20.12	21.10	1.253	0.09	0.636	0.797
	GSM1900	GPRS 4 Tx slots	Left Side	5mm	DSI3	661	1880	20.25	21.10	1.216	0.01	0.023	0.028
	GSM1900	GPRS 4 Tx slots	Right Side	5mm	DSI3	661	1880	20.25	21.10	1.216	0.05	0.085	0.103
20	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	DSI3	661	1880	20.25	21.10	1.216	-0.09	0.755	**0.918**
	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	DSI3	512	1850.2	20.00	21.10	1.288	-0.02	0.699	0.900
	GSM1900	GPRS 4 Tx slots	Bottom Side	5mm	DSI3	810	1909.8	20.12	21.10	1.253	0.02	0.649	0.813

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.03	0.272	0.337
	WCDMA II	RMC 12.2Kbps	Back	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.02	0.460	0.570
	WCDMA II	RMC 12.2Kbps	Left Side	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.03	0.123	0.152
	WCDMA II	RMC 12.2Kbps	Right Side	5mm	DSI3	9400	1880	15.37	16.30	1.239	-0.01	0.315	0.390
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.04	0.546	0.676
	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	DSI3	9262	1852.4	15.25	16.30	1.274	0.04	0.516	0.657
21	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	DSI3	9538	1907.6	15.20	16.30	1.288	0.04	0.575	**0.741**
	WCDMA V	RMC 12.2Kbps	Front	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.02	0.555	0.639
22	WCDMA V	RMC 12.2Kbps	Back	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.08	0.677	**0.779**
	WCDMA V	RMC 12.2Kbps	Left Side	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.01	0.200	0.230
	WCDMA V	RMC 12.2Kbps	Right Side	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.06	0.420	0.483
	WCDMA V	RMC 12.2Kbps	Bottom Side	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.03	0.662	0.762

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2-LAT	20M	QPSK	1	0	Front	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.02	0.233	0.262
	LTE Band 2-LAT	20M	QPSK	50	0	Front	5mm	DSI3	18900	1880	15.17	15.90	1.183	0.01	0.206	0.244
	LTE Band 2-LAT	20M	QPSK	1	0	Back	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.09	0.507	0.570
	LTE Band 2-LAT	20M	QPSK	50	0	Back	5mm	DSI3	18900	1880	15.17	15.90	1.183	0.03	0.464	0.549
	LTE Band 2-LAT	20M	QPSK	1	0	Left Side	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.09	0.071	0.080
	LTE Band 2-LAT	20M	QPSK	50	0	Left Side	5mm	DSI3	18900	1880	15.17	15.90	1.183	-0.01	0.074	0.088
	LTE Band 2-LAT	20M	QPSK	1	0	Right Side	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.01	0.064	0.072
	LTE Band 2-LAT	20M	QPSK	50	0	Right Side	5mm	DSI3	18900	1880	15.17	15.90	1.183	0.06	0.071	0.084
	LTE Band 2-LAT	20M	QPSK	1	0	Bottom Side	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.09	0.614	0.691
	LTE Band 2-LAT	20M	QPSK	50	0	Bottom Side	5mm	DSI3	18900	1880	15.17	15.90	1.183	-0.02	0.619	0.732
	LTE Band 2-UAT	20M	QPSK	1	0	Front	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.01	0.411	0.486
	LTE Band 2-UAT	20M	QPSK	50	0	Front	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.02	0.375	0.475
	LTE Band 2-UAT	20M	QPSK	1	0	Back	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.04	0.455	0.538
	LTE Band 2-UAT	20M	QPSK	50	0	Back	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.07	0.379	0.480
	LTE Band 2-UAT	20M	QPSK	1	0	Right Side	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.02	0.112	0.133
	LTE Band 2-UAT	20M	QPSK	50	0	Right Side	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.03	0.098	0.124
23	LTE Band 2-UAT	20M	QPSK	1	0	Top Side	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.03	0.669	**0.791**
	LTE Band 2-UAT	20M	QPSK	1	0	Top Side	5mm	DSI3	18700	1860	15.02	15.80	1.197	0.01	0.540	0.646
	LTE Band 2-UAT	20M	QPSK	1	0	Top Side	5mm	DSI3	19100	1900	15.00	15.80	1.202	0.05	0.602	0.724
	LTE Band 2-UAT	20M	QPSK	50	0	Top Side	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.07	0.563	0.714
	LTE Band 2-UAT	20M	QPSK	50	0	Top Side	5mm	DSI3	18700	1860	14.56	15.80	1.330	0.07	0.460	0.612
	LTE Band 2-UAT	20M	QPSK	50	0	Top Side	5mm	DSI3	19100	1900	14.54	15.80	1.337	0.02	0.589	0.787
	LTE Band 2-UAT	20M	QPSK	100	0	Top Side	5mm	DSI3	19100	1900	14.67	15.80	1.297	0.09	0.597	0.774
	LTE Band 5-LAT	10M	QPSK	1	0	Front	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.02	0.495	0.632
	LTE Band 5-LAT	10M	QPSK	25	0	Front	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.01	0.245	0.344
24	LTE Band 5-LAT	10M	QPSK	1	0	Back	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.05	0.645	**0.823**
	LTE CA_5B-LAT	10M	QPSK	1	0	Back	5mm	DSI3	20575+20476	841.5+831.6	22.62	23.70	1.282	0.03	0.587	0.753
	LTE Band 5-LAT	10M	QPSK	25	0	Back	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.04	0.424	0.596
	LTE Band 5-LAT	10M	QPSK	50	0	Back	5mm	DSI3	20525	836.5	21.34	23.00	1.466	0.01	0.530	0.777
	LTE Band 5-LAT	10M	QPSK	1	0	Left Side	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.04	0.318	0.406
	LTE Band 5-LAT	10M	QPSK	25	0	Left Side	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.01	0.172	0.242
	LTE Band 5-LAT	10M	QPSK	1	0	Right Side	5mm	DSI3	20525	836.5	22.64	23.70	1.276	-0.01	0.458	0.585
	LTE Band 5-LAT	10M	QPSK	25	0	Right Side	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.02	0.252	0.354
	LTE Band 5-LAT	10M	QPSK	1	0	Bottom Side	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.06	0.553	0.706
	LTE Band 5-LAT	10M	QPSK	25	0	Bottom Side	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.01	0.298	0.419
	LTE Band 5-UAT	10M	QPSK	1	0	Front	5mm	DSI3	20525	836.5	22.64	23.50	1.219	0.02	0.298	0.363
	LTE CA_5B-UAT	10M	QPSK	1	0	Front	5mm	DSI3	20575+20476	841.5+831.6	22.64	23.50	1.219	-0.06	0.242	0.295
	LTE Band 5-UAT	10M	QPSK	25	0	Front	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.02	0.184	0.224
	LTE Band 5-UAT	10M	QPSK	1	0	Back	5mm	DSI3	20525	836.5	22.64	23.50	1.219	0.01	0.214	0.261
	LTE Band 5-UAT	10M	QPSK	25	0	Back	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.06	0.128	0.156
	LTE Band 5-UAT	10M	QPSK	1	0	Right Side	5mm	DSI3	20525	836.5	22.64	23.50	1.219	0.02	0.109	0.133
	LTE Band 5-UAT	10M	QPSK	25	0	Right Side	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.03	0.083	0.101
	LTE Band 5-UAT	10M	QPSK	1	0	Top Side	5mm	DSI3	20525	836.5	22.64	23.50	1.219	-0.02	0.371	0.452
	LTE CA_5B-UAT	10M	QPSK	1	0	Top Side	5mm	DSI3	20575+20476	841.5+831.6	22.64	23.50	1.219	0.02	0.324	0.395
	LTE Band 5-UAT	10M	QPSK	25	0	Top Side	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.05	0.206	0.251

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 12	10M	QPSK	1	0	Front	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.09	0.370	0.474
	LTE Band 12	10M	QPSK	25	0	Front	5mm	DSI3	23095	707.5	21.96	23.00	1.271	-0.01	0.203	0.258
	LTE Band 12	10M	QPSK	1	0	Back	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.05	0.440	0.564
	LTE Band 12	10M	QPSK	25	0	Back	5mm	DSI3	23095	707.5	21.96	23.00	1.271	0.03	0.334	0.424
	LTE Band 12	10M	QPSK	1	0	Left Side	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.02	0.298	0.382
	LTE Band 12	10M	QPSK	25	0	Left Side	5mm	DSI3	23095	707.5	21.96	23.00	1.271	-0.01	0.165	0.210
	LTE Band 12	10M	QPSK	1	0	Right Side	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.09	0.436	0.559
	LTE Band 12	10M	QPSK	25	0	Right Side	5mm	DSI3	23095	707.5	21.96	23.00	1.271	0.02	0.242	0.307
25	LTE Band 12	10M	QPSK	1	0	Bottom Side	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.01	0.522	**0.669**
	LTE Band 12	10M	QPSK	25	0	Bottom Side	5mm	DSI3	23095	707.5	21.96	23.00	1.271	-0.03	0.294	0.374
	LTE Band 13	10M	QPSK	1	0	Front	5mm	DSI3	23230	782	22.82	24.00	1.312	0.03	0.137	0.180
	LTE Band 13	10M	QPSK	25	0	Front	5mm	DSI3	23230	782	21.94	23.00	1.276	0.09	0.125	0.160
26	LTE Band 13	10M	QPSK	1	0	Back	5mm	DSI3	23230	782	22.82	24.00	1.312	-0.15	0.585	**0.768**
	LTE Band 13	10M	QPSK	25	0	Back	5mm	DSI3	23230	782	21.94	23.00	1.276	-0.01	0.431	0.550
	LTE Band 13	10M	QPSK	1	0	Left Side	5mm	DSI3	23230	782	22.82	24.00	1.312	0.02	0.219	0.287
	LTE Band 13	10M	QPSK	25	0	Left Side	5mm	DSI3	23230	782	21.94	23.00	1.276	0.09	0.136	0.174
	LTE Band 13	10M	QPSK	1	0	Right Side	5mm	DSI3	23230	782	22.82	24.00	1.312	0.02	0.214	0.281
	LTE Band 13	10M	QPSK	25	0	Right Side	5mm	DSI3	23230	782	21.94	23.00	1.276	0.01	0.194	0.248
	LTE Band 13	10M	QPSK	1	0	Bottom Side	5mm	DSI3	23230	782	22.82	24.00	1.312	0.01	0.207	0.272
	LTE Band 13	10M	QPSK	25	0	Bottom Side	5mm	DSI3	23230	782	21.94	23.00	1.276	0.02	0.191	0.244
	LTE Band 7	20M	QPSK	1	0	Front	5mm	DSI3	21100	2535	13.97	14.20	1.054	0.06	0.191	0.201
	LTE Band 7	20M	QPSK	50	0	Front	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.01	0.182	0.193
	LTE Band 7	20M	QPSK	1	0	Back	5mm	DSI3	21100	2535	13.97	14.20	1.054	-0.02	0.445	0.469
	LTE Band 7	20M	QPSK	50	0	Back	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.09	0.473	0.502
	LTE Band 7	20M	QPSK	1	0	Left Side	5mm	DSI3	21100	2535	13.97	14.20	1.054	-0.01	0.029	0.031
	LTE Band 7	20M	QPSK	50	0	Left Side	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.05	0.026	0.028
	LTE Band 7	20M	QPSK	1	0	Right Side	5mm	DSI3	21100	2535	13.97	14.20	1.054	0.03	0.167	0.176
	LTE Band 7	20M	QPSK	50	0	Right Side	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.02	0.164	0.174
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	DSI3	21100	2535	13.97	14.20	1.054	-0.01	0.783	0.826
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	DSI3	20850	2510	13.66	14.20	1.132	-0.02	0.733	0.830
	LTE Band 7	20M	QPSK	1	0	Bottom Side	5mm	DSI3	21350	2560	13.62	14.20	1.143	0.09	0.724	0.827
27	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.05	0.795	**0.844**
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	DSI3	20850	2510	13.72	14.20	1.117	0.05	0.752	0.840
	LTE Band 7	20M	QPSK	50	0	Bottom Side	5mm	DSI3	21350	2560	13.56	14.20	1.159	0.02	0.726	0.841
	LTE Band 7	20M	QPSK	100	0	Bottom Side	5mm	DSI3	21100	2535	13.79	14.20	1.099	0.03	0.755	0.830

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66-LAT	20M	QPSK	1	0	Front	5mm	DSI3	132322	1745	15.43	16.10	1.167	-0.01	0.185	0.216
	LTE Band 66-LAT	20M	QPSK	50	0	Front	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.03	0.220	0.263
	LTE Band 66-LAT	20M	QPSK	1	0	Back	5mm	DSI3	132322	1745	15.43	16.10	1.167	0.05	0.424	0.495
	LTE CA_66B-LAT	15M	QPSK	1	0	Back	5mm	DSI3	132322+132229	1745+1735.7	15.13	16.10	1.250	0.02	0.342	0.428
	LTE CA_66C-LAT	20M	QPSK	1	0	Back	5mm	DSI3	132322+132124	1745+1725.2	15.35	16.10	1.189	0.09	0.348	0.414
	LTE Band 66-LAT	20M	QPSK	50	0	Back	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.01	0.322	0.384
	LTE Band 66-LAT	20M	QPSK	1	0	Left Side	5mm	DSI3	132322	1745	15.43	16.10	1.167	0.03	0.221	0.258
	LTE Band 66-LAT	20M	QPSK	50	0	Left Side	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.05	0.125	0.149
	LTE Band 66-LAT	20M	QPSK	1	0	Right Side	5mm	DSI3	132322	1745	15.43	16.10	1.167	0.02	0.038	0.044
	LTE Band 66-LAT	20M	QPSK	50	0	Right Side	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.03	0.043	0.051
	LTE Band 66-LAT	20M	QPSK	1	0	Bottom Side	5mm	DSI3	132322	1745	15.43	16.10	1.167	0.01	0.547	0.638
28	LTE Band 66-LAT	20M	QPSK	50	0	Bottom Side	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.05	0.669	**0.799**
	LTE CA_66B-LAT	15M	QPSK	1	0	Bottom Side	5mm	DSI3	132322+132229	1745+1735.7	15.13	16.10	1.250	0.09	0.578	0.723
	LTE CA_66C-LAT	20M	QPSK	1	0	Bottom Side	5mm	DSI3	132322+132124	1745+1725.2	15.35	16.10	1.189	0.01	0.571	0.679
	LTE Band 66-UAT	20M	QPSK	1	0	Front	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.01	0.282	0.363
	LTE Band 66-UAT	20M	QPSK	50	0	Front	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.08	0.332	0.441
	LTE CA_66B-UAT	15M	QPSK	1	0	Front	5mm	DSI3	132322+132229	1745+1735.7	15.02	16.50	1.406	0.03	0.279	0.392
	LTE CA_66C-UAT	20M	QPSK	1	0	Front	5mm	DSI3	132322+132124	1745+1725.2	15.40	16.50	1.288	-0.03	0.276	0.356
	LTE Band 66-UAT	20M	QPSK	1	0	Back	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.02	0.225	0.290
	LTE Band 66-UAT	20M	QPSK	50	0	Back	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.01	0.245	0.325
	LTE Band 66-UAT	20M	QPSK	1	0	Right Side	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.02	0.101	0.130
	LTE Band 66-UAT	20M	QPSK	50	0	Right Side	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.03	0.095	0.126
	LTE Band 66-UAT	20M	QPSK	1	0	Top Side	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.06	0.563	0.725
	LTE CA_66B-UAT	15M	QPSK	1	0	Top Side	5mm	DSI3	132322+132229	1745+1735.7	15.02	16.50	1.406	0.01	0.280	0.394
	LTE CA_66C-UAT	20M	QPSK	1	0	Top Side	5mm	DSI3	132322+132124	1745+1725.2	15.40	16.50	1.288	0.02	0.310	0.399
	LTE Band 66-UAT	20M	QPSK	50	0	Top Side	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.05	0.522	0.693

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	-0.04	0.394	0.416
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	-0.03	0.384	0.416
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	0.08	0.731	0.773
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	372000	1860	17.42	17.80	1.091	0.01	0.685	0.748
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	380000	1900	17.50	17.80	1.072	0.06	0.637	0.683
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	0.12	0.692	0.750
	FR1 n2	20M	QPSK	100	0	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.40	17.80	1.096	0.03	0.623	0.683
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	-0.04	0.022	0.024
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	0.02	0.022	0.023
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	-0.09	0.083	0.088
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	0.06	0.080	0.087
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	0.07	0.920	0.972
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	372000	1860	17.42	17.80	1.091	0.03	0.917	1.001
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	380000	1900	17.50	17.80	1.072	0.01	0.929	0.995
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	-0.06	0.927	1.005
29	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	372000	1860	17.37	17.80	1.104	0.16	0.953	**1.052**
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	380000	1900	17.44	17.80	1.086	0.04	0.918	0.997
	FR1 n2	20M	QPSK	100	0	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	376000	1880	17.40	17.80	1.096	-0.14	0.906	0.993
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	-0.06	0.481	0.496
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	-0.17	0.462	0.483
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	0.03	0.304	0.313
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	0.03	0.303	0.317
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	0.03	0.089	0.092
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	0.01	0.061	0.064
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	0.02	0.692	0.713
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	372000	1860	15.68	16.00	1.076	0.03	0.588	0.633
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	380000	1900	15.68	16.00	1.076	0.06	0.656	0.706
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	-0.03	0.729	0.762
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	372000	1860	15.72	16.00	1.067	-0.05	0.710	0.757
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	380000	1900	15.60	16.00	1.096	0.04	0.730	0.800
	FR1 n2	20M	QPSK	100	0	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	376000	1880	15.67	16.00	1.079	0.02	0.708	0.764
	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.02	0.435	0.519
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.03	0.357	0.426
30	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.05	0.623	**0.744**
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	-0.1	0.554	0.661
	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.03	0.173	0.207
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.12	0.084	0.100
	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.05	0.328	0.392
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.03	0.257	0.307
	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	-0.04	0.513	0.613
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.02	0.481	0.574
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	0.03	0.347	0.412
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.06	0.333	0.399
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	-0.03	0.276	0.328
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.01	0.312	0.373
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	-0.05	0.348	0.414
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.07	0.247	0.296
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	-0.12	0.408	0.485
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.03	0.358	0.428

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	0.03	0.316	0.334
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.02	0.370	0.409
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	0.08	0.553	0.584
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.15	0.639	0.707
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	-0.07	0.042	0.044
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Left Side	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	-0.06	0.053	0.058
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	0.13	0.070	0.074
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.06	0.075	0.083
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	-0.17	0.827	0.874
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	344000	1720	18.60	19.00	1.096	-0.08	0.766	0.840
31	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	354000	1770	18.63	19.00	1.089	-0.18	0.942	**1.026**
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.16	0.846	0.936
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	344000	1720	18.48	19.00	1.127	0.03	0.781	0.880
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	354000	1770	18.54	19.00	1.112	0.08	0.897	0.997
	FR1 n66	20M	QPSK	100	0	DFT-15KHz	Bottom Side	5mm	ANT 1	DSI3	349000	1745	18.43	19.00	1.140	-0.03	0.845	0.964
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	-0.03	0.530	0.587
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	0.11	0.554	0.624
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	0.09	0.357	0.395
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	0.02	0.372	0.419
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	-0.03	0.089	0.098
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Right Side	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	-0.15	0.063	0.071
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	0.01	0.723	0.800
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	344000	1720	16.45	17.00	1.135	0.03	0.675	0.766
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	354000	1770	16.48	17.00	1.127	0.02	0.741	0.835
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	0.03	0.713	0.804
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	344000	1720	16.43	17.00	1.140	0.03	0.666	0.759
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	354000	1770	16.41	17.00	1.146	0.16	0.742	0.850
	FR1 n66	20M	QPSK	100	0	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	349000	1745	16.35	17.00	1.161	0.01	0.724	0.841

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	0.02	0.420	0.435
32	WLAN2.4GHz	802.11b 1Mbps	Back	5mm-	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	-0.11	1.010	**1.045**
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm-	Ant3+6	Reduced	6	2437	20.31	21.00	1.172	100	1.000	0.11	0.611	0.716
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm-	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.02	0.305	0.307
	WLAN2.4GHz	802.11b 1Mbps	Left Side	5mm	Ant3+6	Hotspot	1	2412	20.85	21.00	1.035	100	1.000	0.07	0.211	0.218
	WLAN2.4GHz	802.11b 1Mbps	Right Side	5mm	Ant3+6	Hotspot	1	2412	20.85	21.00	1.035	100	1.000	0.09	0.224	0.232
	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant3+6	Hotspot	1	2412	20.85	21.00	1.035	100	1.000	0.02	0.503	0.521
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.02	0.304	0.306

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.01	0.040	0.046
33	WLAN5.2GHz	802.11a 6Mbps	Back	5mm-	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.09	1.000	**1.162**
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm-	Ant5+6	Reduced	36	5180	13.40	14.00	1.148	98.62	1.014	0.03	0.677	0.788
	WLAN5.2GHz	802.11a 6Mbps	Left Side	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.03	0.095	0.110
	WLAN5.2GHz	802.11a 6Mbps	Right Side	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.09	0.116	0.135
	WLAN5.2GHz	802.11a 6Mbps	Top Side	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.02	0.062	0.072
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	40	5200	9.24	10.00	1.191	98.62	1.014	-0.01	0.268	0.324
	WLAN5.8GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	-0.17	0.056	0.067
34	WLAN5.8GHz	802.11a 6Mbps	Back	5mm-	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	-0.08	0.877	**1.057**
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm-	Ant5+6	Reduced	149	5745	15.72	16.50	1.197	98.62	1.014	0.09	0.841	1.021
	WLAN5.8GHz	802.11a 6Mbps	Left Side	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	0.05	0.051	0.061
	WLAN5.8GHz	802.11a 6Mbps	Right Side	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	0.01	0.065	0.078
	WLAN5.8GHz	802.11a 6Mbps	Top Side	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	0.01	0.068	0.082
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	165	5825	11.47	11.50	1.007	98.62	1.014	-0.02	0.356	0.363

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
35	Bluetooth	1Mbps	Back	5	Ant 6	Full	39	2441	11.40	12.00	1.148	76.72	1.086	0.03	0.141	**0.176**

16.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	189	836.4	26.28	27.30	1.265	-0.09	0.667	0.844
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	128	824.2	26.26	27.30	1.271	0.01	0.432	0.549
	GSM850	GPRS 4 Tx slots	Front	5mm	DSI3	251	848.8	25.95	27.30	1.365	0.05	0.448	0.611
36	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	189	836.4	26.28	27.30	1.265	-0.09	0.721	**0.912**
	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	128	824.2	26.26	27.30	1.271	-0.05	0.523	0.665
	GSM850	GPRS 4 Tx slots	Back	5mm	DSI3	251	848.8	25.95	27.30	1.365	0.01	0.661	0.902
	GSM850	GPRS 4 Tx slots	Front	19mm	DSI4	189	836.4	26.52	28.00	1.406	0.02	0.100	0.141
	GSM850	GPRS 4 Tx slots	Back	25mm	DSI4	189	836.4	26.52	28.00	1.406	0.05	0.079	0.111
	GSM1900	GPRS 4 Tx slots	Front	5mm	DSI3	661	1880	20.25	21.10	1.216	0.03	0.428	0.521
	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	661	1880	20.25	21.10	1.216	-0.02	0.639	0.777
	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	512	1850.2	20.00	21.10	1.288	0.06	0.569	0.733
37	GSM1900	GPRS 4 Tx slots	Back	5mm	DSI3	810	1909.8	20.12	21.10	1.253	0.09	0.636	**0.797**
	GSM1900	GPRS 3 Tx slots	Front	19mm	DSI4	661	1880	25.58	26.50	1.236	0.03	0.136	0.168
	GSM1900	GPRS 3 Tx slots	Back	25mm	DSI4	810	1909.8	25.11	26.50	1.377	-0.02	0.142	0.196

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Front	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.03	0.272	0.337
38	WCDMA II	RMC 12.2Kbps	Back	5mm	DSI3	9400	1880	15.37	16.30	1.239	0.02	0.460	**0.570**
	WCDMA II	RMC 12.2Kbps	Front	19mm	DSI4	9400	1880	23.46	24.00	1.132	0.03	0.254	0.288
	WCDMA II	RMC 12.2Kbps	Back	25mm	DSI4	9400	1880	23.46	24.00	1.132	-0.03	0.268	0.303
	WCDMA V	RMC 12.2Kbps	Front	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.02	0.555	0.639
39	WCDMA V	RMC 12.2Kbps	Back	5mm	DSI3	4182	836.4	23.39	24.00	1.151	0.08	0.677	**0.779**

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2-LAT	20M	QPSK	1	0	Front	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.02	0.233	0.262
	LTE Band 2-LAT	20M	QPSK	50	0	Front	5mm	DSI3	18900	1880	15.17	15.90	1.183	0.01	0.206	0.244
40	LTE Band 2-LAT	20M	QPSK	1	0	Back	5mm	DSI3	18900	1880	15.39	15.90	1.125	0.09	0.507	**0.570**
	LTE Band 2-LAT	20M	QPSK	50	0	Back	5mm	DSI3	18900	1880	15.17	15.90	1.183	0.03	0.464	0.549
	LTE Band 2-LAT	20M	QPSK	1	0	Front	19mm	DSI4	18900	1880	23.02	24.00	1.253	0.02	0.199	0.249
	LTE Band 2-LAT	20M	QPSK	1	0	Back	25mm	DSI4	18900	1880	23.02	24.00	1.253	0.09	0.246	0.308
	LTE Band 2-UAT	20M	QPSK	1	0	Front	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.01	0.411	0.486
	LTE Band 2-UAT	20M	QPSK	50	0	Front	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.02	0.375	0.475
	LTE Band 2-UAT	20M	QPSK	1	0	Back	5mm	DSI3	18900	1880	15.07	15.80	1.183	0.04	0.455	0.538
	LTE Band 2-UAT	20M	QPSK	50	0	Back	5mm	DSI3	18900	1880	14.77	15.80	1.268	0.07	0.379	0.480
	LTE Band 2-UAT	20M	QPSK	1	0	Front	19mm	DSI4	18900	1880	21.92	23.00	1.282	0.02	0.231	0.296
	LTE Band 2-UAT	20M	QPSK	1	0	Back	25mm	DSI4	18900	1880	21.92	23.00	1.282	0.09	0.137	0.176
	LTE Band 5-LAT	10M	QPSK	1	0	Front	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.02	0.495	0.632
	LTE Band 5-LAT	10M	QPSK	25	0	Front	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.01	0.245	0.344
41	LTE Band 5-LAT	10M	QPSK	1	0	Back	5mm	DSI3	20525	836.5	22.64	23.70	1.276	0.05	0.645	**0.823**
	LTE CA_5B-LAT	10M	QPSK	1	0	Back	5mm	DSI3	20575+20476	841.5+831.6	22.62	23.70	1.282	0.03	0.587	0.753
	LTE Band 5-LAT	10M	QPSK	25	0	Back	5mm	DSI3	20525	836.5	21.52	23.00	1.406	0.04	0.424	0.596
	LTE Band 5-LAT	10M	QPSK	50	0	Back	5mm	DSI3	20525	836.5	21.34	23.00	1.466	0.01	0.530	0.777
	LTE Band 5-LAT	10M	QPSK	1	0	Front	19mm	DSI4	20525	836.5	22.94	24.00	1.276	0.09	0.091	0.116
	LTE Band 5-LAT	10M	QPSK	1	0	Back	25mm	DSI4	20525	836.5	22.94	24.00	1.276	-0.11	0.074	0.094
	LTE Band 5-UAT	10M	QPSK	1	0	Front	5mm	DSI3	20525	836.5	22.64	23.50	1.219	0.02	0.298	0.363
	LTE CA_5B-UAT	10M	QPSK	1	0	Front	5mm	DSI3	20575+20476	841.5+831.6	22.64	23.50	1.219	-0.06	0.242	0.295
	LTE Band 5-UAT	10M	QPSK	25	0	Front	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.02	0.184	0.224
	LTE Band 5-UAT	10M	QPSK	1	0	Back	5mm	DSI3	20525	836.5	22.64	23.50	1.219	0.01	0.214	0.261
	LTE Band 5-UAT	10M	QPSK	25	0	Back	5mm	DSI3	20525	836.5	21.65	22.50	1.216	0.06	0.128	0.156
	LTE Band 12	10M	QPSK	1	0	Front	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.09	0.370	0.474
	LTE Band 12	10M	QPSK	25	0	Front	5mm	DSI3	23095	707.5	21.96	23.00	1.271	-0.01	0.203	0.258
42	LTE Band 12	10M	QPSK	1	0	Back	5mm	DSI3	23095	707.5	22.92	24.00	1.282	0.05	0.440	**0.564**
	LTE Band 12	10M	QPSK	25	0	Back	5mm	DSI3	23095	707.5	21.96	23.00	1.271	0.03	0.334	0.424
	LTE Band 13	10M	QPSK	1	0	Front	5mm	DSI3	23230	782	22.82	24.00	1.312	0.03	0.137	0.180
	LTE Band 13	10M	QPSK	25	0	Front	5mm	DSI3	23230	782	21.94	23.00	1.276	0.09	0.125	0.160
43	LTE Band 13	10M	QPSK	1	0	Back	5mm	DSI3	23230	782	22.82	24.00	1.312	-0.15	0.585	**0.768**
	LTE Band 13	10M	QPSK	25	0	Back	5mm	DSI3	23230	782	21.94	23.00	1.276	-0.01	0.431	0.550
	LTE Band 7	20M	QPSK	1	0	Front	5mm	DSI3	21100	2535	13.97	14.20	1.054	0.06	0.191	0.201
	LTE Band 7	20M	QPSK	50	0	Front	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.01	0.182	0.193
	LTE Band 7	20M	QPSK	1	0	Back	5mm	DSI3	21100	2535	13.97	14.20	1.054	-0.02	0.445	0.469
44	LTE Band 7	20M	QPSK	50	0	Back	5mm	DSI3	21100	2535	13.94	14.20	1.062	0.09	0.473	**0.502**
	LTE Band 7	20M	QPSK	1	0	Front	19mm	DSI4	21100	2535	23.06	24.00	1.242	-0.01	0.279	0.346
	LTE Band 7	20M	QPSK	1	0	Back	25mm	DSI4	21100	2535	23.06	24.00	1.242	-0.03	0.299	0.371

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 66-LAT	20M	QPSK	1	0	Front	5mm	DSI3	132322	1745	15.43	16.10	1.167	-0.01	0.185	0.216
	LTE Band 66-LAT	20M	QPSK	50	0	Front	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.03	0.220	0.263
45	LTE Band 66-LAT	20M	QPSK	1	0	Back	5mm	DSI3	132322	1745	15.43	16.10	1.167	0.05	0.424	**0.495**
	LTE CA_66B-LAT	15M	QPSK	1	0	Back	5mm	DSI3	132322+132229	1745+1735.7	15.13	16.10	1.250	0.02	0.342	0.428
	LTE CA_66C-LAT	20M	QPSK	1	0	Back	5mm	DSI3	132322+132124	1745+1725.2	15.35	16.10	1.189	0.09	0.348	0.414
	LTE Band 66-LAT	20M	QPSK	50	0	Back	5mm	DSI3	132322	1745	15.33	16.10	1.194	0.01	0.322	0.384
	LTE Band 66-LAT	20M	QPSK	50	0	Front	19mm	DSI4	132322	1745	22.64	24.00	1.368	0.05	0.187	0.256
	LTE Band 66-LAT	20M	QPSK	1	0	Back	25mm	DSI4	132322	1745	22.64	24.00	1.368	-0.04	0.225	0.308
	LTE Band 66-UAT	20M	QPSK	1	0	Front	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.01	0.282	0.363
	LTE Band 66-UAT	20M	QPSK	50	0	Front	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.08	0.332	0.441
	LTE CA_66B-UAT	15M	QPSK	1	0	Front	5mm	DSI3	132322+132229	1745+1735.7	15.02	16.50	1.406	0.03	0.279	0.392
	LTE CA_66C-UAT	20M	QPSK	1	0	Front	5mm	DSI3	132322+132124	1745+1725.2	15.40	16.50	1.288	-0.03	0.276	0.356
	LTE Band 66-UAT	20M	QPSK	1	0	Back	5mm	DSI3	132322	1745	15.40	16.50	1.288	0.02	0.225	0.290
	LTE Band 66-UAT	20M	QPSK	50	0	Back	5mm	DSI3	132322	1745	15.27	16.50	1.327	0.01	0.245	0.325
	LTE Band 66-UAT	20M	QPSK	1	0	Front	19mm	DSI4	132322	1745	21.99	23.00	1.262	0.03	0.194	0.245
	LTE Band 66-UAT	20M	QPSK	1	0	Back	25mm	DSI4	132322	1745	21.99	23.00	1.262	0.05	0.105	0.132

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	-0.04	0.394	0.416
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	-0.03	0.384	0.416
46	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.56	17.80	1.057	0.08	0.731	**0.773**
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	372000	1860	17.42	17.80	1.091	0.01	0.685	0.748
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	380000	1900	17.50	17.80	1.072	0.06	0.637	0.683
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.45	17.80	1.084	0.12	0.692	0.750
	FR1 n2	20M	QPSK	100	0	DFT-15KHz	Back	5mm	ANT 1	DSI3	376000	1880	17.40	17.80	1.096	0.03	0.623	0.683
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Front	19mm	ANT 1	DSI4	376000	1880	23.25	24.00	1.189	0.02	0.219	0.260
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	25mm	ANT 1	DSI4	376000	1880	23.25	24.00	1.189	0.02	0.243	0.289
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	-0.06	0.481	0.496
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	-0.17	0.462	0.483
	FR1 n2	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	376000	1880	15.87	16.00	1.030	0.03	0.304	0.313
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	376000	1880	15.81	16.00	1.045	0.03	0.303	0.317
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Front	19mm	ANT 2	DSI4	376000	1880	23.81	24.00	1.045	-0.06	0.278	0.290
	FR1 n2	20M	QPSK	50	28	DFT-15KHz	Back	25mm	ANT 2	DSI4	376000	1880	23.81	24.00	1.045	0.01	0.155	0.162
	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.02	0.435	0.519
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.03	0.357	0.426
47	FR1 n5	20M	BPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	0.05	0.623	**0.744**
	FR1 n5	20M	BPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	167300	836.5	23.23	24.00	1.194	-0.1	0.554	0.661
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	0.03	0.347	0.412
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.06	0.333	0.399
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	-0.03	0.276	0.328
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.01	0.312	0.373
	FR1 n5	20M	QPSK	1	1	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	167300	836.5	23.25	24.00	1.189	-0.12	0.408	0.485
	FR1 n5	20M	QPSK	50	28	DFT-15KHz	Top Side	5mm	ANT 2	DSI3	167300	836.5	23.22	24.00	1.197	0.03	0.358	0.428
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	0.03	0.316	0.334
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.02	0.370	0.409
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 1	DSI3	349000	1745	18.76	19.00	1.057	0.08	0.553	0.584
48	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 1	DSI3	349000	1745	18.56	19.00	1.107	0.15	0.639	**0.707**
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	19mm	ANT 1	DSI4	349000	1745	23.00	24.00	1.259	0.03	0.165	0.208
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	25mm	ANT 1	DSI4	349000	1745	23.00	24.00	1.259	0.05	0.170	0.214
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Front	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	-0.03	0.530	0.587
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	0.11	0.554	0.624
	FR1 n66	20M	QPSK	1	1	DFT-15KHz	Back	5mm	ANT 2	DSI3	349000	1745	16.56	17.00	1.107	0.09	0.357	0.395
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	5mm	ANT 2	DSI3	349000	1745	16.48	17.00	1.127	0.02	0.372	0.419
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Front	19mm	ANT 2	DSI4	349000	1745	22.95	24.00	1.274	0.01	0.343	0.437
	FR1 n66	20M	QPSK	50	28	DFT-15KHz	Back	25mm	ANT 2	DSI4	349000	1745	22.95	24.00	1.274	-0.09	0.181	0.231

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	0.02	0.420	0.435
49	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant3+6	Reduced	1	2412	20.85	21.00	1.035	100	1.000	-0.11	1.010	**1.045**
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant3+6	Reduced	6	2437	20.31	21.00	1.172	100	1.000	0.11	0.611	0.716
	WLAN2.4GHz	802.11b 1Mbps	Front	19mm	Ant3+6	Full	1	2412	22.11	22.50	1.094	100	1.000	0.03	0.128	0.140
	WLAN2.4GHz	802.11b 1Mbps	Back	25mm	Ant3+6	Full	1	2412	22.11	22.50	1.094	100	1.000	-0.04	0.135	0.148
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant3+6	Simultaneous	1	2412	16.47	16.50	1.007	100	1.000	0.02	0.305	0.307

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5.2GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.01	0.040	0.046
50	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	40	5200	13.41	14.00	1.146	98.62	1.014	0.09	1.000	**1.162**
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	36	5180	13.40	14.00	1.148	98.62	1.014	0.03	0.677	0.788
	WLAN5.2GHz	802.11a 6Mbps	Front	19mm	Ant5+6	Full	40	5200	20.19	21.00	1.205	98.62	1.014	-0.04	0.070	0.086
	WLAN5.2GHz	802.11a 6Mbps	Back	25mm	Ant5+6	Full	40	5200	20.19	21.00	1.205	98.62	1.014	0.09	0.802	0.980
	WLAN5.2GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	40	5200	9.24	10.00	1.191	98.62	1.014	-0.01	0.268	0.324
	WLAN5.3GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	56	5280	13.34	13.50	1.038	98.62	1.014	0.05	0.118	0.124
51	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	56	5280	13.34	13.50	1.038	98.62	1.014	-0.02	0.919	**0.967**
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	60	5300	13.32	13.50	1.042	98.62	1.014	0.08	0.712	0.753
	WLAN5.3GHz	802.11a 6Mbps	Front	19mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.15	0.053	0.061
	WLAN5.3GHz	802.11a 6Mbps	Back	25mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	-0.07	0.760	0.881
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	56	5280	8.97	9.00	1.007	98.62	1.014	0.13	0.320	0.327
	WLAN5.5GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	116	5580	14.11	14.50	1.094	98.62	1.014	0.03	0.092	0.102
52	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	116	5580	14.11	14.50	1.094	98.62	1.014	0.05	0.924	**1.025**
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	132	5660	13.49	14.50	1.262	98.62	1.014	-0.02	0.535	0.685
	WLAN5.5GHz	802.11a 6Mbps	Front	19mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.08	0.048	0.058
	WLAN5.5GHz	802.11a 6Mbps	Back	25mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.15	0.847	1.016
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	116	5580	8.27	8.50	1.054	98.62	1.014	0.09	0.361	0.386
	WLAN5.8GHz	802.11a 6Mbps	Front	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	-0.17	0.056	0.067
53	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	165	5825	15.75	16.50	1.189	98.62	1.014	-0.08	0.877	**1.057**
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Reduced	149	5745	15.72	16.50	1.197	98.62	1.014	0.09	0.841	1.021
	WLAN5.8GHz	802.11a 6Mbps	Front	19mm	Ant5+6	Full	165	5825	20.94	21.50	1.138	98.62	1.014	0.02	0.087	0.100
	WLAN5.8GHz	802.11a 6Mbps	Back	25mm	Ant5+6	Full	165	5825	20.94	21.50	1.138	98.62	1.014	-0.04	0.389	0.449
	WLAN5.8GHz	802.11a 6Mbps	Back	5mm	Ant5+6	Simultaneous	165	5825	11.47	11.50	1.007	98.62	1.014	-0.02	0.356	0.363

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
54	Bluetooth	1Mbps	Back	5	Ant 6	Full	39	2441	11.40	12.00	1.148	76.72	1.086	0.03	0.141	**0.176**

16.4 Product specific 10g SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM1900	GPRS 3 Tx slots	Front	0mm	DSI6	661	1880	25.58	26.50	1.236	0.03	1.170	1.446
55	GSM1900	GPRS 3 Tx slots	Back	0mm	DSI6	661	1880	25.58	26.50	1.236	0.09	1.950	**2.410**
	GSM1900	GPRS 3 Tx slots	Back	0mm	DSI6	512	1850.2	25.39	26.50	1.291	-0.01	1.680	2.169
	GSM1900	GPRS 3 Tx slots	Back	0mm	DSI6	810	1909.8	25.11	26.50	1.377	0.01	1.730	2.383
	GSM1900	GPRS 3 Tx slots	Bottom Side	0mm	DSI6	661	1880	25.58	26.50	1.236	0.06	1.760	2.175
	GSM1900	GPRS 3 Tx slots	Bottom Side	0mm	DSI6	512	1850.2	25.39	26.50	1.291	0.09	1.670	2.156
	GSM1900	GPRS 3 Tx slots	Bottom Side	0mm	DSI6	810	1909.8	25.11	26.50	1.377	0.02	1.710	2.355

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA II	RMC 12.2Kbps	Back	0mm	DSI6	9400	1880	19.23	20.20	1.250	0.05	1.500	1.875
	WCDMA II	RMC 12.2Kbps	Back	0mm	DSI6	9262	1852.4	19.18	20.20	1.265	0.05	1.500	1.897
56	WCDMA II	RMC 12.2Kbps	Back	0mm	DSI6	9538	1907.6	19.12	20.20	1.282	0.05	1.560	**2.000**
	WCDMA II	RMC 12.2Kbps	Bottom Side	0mm	DSI6	9400	1880	19.23	20.20	1.250	0.02	1.450	1.813
	WCDMA II	RMC 12.2Kbps	Back	9mm	DSI4	9538	1907.6	23.43	24.00	1.140	0.05	0.922	1.051
	WCDMA II	RMC 12.2Kbps	Bottom Side	10mm	DSI4	9400	1880	23.46	24.00	1.132	0.02	1.000	1.132

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2-LAT	20M	QPSK	1	0	Back	0mm	DSI6	18900	1880	19.40	20.30	1.230	0.08	1.400	1.722
57	LTE Band 2-LAT	20M	QPSK	50	0	Back	0mm	DSI6	18900	1880	19.22	20.30	1.282	0.02	1.500	**1.923**
	LTE Band 2-LAT	20M	QPSK	1	0	Bottom Side	0mm	DSI6	18900	1880	19.40	20.30	1.230	0.02	1.320	1.624
	LTE Band 2-LAT	20M	QPSK	50	0	Bottom Side	0mm	DSI6	18900	1880	19.22	20.30	1.282	0.09	1.430	1.834
	LTE Band 2-LAT	20M	QPSK	1	0	Back	9mm	DSI4	18900	1880	23.02	24.00	1.253	0.08	0.695	0.871
	LTE Band 2-LAT	20M	QPSK	1	0	Bottom Side	10mm	DSI4	18900	1880	23.02	24.00	1.253	0.02	0.969	1.214
	LTE Band 2-UAT	20M	QPSK	1	0	Front	0mm	DSI6	18900	1880	19.36	20.50	1.300	0.03	1.310	1.703
	LTE Band 2-UAT	20M	QPSK	50	0	Front	0mm	DSI6	18900	1880	19.29	20.50	1.321	-0.03	1.340	1.771
	LTE Band 2-UAT	20M	QPSK	1	0	Back	0mm	DSI6	18900	1880	19.36	20.50	1.300	0.01	1.280	1.664
	LTE Band 2-UAT	20M	QPSK	50	0	Back	0mm	DSI6	18900	1880	19.29	20.50	1.321	0.06	1.320	1.744
	LTE Band 2-UAT	20M	QPSK	1	0	Top Side	0mm	DSI6	18900	1880	19.36	20.50	1.300	0.02	1.370	1.781
	LTE Band 2-UAT	20M	QPSK	50	0	Top Side	0mm	DSI6	18900	1880	19.29	20.50	1.321	0.05	1.350	1.784
	LTE Band 2-UAT	20M	QPSK	1	0	Front	5mm	DSI4	18900	1880	21.92	23.00	1.282	0.03	1.030	1.321
	LTE Band 2-UAT	20M	QPSK	1	0	Back	9mm	DSI4	18900	1880	21.92	23.00	1.282	0.01	0.444	0.569
	LTE Band 2-UAT	20M	QPSK	1	0	Top Side	10mm	DSI4	18900	1880	21.92	23.00	1.282	0.02	0.695	0.891
58	LTE Band 7	20M	QPSK	1	0	Back	0mm	DSI6	21100	2535	18.19	19.50	1.352	0.01	1.330	**1.798**
	LTE Band 7	20M	QPSK	50	0	Back	0mm	DSI6	21100	2535	18.02	19.50	1.406	0.09	1.210	1.701
	LTE Band 7	20M	QPSK	1	0	Bottom Side	0mm	DSI6	21100	2535	18.19	19.50	1.352	0.03	1.110	1.501
	LTE Band 7	20M	QPSK	50	0	Bottom Side	0mm	DSI6	21100	2535	18.02	19.50	1.406	0.11	1.080	1.519
	LTE Band 7	20M	QPSK	1	0	Back	9mm	DSI4	21100	2535	23.06	24.00	1.242	0.01	0.886	1.100
	LTE Band 7	20M	QPSK	1	0	Bottom Side	10mm	DSI4	21100	2535	23.06	24.00	1.242	0.03	0.952	1.182
	LTE Band 66-LAT	20M	QPSK	1	0	Back	0mm	DSI6	132322	1745	19.54	20.50	1.247	0.04	1.410	1.759
	LTE Band 66-LAT	20M	QPSK	50	0	Back	0mm	DSI6	132322	1745	19.30	20.50	1.318	0.09	1.330	1.753
	LTE Band 66-LAT	20M	QPSK	1	0	Bottom Side	0mm	DSI6	132322	1745	19.54	20.50	1.247	0.06	1.230	1.534
	LTE Band 66-LAT	20M	QPSK	50	0	Bottom Side	0mm	DSI6	132322	1745	19.30	20.50	1.318	-0.11	1.320	1.740
	LTE CA_66B-LAT	15M	QPSK	1	0	Bottom Side	0mm	DSI6	132322+132229	1745+1735.7	19.38	20.50	1.294	0.08	1.040	1.346
	LTE CA_66C-LAT	20M	QPSK	1	0	Bottom Side	0mm	DSI6	132322+132124	1745+1725.2	19.31	20.50	1.315	0.02	1.100	1.447
	LTE Band 66-LAT	20M	QPSK	1	0	Back	9mm	DSI4	132322	1745	22.64	24.00	1.368	0.01	0.743	1.016
	LTE Band 66-LAT	20M	QPSK	1	0	Bottom Side	10mm	DSI4	132322	1745	22.64	24.00	1.368	0.01	0.761	1.041
	LTE Band 66-UAT	20M	QPSK	1	0	Top Side	0mm	DSI6	132322	1745	19.31	20.00	1.172	0.07	1.510	1.770
	LTE CA_66B-UAT	15M	QPSK	1	0	Top Side	0mm	DSI6	132322+132229	1745+1735.7	18.98	20.00	1.265	0.02	1.230	1.556
	LTE CA_66C-UAT	20M	QPSK	1	0	Top Side	0mm	DSI6	132322+132124	1745+1725.2	19.26	20.00	1.186	0.01	1.420	1.684
59	LTE Band 66-UAT	20M	QPSK	50	0	Top Side	0mm	DSI6	132322	1745	19.17	20.00	1.211	0.05	1.640	**1.985**
	LTE Band 66-UAT	20M	QPSK	1	0	Top Side	10mm	DSI4	132322	1745	21.99	23.00	1.262	0.07	0.624	0.787

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Front	0mm	ANT 1	DSI6	376000	1880	21.97	22.30	1.079	0.02	1.450	1.564
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Front	0mm	ANT 1	DSI6	376000	1880	21.85	22.30	1.109	0.02	1.050	1.165
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	376000	1880	21.97	22.30	1.079	-0.09	2.370	2.557
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	372000	1860	21.85	22.30	1.109	0.02	2.150	2.385
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	380000	1900	21.83	22.30	1.114	-0.15	1.900	2.117
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	376000	1880	21.85	22.30	1.109	-0.19	2.310	2.562
60	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	372000	1860	21.73	22.30	1.140	-0.06	2.450	**2.794**
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	380000	1900	21.82	22.30	1.117	0.02	2.100	2.345
	FR1 n2	20M	QPSK	100	0	DFT- 15KHz	Back	0mm	ANT 1	DSI6	376000	1880	21.80	22.30	1.122	0.01	2.300	2.581
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	376000	1880	21.97	22.30	1.079	-0.05	1.800	1.942
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	376000	1880	21.85	22.30	1.109	0.05	1.210	1.342
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Front	5mm	ANT 1	DSI4	376000	1880	23.25	24.00	1.189	-0.09	0.838	0.996
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	9mm	ANT 1	DSI4	372000	1860	23.08	24.00	1.236	0.02	0.859	1.062
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	10mm	ANT 1	DSI4	376000	1880	23.25	24.00	1.189	-0.15	0.893	1.061
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Front	0mm	ANT 2	DSI6	376000	1880	20.82	21.00	1.042	0.01	1.340	1.397
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Front	0mm	ANT 2	DSI6	376000	1880	20.74	21.00	1.062	0.09	1.220	1.295
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 2	DSI6	376000	1880	20.82	21.00	1.042	0.01	1.090	1.136
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 2	DSI6	376000	1880	20.74	21.00	1.062	0.03	1.120	1.189
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	376000	1880	20.82	21.00	1.042	0.05	1.940	2.022
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	372000	1860	20.68	21.00	1.076	0.03	1.950	2.099
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	380000	1900	20.73	21.00	1.064	-0.03	1.870	1.990
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	376000	1880	20.74	21.00	1.062	0.03	2.020	2.145
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	372000	1860	20.64	21.00	1.086	0.06	1.880	2.042
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	380000	1900	20.58	21.00	1.102	0.03	2.120	2.335
	FR1 n2	20M	QPSK	100	0	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	376000	1880	20.73	21.00	1.064	0.01	1.870	1.990
	FR1 n2	20M	QPSK	1	1	DFT- 15KHz	Front	5mm	ANT 2	DSI4	376000	1880	23.81	24.00	1.045	0.02	1.350	1.410
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	9mm	ANT 2	DSI4	376000	1880	23.81	24.00	1.045	0.02	0.556	0.581
	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Top Side	10mm	ANT 2	DSI4	380000	1900	23.50	24.00	1.122	-0.06	0.946	1.061
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	349000	1745	22.72	22.80	1.019	0.01	1.930	1.966
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	344000	1720	22.63	22.80	1.040	0.03	1.900	1.976
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Back	0mm	ANT 1	DSI6	354000	1770	22.58	22.80	1.052	0.05	2.140	2.251
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	349000	1745	22.61	22.80	1.045	-0.08	2.100	2.194
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	344000	1720	22.47	22.80	1.079	-0.03	2.020	2.179
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	ANT 1	DSI6	354000	1770	22.50	22.80	1.072	0.06	2.500	2.679
	FR1 n66	20M	QPSK	100	0	DFT- 15KHz	Back	0mm	ANT 1	DSI6	349000	1745	22.52	22.80	1.067	0.02	1.900	2.027
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	349000	1745	22.72	22.80	1.019	-0.04	2.560	2.608
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	344000	1720	22.63	22.80	1.040	0.09	2.410	2.506
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	354000	1770	22.58	22.80	1.052	0.08	2.490	2.619
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	354000	1745	22.61	22.80	1.045	-0.02	2.610	2.727
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	344000	1720	22.47	22.80	1.079	0.09	2.020	2.179
61	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	354000	1770	22.50	22.80	1.072	0.08	2.580	**2.765**
	FR1 n66	20M	QPSK	100	0	DFT- 15KHz	Bottom Side	0mm	ANT 1	DSI6	349000	1745	22.52	22.80	1.067	-0.09	2.440	2.602
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Back	9mm	ANT 1	DSI4	354000	1770	22.94	24.00	1.276	-0.03	0.577	0.737
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	10mm	ANT 1	DSI4	354000	1770	22.94	24.00	1.276	0.06	0.629	0.803
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Front	0mm	ANT 2	DSI6	349000	1745	20.67	21.00	1.079	0.09	1.100	1.187
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Front	0mm	ANT 2	DSI6	349000	1745	20.57	21.00	1.104	0.03	1.370	1.513
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	349000	1745	20.67	21.00	1.079	0.02	2.060	2.223
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	344000	1720	20.60	21.00	1.096	-0.03	1.760	1.930
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	354000	1770	20.58	21.00	1.102	0.01	2.100	2.313
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	349000	1745	20.57	21.00	1.104	0.09	2.010	2.219
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	344000	1720	20.53	21.00	1.114	0.03	1.740	1.939
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	354000	1770	20.51	21.00	1.119	0.03	2.050	2.295
	FR1 n66	20M	QPSK	100	0	DFT- 15KHz	Top Side	0mm	ANT 2	DSI6	349000	1745	20.49	21.00	1.125	0.09	1.930	2.170
	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Front	5mm	ANT 2	DSI4	349000	1745	22.95	24.00	1.274	0.03	1.330	1.694
	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Top Side	9mm	ANT 2	DSI4	354000	1770	22.95	24.00	1.274	0.09	0.876	1.116

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
62	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant3+6	Full	1	2412	22.11	22.50	1.094	100	1.000	0.01	0.819	**0.896**
	WLAN2.4GHz	802.11b 1Mbps	Back	0mm	Ant3+6	Simultaneous	1	2412	20.85	21.00	1.035	100	1.000	0.04	0.580	0.600

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
63	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	48	5240	20.58	21.00	1.102	98.62	1.014	0.08	2.870	**3.206**
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	44	5220	20.42	21.00	1.143	98.62	1.014	-0.02	2.160	2.503
	WLAN5.2GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Simultaneous	40	5200	13.41	14.00	1.146	98.62	1.014	0.09	0.602	0.699
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	-0.17	0.022	0.025
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	-0.08	2.140	2.480
64	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	64	5320	20.41	21.00	1.146	98.62	1.014	0.09	2.740	**3.183**
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	52	5260	20.35	21.00	1.161	98.62	1.014	0.15	2.430	2.862
	WLAN5.3GHz	802.11a 6Mbps	Left Side	0mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.02	0.036	0.042
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	-0.04	0.192	0.223
	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant5+6	Full	56	5280	20.42	21.00	1.143	98.62	1.014	0.09	0.063	0.073
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Simultaneous	56	5280	13.34	13.50	1.038	98.62	1.014	0.08	0.543	0.571
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	-0.04	0.039	0.047
65	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.09	2.540	**3.047**
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	132	5660	20.74	21.50	1.191	98.62	1.014	0.08	2.210	2.670
	WLAN5.5GHz	802.11a 6Mbps	Left Side	0mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	-0.02	0.095	0.114
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	0.09	0.289	0.347
	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant5+6	Full	116	5580	20.77	21.50	1.183	98.62	1.014	-0.06	0.144	0.173
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Simultaneous	116	5580	14.11	14.50	1.094	98.62	1.014	0.13	0.487	0.540
66	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Full	149	5745	20.98	21.50	1.127	98.62	1.014	0.09	1.390	**1.589**
	WLAN5.8GHz	802.11a 6Mbps	Back	0mm	Ant5+6	Simultaneous	165	5825	17.76	18.00	1.057	98.62	1.014	0.09	0.633	0.678

16.5 Repeated SAR Measurement

<1g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Ant.	Output Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	5mm	1	DSI3	372000	1860	17.37	17.80	1.104	-	-	0.16	0.953	1	1.052
2nd	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	5mm	1	DSI3	372000	1860	17.37	17.80	1.104	-	-	-0.11	0.923	1.033	1.019
1st	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	5mm	1	DSI3	354000	1770	18.63	19.00	1.089	-	-	-0.18	0.942	1	1.026
2nd	FR1 n66	20M	QPSK	1	1	DFT- 15KHz	Bottom Side	5mm	1	DSI3	354000	1770	18.63	19.00	1.089	-	-	0.02	0.902	1.044	0.982
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Back	5mm-	3+6	Sensor/Hotspot	1	2412	20.85	21.00	1.035	100	1.000	-0.11	1.010	1	1.045
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Back	5mm-	3+6	Sensor/Hotspot	1	2412	20.85	21.00	1.035	100	1.000	0.09	0.978	1.033	1.012
1st	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	5mm-	5+6	Sensor/Hotspot	40	5200	13.41	14.00	1.146	98.62	1.014	0.09	1.000	1	1.162
2nd	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	5mm-	5+6	Sensor/Hotspot	40	5200	13.41	14.00	1.146	98.62	1.014	0.06	0.966	1.035	1.122

<10g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Ant.	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	1	DSI6	372000	1860	21.73	22.30	1.140	-	-	-0.06	2.450	1	2.794
2nd	FR1 n2	20M	QPSK	50	28	DFT- 15KHz	Back	0mm	1	DSI6	372000	1860	21.73	22.30	1.140	-	-	0.12	2.390	1.025	2.725
1st	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	1	DSI6	354000	1745	22.61	22.80	1.045	-	-	-0.02	2.610	1	2.727
2nd	FR1 n66	20M	QPSK	50	28	DFT- 15KHz	Bottom Side	0mm	1	DSI6	349000	1745	22.61	22.80	1.045	-	-	0.09	2.570	1.016	2.685
1st	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	0mm-	5+6	Full Power	48	5240	20.58	21.00	1.102	98.62	1.014	0.08	2.870	1	3.206
2nd	WLAN5.2GHz	-	-	-	-	802.11a 6Mbps	Back	0mm-	5+6	Full Power	48	5240	20.58	21.00	1.102	98.62	1.014	0.03	2.820	1.018	3.150

General Note:

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

17. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	GSM Voice + WLAN2.4GHz MIMO	Yes	Yes		Yes
2.	GPRS/EDGE + WLAN2.4GHz MIMO	Yes	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz MIMO	Yes	Yes	Yes	Yes
4.	LTE + WLAN2.4GHz MIMO	Yes	Yes	Yes	Yes
5.	5GNR FR1 + WLAN2.4GHz MIMO	Yes	Yes	Yes	Yes
6.	GSM Voice + WLAN5.3/5.5GHz MIMO	Yes	Yes		Yes
7.	GPRS/EDGE + WLAN5.3/5.5GHz MIMO	Yes	Yes		Yes
8.	WCDMA + WLAN5.3/5.5GHz MIMO	Yes	Yes		Yes
9.	LTE + WLAN5.3/5.5GHz MIMO	Yes	Yes		Yes
10.	5GNR FR1 + WLAN5.3/5.5GHz MIMO	Yes	Yes		Yes
11.	GSM Voice + WLAN5.2/5.8GHz MIMO	Yes	Yes		Yes
12.	GPRS/EDGE + WLAN5.2/5.8GHz MIMO	Yes	Yes	Yes	Yes
13.	WCDMA + WLAN5.2/5.8GHz MIMO	Yes	Yes	Yes	Yes
14.	LTE + WLAN5.2/5.8GHz MIMO	Yes	Yes	Yes	Yes
15.	5GNR FR1 + WLAN5.2/5.8GHz MIMO	Yes	Yes	Yes	Yes
16.	GSM Voice + Bluetooth	Yes	Yes		Yes
17.	GPRS/EDGE + Bluetooth	Yes	Yes	Yes	Yes
18.	WCDMA + Bluetooth	Yes	Yes	Yes	Yes
19.	LTE + Bluetooth	Yes	Yes	Yes	Yes
20.	5GNR FR1+ Bluetooth	Yes	Yes	Yes	Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, CDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. The 2.4GHz/5GHz WLAN can transmit in MIMO antenna mode only and it has no SISO antenna mode.
4. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
5. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
6. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment though they have independent antenna.
7. According to the EUT character, WLAN 5GHz and Bluetooth cannot transmit simultaneously.
8. According to the EUT character, WLAN 2.4GHz and Bluetooth cannot transmit simultaneously.
9. For Bluetooth SAR testing only perform the worst positon of WLAN, so other positon use this SAR value to do co-located with WWAN analysis.
10. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
11. The reported SAR summation is calculated based on the same configuration and test position.
12. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
    ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
    iii) If SPLSR ≤ 0.04 for 1g SAR and SPLSR≤ 0.10 for 10g SAR , simultaneously transmission SAR measurement is not necessary.
    iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

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

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

Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values.

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

*x% * A + (100-x)% * B ≤ 1.0,*

Where, A is normalized reported time-averaged SAR exposure ratio from LTE, and A ≤ 1.0; B is normalized reported time-averaged exposure ratio from 5G NR (i.e., PD exposure for 5G FR2 or SAR exposure for 5G FR1), and B ≤1.0.

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

*x% * A + (100-x)% * B + C ≤ 1.0* (1)

x% * A + (100-x)% * B ≤ x% * max(A, B) + (100-x)% * max(A, B) ≤ max(A, B)

*x% * A + (100-x)% * B + C ≤ max(A, B) + C ≤ 1.0* (2)

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

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

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

17.2 Head Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN MIMO	5GHz WLAN MIMO	Bluetooth	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
GSM	GSM850	Right Cheek	0.179	0.348	0.101	0.054	0.53	0.28	0.23
		Right Tilted	0.087	0.299	0.131	0.054	0.39	0.22	0.14
		Left Cheek	0.132	0.212	0.096	0.054	0.34	0.23	0.19
		Left Tilted	0.074	0.210	0.128	0.054	0.28	0.20	0.13
	GSM1900	Right Cheek	0.034	0.348	0.101	0.054	0.38	0.14	0.09
		Right Tilted	0.017	0.299	0.131	0.054	0.32	0.15	0.07
		Left Cheek	0.027	0.212	0.096	0.054	0.24	0.12	0.08
		Left Tilted	0.027	0.210	0.128	0.054	0.24	0.16	0.08
WCDMA	WCDMA II	Right Cheek	0.043	0.348	0.101	0.054	0.39	0.14	0.10
		Right Tilted	0.061	0.299	0.131	0.054	0.36	0.19	0.12
		Left Cheek	0.083	0.212	0.096	0.054	0.30	0.18	0.14
		Left Tilted	0.102	0.210	0.128	0.054	0.31	0.23	0.16
	WCDMA V	Right Cheek	0.342	0.348	0.101	0.054	0.69	0.44	0.40
		Right Tilted	0.157	0.299	0.131	0.054	0.46	0.29	0.21
		Left Cheek	0.267	0.212	0.096	0.054	0.48	0.36	0.32
		Left Tilted	0.167	0.210	0.128	0.054	0.38	0.30	0.22
LTE	LTE Band 2-LAT	Right Cheek	0.119	0.348	0.101	0.054	0.47	0.22	0.17
		Right Tilted	0.075	0.299	0.131	0.054	0.37	0.21	0.13
		Left Cheek	0.064	0.212	0.096	0.054	0.28	0.16	0.12
		Left Tilted	0.092	0.210	0.128	0.054	0.30	0.22	0.15
	LTE Band 2-UAT	Right Cheek	0.408	0.348	0.101	0.054	0.76	0.51	0.46
		Right Tilted	0.465	0.299	0.131	0.054	0.76	0.60	0.52
		Left Cheek	0.684	0.212	0.096	0.054	0.90	0.78	0.74
		Left Tilted	0.827	0.210	0.128	0.054	1.04	0.96	0.88
	LTE Band 5-LAT	Right Cheek	0.111	0.348	0.101	0.054	0.46	0.21	0.17
		Right Tilted	0.251	0.299	0.131	0.054	0.55	0.38	0.31
		Left Cheek	0.176	0.212	0.096	0.054	0.39	0.27	0.23
		Left Tilted	0.167	0.210	0.128	0.054	0.38	0.30	0.22
	LTE Band 5-UAT	Right Cheek	0.507	0.348	0.101	0.054	0.86	0.61	0.56
		Right Tilted	0.475	0.299	0.131	0.054	0.77	0.61	0.53
		Left Cheek	0.744	0.212	0.096	0.054	0.96	0.84	0.80
		Left Tilted	0.711	0.210	0.128	0.054	0.92	0.84	0.77
	LTE Band 7	Right Cheek	0.089	0.348	0.101	0.054	0.44	0.19	0.14
		Right Tilted	0.056	0.299	0.131	0.054	0.36	0.19	0.11
		Left Cheek	0.108	0.212	0.096	0.054	0.32	0.20	0.16
		Left Tilted	0.109	0.210	0.128	0.054	0.32	0.24	0.16
	LTE Band 12	Right Cheek	0.226	0.348	0.101	0.054	0.57	0.33	0.28
		Right Tilted	0.133	0.299	0.131	0.054	0.43	0.26	0.19
		Left Cheek	0.254	0.212	0.096	0.054	0.47	0.35	0.31
		Left Tilted	0.142	0.210	0.128	0.054	0.35	0.27	0.20
	LTE Band 13	Right Cheek	0.283	0.348	0.101	0.054	0.63	0.38	0.34
		Right Tilted	0.218	0.299	0.131	0.054	0.52	0.35	0.27
		Left Cheek	0.232	0.212	0.096	0.054	0.44	0.33	0.29
		Left Tilted	0.134	0.210	0.128	0.054	0.34	0.26	0.19
	LTE Band 66-LAT	Right Cheek	0.138	0.348	0.101	0.054	0.49	0.24	0.19
		Right Tilted	0.039	0.299	0.131	0.054	0.34	0.17	0.09
		Left Cheek	0.107	0.212	0.096	0.054	0.32	0.20	0.16
		Left Tilted	0.047	0.210	0.128	0.054	0.26	0.18	0.10
	LTE Band 66-UAT	Right Cheek	0.314	0.348	0.101	0.054	0.66	0.42	0.37
		Right Tilted	0.415	0.299	0.131	0.054	0.71	0.55	0.47
		Left Cheek	0.578	0.212	0.096	0.054	0.79	0.67	0.63
		Left Tilted	0.763	0.210	0.128	0.054	0.97	0.89	0.82

<5G NR>

WWAN Band		Exposure Position	1	2	3	4	1+2	1+3	1+4
			WWAN	2.4GHz WLAN MIMO	5GHz WLAN MIMO	Bluetooth	Summed	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
5GNR	FR1 n2-LAT	Right Cheek	0.053	0.348	0.101	0.054	0.40	0.15	0.11
		Right Tilted	0.045	0.299	0.131	0.054	0.34	0.18	0.10
		Left Cheek	0.067	0.212	0.096	0.054	0.28	0.16	0.12
		Left Tilted	0.053	0.210	0.128	0.054	0.26	0.18	0.11
	FR1 n5-LAT	Right Cheek	0.174	0.348	0.101	0.054	0.52	0.28	0.23
		Right Tilted	0.136	0.299	0.131	0.054	0.44	0.27	0.19
		Left Cheek	0.160	0.212	0.096	0.054	0.37	0.26	0.21
		Left Tilted	0.113	0.210	0.128	0.054	0.32	0.24	0.17
	FR1 n66-LAT	Right Cheek	0.057	0.348	0.101	0.054	0.41	0.16	0.11
		Right Tilted	0.015	0.299	0.131	0.054	0.31	0.15	0.07
		Left Cheek	0.062	0.212	0.096	0.054	0.27	0.16	0.12
		Left Tilted	0.053	0.210	0.128	0.054	0.26	0.18	0.11
	FR1 n2-UAT	Right Cheek	0.364	0.348	0.101	0.054	0.71	0.47	0.42
		Right Tilted	0.421	0.299	0.131	0.054	0.72	0.55	0.48
		Left Cheek	0.666	0.212	0.096	0.054	0.88	0.76	0.72
		Left Tilted	0.968	0.210	0.128	0.054	1.18	1.10	1.02
	FR1 n5-UAT	Right Cheek	0.547	0.348	0.101	0.054	0.90	0.65	0.60
		Right Tilted	0.451	0.299	0.131	0.054	0.75	0.58	0.51
		Left Cheek	0.786	0.212	0.096	0.054	1.00	0.88	0.84
		Left Tilted	0.647	0.210	0.128	0.054	0.86	0.78	0.70
	FR1 n66-UAT	Right Cheek	0.372	0.348	0.101	0.054	0.72	0.47	0.43
		Right Tilted	0.486	0.299	0.131	0.054	0.79	0.62	0.54
		Left Cheek	0.685	0.212	0.096	0.054	0.90	0.78	0.74
		Left Tilted	0.976	0.210	0.128	0.054	1.19	1.10	1.03

17.3 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN MIMO 1g SAR (W/kg)	3 5GHz WLAN MIMO 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.844	0.435	0.124	0.176	1.28	0.97	1.02
		Back	0.912	0.307	0.386	0.176	1.22	**1.30**	1.09
		Left side	0.129	0.218	0.110	0.176	0.35	0.24	0.31
		Right side	0.218	0.232	0.135	0.176	0.45	0.35	0.39
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.712			0.176	0.71	0.71	0.89
	GSM1900	Front	0.521	0.435	0.124	0.176	0.96	0.65	0.70
		Back	0.797	0.307	0.386	0.176	1.10	1.18	0.97
		Left side	0.028	0.218	0.110	0.176	0.25	0.14	0.20
		Right side	0.103	0.232	0.135	0.176	0.34	0.24	0.28
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.918			0.176	0.92	0.92	1.09
WCDMA	WCDMA II	Front	0.337	0.435	0.124	0.176	0.77	0.46	0.51
		Back	0.570	0.307	0.386	0.176	0.88	0.96	0.75
		Left side	0.152	0.218	0.110	0.176	0.37	0.26	0.33
		Right side	0.390	0.232	0.135	0.176	0.62	0.53	0.57
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.741			0.176	0.74	0.74	0.92
	WCDMA V	Front	0.639	0.435	0.124	0.176	1.07	0.76	0.82
		Back	0.779	0.307	0.386	0.176	1.09	1.17	0.96
		Left side	0.230	0.218	0.110	0.176	0.45	0.34	0.41
		Right side	0.483	0.232	0.135	0.176	0.72	0.62	0.66
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.762			0.176	0.76	0.76	0.94
LTE	LTE Band 2-LAT	Front	0.262	0.435	0.124	0.176	0.70	0.39	0.44
		Back	0.570	0.307	0.386	0.176	0.88	0.96	0.75
		Left side	0.088	0.218	0.110	0.176	0.31	0.20	0.26
		Right side	0.084	0.232	0.135	0.176	0.32	0.22	0.26
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.732			0.176	0.73	0.73	0.91
	LTE Band 2-UAT	Front	0.486	0.435	0.124	0.176	0.92	0.61	0.66
		Back	0.538	0.307	0.386	0.176	0.85	0.92	0.71
		Left side		0.218	0.110	0.176	0.22	0.11	0.18
		Right side	0.133	0.232	0.135	0.176	0.37	0.27	0.31
		Top side	0.791	0.521	0.082	0.176	1.31	0.87	0.97
		Bottom side				0.176	0.00	0.00	0.18
	LTE Band 5-LAT	Front	0.632	0.435	0.124	0.176	1.07	0.76	0.81
		Back	0.823	0.307	0.386	0.176	1.13	1.21	1.00
		Left side	0.406	0.218	0.110	0.176	0.62	0.52	0.58
		Right side	0.585	0.232	0.135	0.176	0.82	0.72	0.76
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.706			0.176	0.71	0.71	0.88
	LTE Band 5-UAT	Front	0.363	0.435	0.124	0.176	0.80	0.49	0.54
		Back	0.261	0.307	0.386	0.176	0.57	0.65	0.44
		Left side		0.218	0.110	0.176	0.22	0.11	0.18
		Right side	0.133	0.232	0.135	0.176	0.37	0.27	0.31
		Top side	0.452	0.521	0.082	0.176	0.97	0.53	0.63
		Bottom side				0.176	0.00	0.00	0.18
	LTE Band 7	Front	0.201	0.435	0.124	0.176	0.64	0.33	0.38
		Back	0.502	0.307	0.386	0.176	0.81	0.89	0.68

		Left side	0.031	0.218	0.110	0.176	0.25	0.14	0.21
		Right side	0.176	0.232	0.135	0.176	0.41	0.31	0.35
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.844			0.176	0.84	0.84	1.02
	LTE Band 12	Front	0.474	0.435	0.124	0.176	0.91	0.60	0.65
		Back	0.564	0.307	0.386	0.176	0.87	0.95	0.74
		Left side	0.382	0.218	0.110	0.176	0.60	0.49	0.56
		Right side	0.559	0.232	0.135	0.176	0.79	0.69	0.74
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.669			0.176	0.67	0.67	0.85
	LTE Band 13	Front	0.180	0.435	0.124	0.176	0.62	0.30	0.36
		Back	0.768	0.307	0.386	0.176	1.08	1.15	0.94
		Left side	0.287	0.218	0.110	0.176	0.51	0.40	0.46
		Right side	0.281	0.232	0.135	0.176	0.51	0.42	0.46
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.272			0.176	0.27	0.27	0.45
	LTE Band 66-LAT	Front	0.263	0.435	0.124	0.176	0.70	0.39	0.44
		Back	0.495	0.307	0.386	0.176	0.80	0.88	0.67
		Left side	0.258	0.218	0.110	0.176	0.48	0.37	0.43
		Right side	0.051	0.232	0.135	0.176	0.28	0.19	0.23
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.799			0.176	0.80	0.80	0.98
	LTE Band 66-UAT	Front	0.441	0.435	0.124	0.176	0.88	0.57	0.62
		Back	0.325	0.307	0.386	0.176	0.63	0.71	0.50
		Left side		0.218	0.110	0.176	0.22	0.11	0.18
		Right side	0.130	0.232	0.135	0.176	0.36	0.27	0.31
		Top side	0.725	0.521	0.082	0.176	1.25	0.81	0.90
		Bottom side				0.176	0.00	0.00	0.18

<5G NR>

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN MIMO 1g SAR (W/kg)	3 5GHz WLAN MIMO 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
	FR1 n2-LAT	Front	0.416	0.435	0.124	0.176	0.85	0.54	0.59
		Back	0.773	0.307	0.386	0.176	1.08	1.16	0.95
		Left side	0.024	0.218	0.110	0.176	0.24	0.13	0.20
		Right side	0.088	0.232	0.135	0.176	0.32	0.22	0.26
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	1.052			0.176	1.05	1.05	**1.23**
	FR1 n5-LAT	Front	0.519	0.435	0.124	0.176	0.95	0.64	0.70
		Back	0.744	0.307	0.386	0.176	1.05	1.13	0.92
		Left side	0.207	0.218	0.110	0.176	0.43	0.32	0.38
		Right side	0.392	0.232	0.135	0.176	0.62	0.53	0.57
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	0.613			0.176	0.61	0.61	0.79
	FR1 n66-LAT	Front	0.409	0.435	0.124	0.176	0.84	0.53	0.59
		Back	0.707	0.307	0.386	0.176	1.01	1.09	0.88
		Left side	0.058	0.218	0.110	0.176	0.28	0.17	0.23
		Right side	0.083	0.232	0.135	0.176	0.32	0.22	0.26
		Top side		0.521	0.082	0.176	0.52	0.08	0.18
		Bottom side	1.026			0.176	1.03	1.03	1.20
	FR1 n2-UAT	Front	0.496	0.435	0.124	0.176	0.93	0.62	0.67
		Back	0.317	0.307	0.386	0.176	0.62	0.70	0.49
		Right side	0.092	0.232	0.135	0.176	0.32	0.23	0.27
		Top side	0.764	0.521	0.082	0.176	1.29	0.85	0.94
	FR1 n5-UAT	Front	0.412	0.435	0.124	0.176	0.85	0.54	0.59
		Back	0.373	0.307	0.386	0.176	0.68	0.76	0.55
		Right side	0.414	0.232	0.135	0.176	0.65	0.55	0.59
		Top side	0.485	0.521	0.082	0.176	1.01	0.57	0.66
	FR1 n66-UAT	Front	0.624	0.435	0.124	0.176	1.06	0.75	0.80
		Back	0.419	0.307	0.386	0.176	0.73	0.81	0.60
		Right side	0.098	0.232	0.135	0.176	0.33	0.23	0.27
		Top side	0.850	0.521	0.082	0.176	**1.37**	0.93	1.03

17.4 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN MIMO 1g SAR (W/kg)	3 5GHz WLAN MIMO 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
GSM	GSM850	Front	0.844	0.435	0.124	0.176	1.28	0.97	1.02
		Back	0.912	0.307	0.386	0.176	1.22	1.30	1.09
	GSM1900	Front	0.521	0.435	0.124	0.176	0.96	0.65	0.70
		Back	0.797	0.307	0.386	0.176	1.10	1.18	0.97
WCDMA	WCDMA II	Front	0.337	0.435	0.124	0.176	0.77	0.46	0.51
		Back	0.570	0.307	0.386	0.176	0.88	0.96	0.75
	WCDMA V	Front	0.639	0.435	0.124	0.176	1.07	0.76	0.82
		Back	0.779	0.307	0.386	0.176	1.09	1.17	0.96
LTE	LTE Band 2-LAT	Front	0.262	0.435	0.124	0.176	0.70	0.39	0.44
		Back	0.570	0.307	0.386	0.176	0.88	0.96	0.75
	LTE Band 2-UAT	Front	0.486	0.435	0.124	0.176	0.92	0.61	0.66
		Back	0.538	0.307	0.386	0.176	0.85	0.92	0.71
	LTE Band 5-LAT	Front	0.632	0.435	0.124	0.176	1.07	0.76	0.81
		Back	0.823	0.307	0.386	0.176	1.13	1.21	1.00
	LTE Band 5-UAT	Front	0.363	0.435	0.124	0.176	0.80	0.49	0.54
		Back	0.261	0.307	0.386	0.176	0.57	0.65	0.44
	LTE Band 7	Front	0.201	0.435	0.124	0.176	0.64	0.33	0.38
		Back	0.502	0.307	0.386	0.176	0.81	0.89	0.68
	LTE Band 12	Front	0.474	0.435	0.124	0.176	0.91	0.60	0.65
		Back	0.564	0.307	0.386	0.176	0.87	0.95	0.74
	LTE Band 13	Front	0.180	0.435	0.124	0.176	0.62	0.30	0.36
		Back	0.768	0.307	0.386	0.176	1.08	1.15	0.94
	LTE Band 66-LAT	Front	0.263	0.435	0.124	0.176	0.70	0.39	0.44
		Back	0.495	0.307	0.386	0.176	0.80	0.88	0.67
	LTE Band 66-UAT	Front	0.441	0.435	0.124	0.176	0.88	0.57	0.62
		Back	0.325	0.307	0.386	0.176	0.63	0.71	0.50

<5GNR>

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN MIMO 1g SAR (W/kg)	3 5GHz WLAN MIMO 1g SAR (W/kg)	4 Bluetooth 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3 Summed 1g SAR (W/kg)	1+4 Summed 1g SAR (W/kg)
5GNR	FR1 n2-LAT	Front	0.416	0.435	0.124	0.176	0.85	0.54	0.59
		Back	0.773	0.307	0.386	0.176	1.08	1.16	0.95
	FR1 n5-LAT	Front	0.519	0.435	0.124	0.176	0.95	0.64	0.70
		Back	0.744	0.307	0.386	0.176	1.05	1.13	0.92
	FR1 n66-LAT	Front	0.409	0.435	0.124	0.176	0.84	0.53	0.59
		Back	0.707	0.307	0.386	0.176	1.01	1.09	0.88
	FR1 n2-UAT	Front	0.496	0.435	0.124	0.176	0.93	0.62	0.67
		Back	0.317	0.307	0.386	0.176	0.62	0.70	0.49
	FR1 n5-UAT	Front	0.412	0.435	0.124	0.176	0.85	0.54	0.59
		Back	0.373	0.307	0.386	0.176	0.68	0.76	0.55
	FR1 n66-UAT	Front	0.624	0.435	0.124	0.176	1.06	0.75	0.80
		Back	0.419	0.307	0.386	0.176	0.73	0.81	0.60

Note：For Front/Back, always chose higher SAR between 5mm SAR and sensor off distance SAR to do co-located analysis.

17.5 Product specific 10g SAR Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 10g SAR (W/kg)	2 2.4GHz WLAN MIMO 10g SAR (W/kg)	3 5GHz WLAN MIMO 10g SAR (W/kg)	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)
GSM	GSM1900	Front	1.446		0.047	1.45	1.49
		Back	2.410	0.600	0.699	3.01	3.11
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	2.355			2.36	2.36
WCDMA	WCDMA II	Front			0.047	0.00	0.05
		Back	2.000	0.600	0.699	2.60	2.70
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	1.813			1.81	1.81
	LTE Band 2-LAT	Front			0.047	0.00	0.05
		Back	1.923	0.600	0.699	2.52	2.62
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	1.834			1.83	1.83
LTE	LTE Band 2-UAT	Front	1.771		0.047	1.77	1.82
		Back	1.744	0.600	0.699	2.34	2.44
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side	1.784		0.173	1.78	1.96
		Bottom side				0.00	0.00
	LTE Band 7	Front			0.047	0.00	0.05
		Back	1.798	0.600	0.699	2.40	2.50
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	1.519			1.52	1.52
	LTE Band 66-LAT	Front			0.047	0.00	0.05
		Back	1.759	0.600	0.699	2.36	2.46
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	1.740			1.74	1.74
	LTE Band 66-UAT	Front			0.047	0.00	0.05
		Back		0.600	0.699	0.60	0.70
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side	1.985		0.173	1.99	2.16
		Bottom side				0.00	0.00

<5GNR>

WWAN Band		Exposure Position	1 WWAN 10g SAR (W/kg)	2 2.4GHz WLAN MIMO 10g SAR (W/kg)	3 5GHz WLAN MIMO 10g SAR (W/kg)	1+2 Summed 10g SAR (W/kg)	1+3 Summed 10g SAR (W/kg)
5GNR	FR1 n2-LAT	Front	1.564		0.047	1.56	1.61
		Back	2.794	0.600	0.699	**3.39**	**3.49**
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	1.942			1.94	1.94
	FR1 n66-LAT	Front			0.047	0.00	0.05
		Back	2.679	0.600	0.699	3.28	3.38
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side	2.765			2.77	2.77
	FR1 n2-UAT	Front	1.397		0.047	1.40	1.44
		Back	1.189	0.600	0.699	1.79	1.89
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side	2.145		0.173	2.15	2.32
		Bottom side				0.00	0.00
	FR1 n5-UAT	Front			0.047	0.00	0.05
		Back		0.600	0.699	0.60	0.70
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side			0.173	0.00	0.17
		Bottom side				0.00	0.00
	FR1 n66-UAT	Front	1.513		0.047	1.51	1.56
		Back		0.600	0.699	0.60	0.70
		Left side			0.114	0.00	0.11
		Right side			0.347	0.00	0.35
		Top side	2.313		0.173	2.31	2.49
		Bottom side				0.00	0.00

Remark:
1. For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.
2. For Front/Back, always chose higher SAR between 5mm SAR and sensor off distance SAR to do co-located analysis.

18. Supplemental Tuner Tests Results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among bands (except for GSM850/1900), mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
3. This device supports LTE B4 / B17 and B66 / B12. Since the supported frequency span for LTE B4 / B17 falls completely within the supports frequency span for LTE B66 / B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, chose LTE B66 / B12 for dynamic antenna analysis.
4. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

18.1 Supplemental Tuner Head & Body SAR Results

Please refer to Appendix F.

Test Engineer： Nick Hu, Jiaxing Chang, Yuankai Kong

19. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

20. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.

[7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[11] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[12] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[13] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

------THE END------

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.10

System Check_Head_750MHz

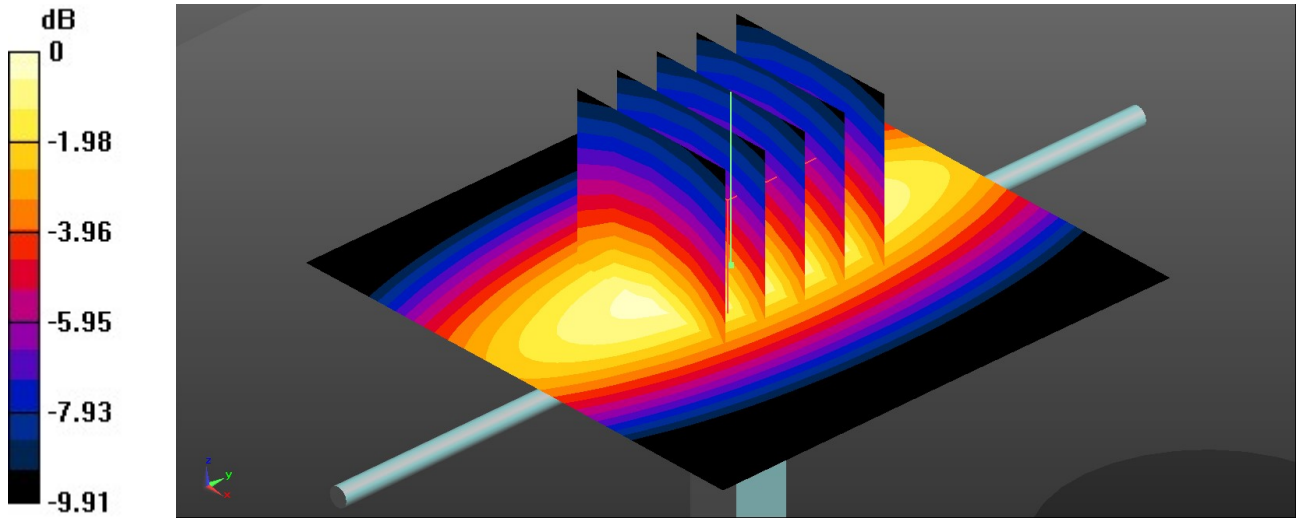
DUT: D750V3 - SN:1087

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.891 S/m; ε_r = 43.672; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.31, 10.31, 10.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.04 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.48 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.50 W/kg
SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 2.20 W/kg



0 dB = 2.20 W/kg = 3.42 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.12

System Check_Head_835MHz

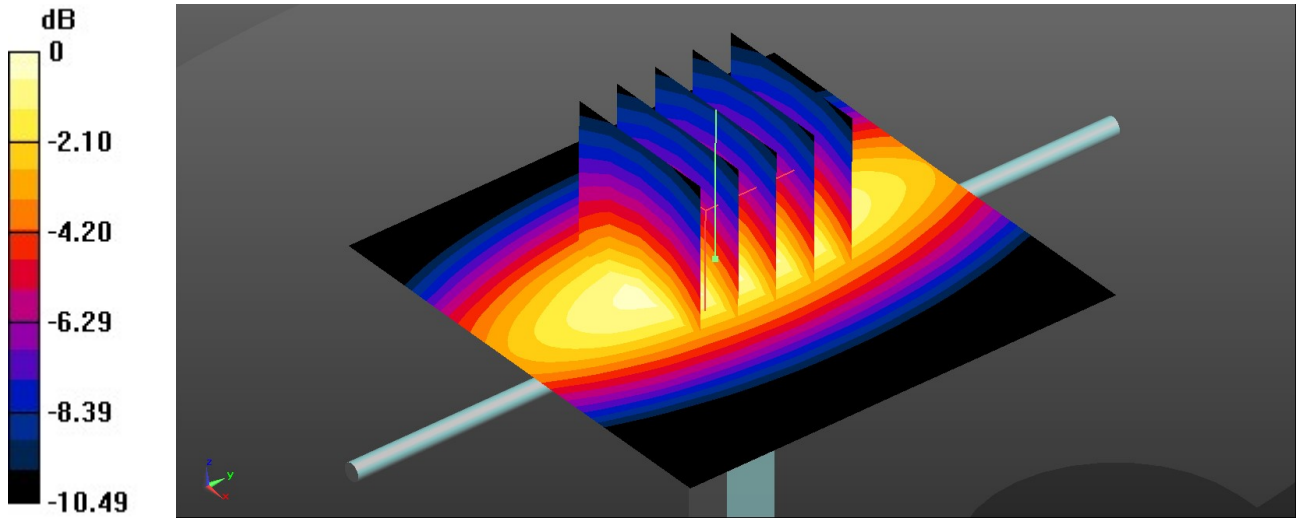
DUT: D835V2 - SN:4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 835 MHz; σ = 0.928 S/m; ε_r = 43.453; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.05, 10.05, 10.05); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.35 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.61 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 3.57 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 3.11 W/kg



0 dB = 3.11 W/kg = 4.93 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.14

System Check_Head_1750MHz

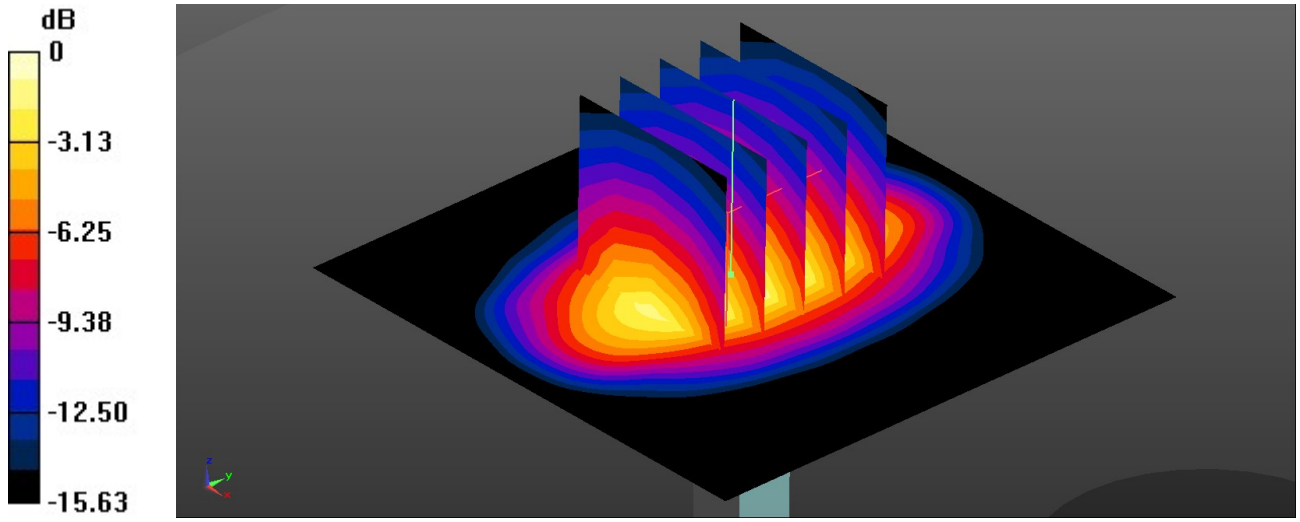
DUT: D1750V2 - SN:1090

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.367 S/m; ε_r = 41.091; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.41, 8.41, 8.41); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.6 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 86.85 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 15.9 W/kg
SAR(1 g) = 9.09 W/kg; SAR(10 g) = 4.98 W/kg
Maximum value of SAR (measured) = 12.8 W/kg



0 dB = 12.8 W/kg = 11.07 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.15

System Check_Head_1900MHz

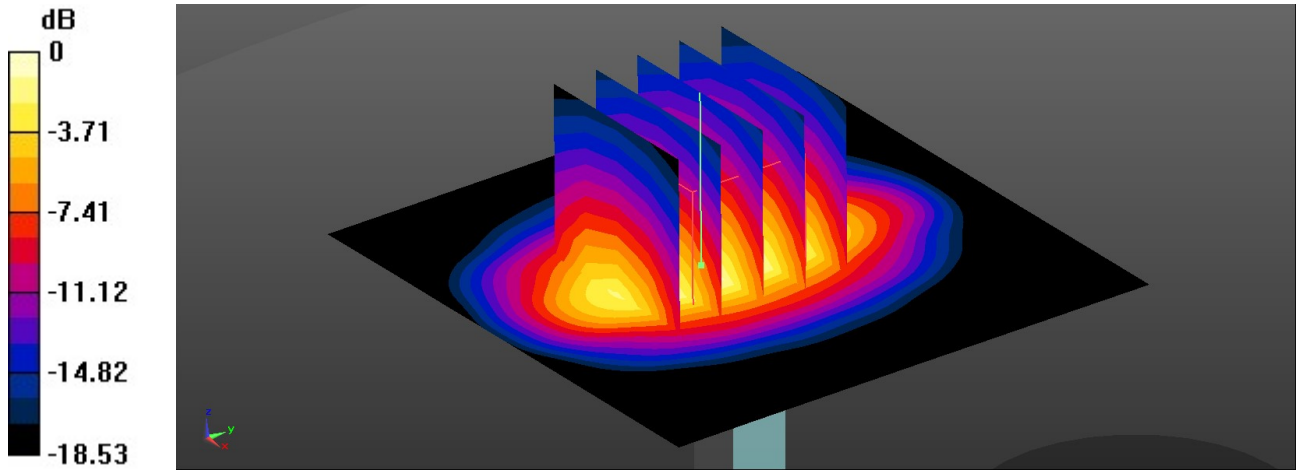
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.455 S/m; ε_r = 40.875; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.22, 8.22, 8.22); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.2 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 76.19 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.77 W/kg; SAR(10 g) = 5.05 W/kg
Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.4 W/kg = 11.27 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.13

System Check_Head_2450MHz

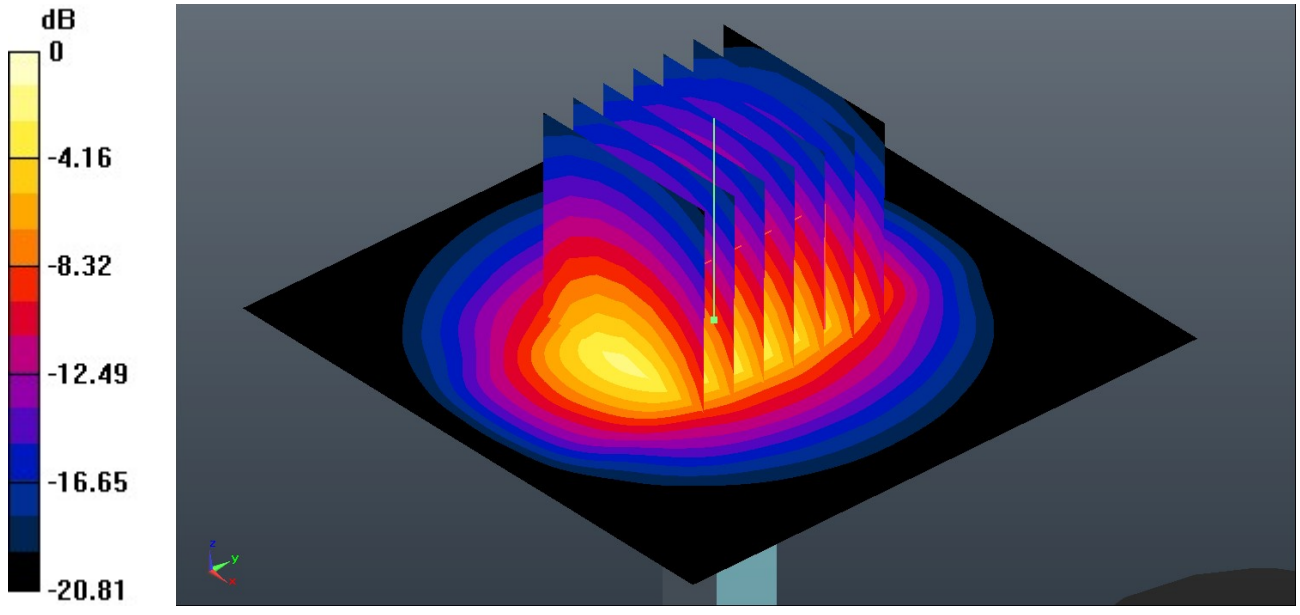
DUT: D2450V2 - SN:908

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: f = 2450 MHz; σ = 1.858 S/m; ε_r = 40.199; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.57, 7.57, 7.57); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 17.6 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.22 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.21 W/kg
Maximum value of SAR (measured) = 17.2 W/kg



0 dB = 17.2 W/kg = 12.36 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.12

System Check_Head_2600MH

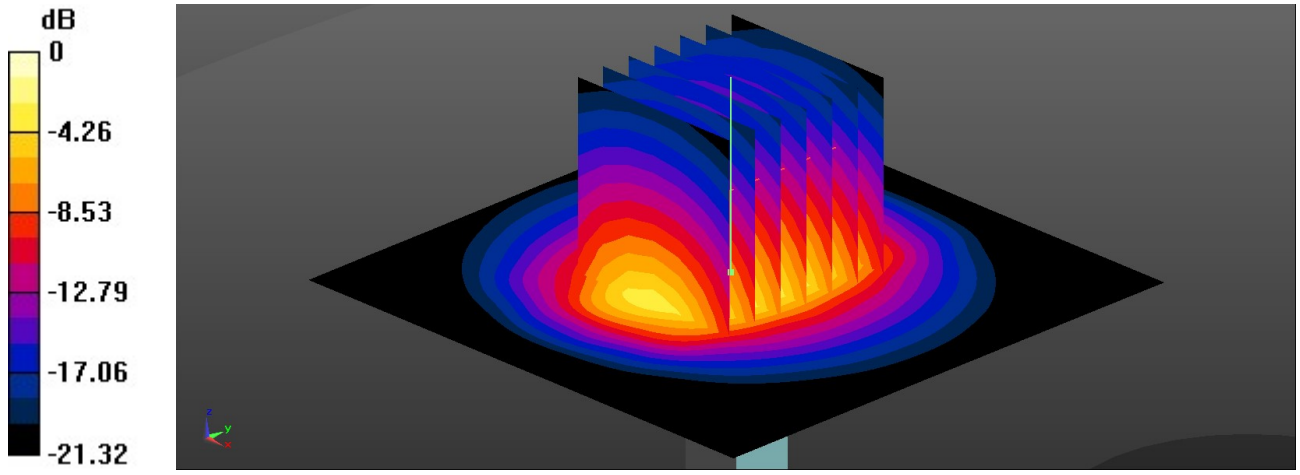
DUT: D2600V2 - SN:1061

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2600 MHz; σ = 1.982 S/m; ε_r = 39.933; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.31, 7.31, 7.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.8 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.05 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 20.04 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.69 W/kg
Maximum value of SAR (measured) = 21.9 W/kg



0 dB = 21.9 W/kg = 13.40 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.16

System Check_Head_5250MHz

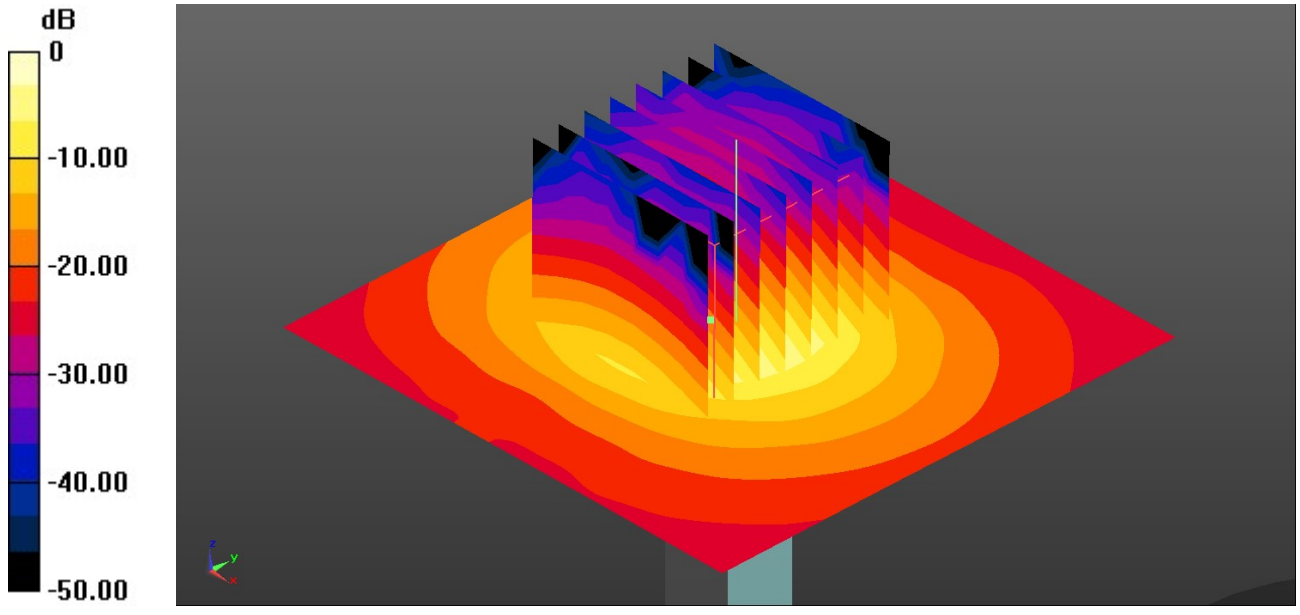
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5250 MHz; σ = 4.673 S/m; ε_r = 35.232; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(5.24, 5.24, 5.24); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.2 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 40.27 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 30.2 W/kg
SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.32 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.7.18

System Check_Head_5600MHz

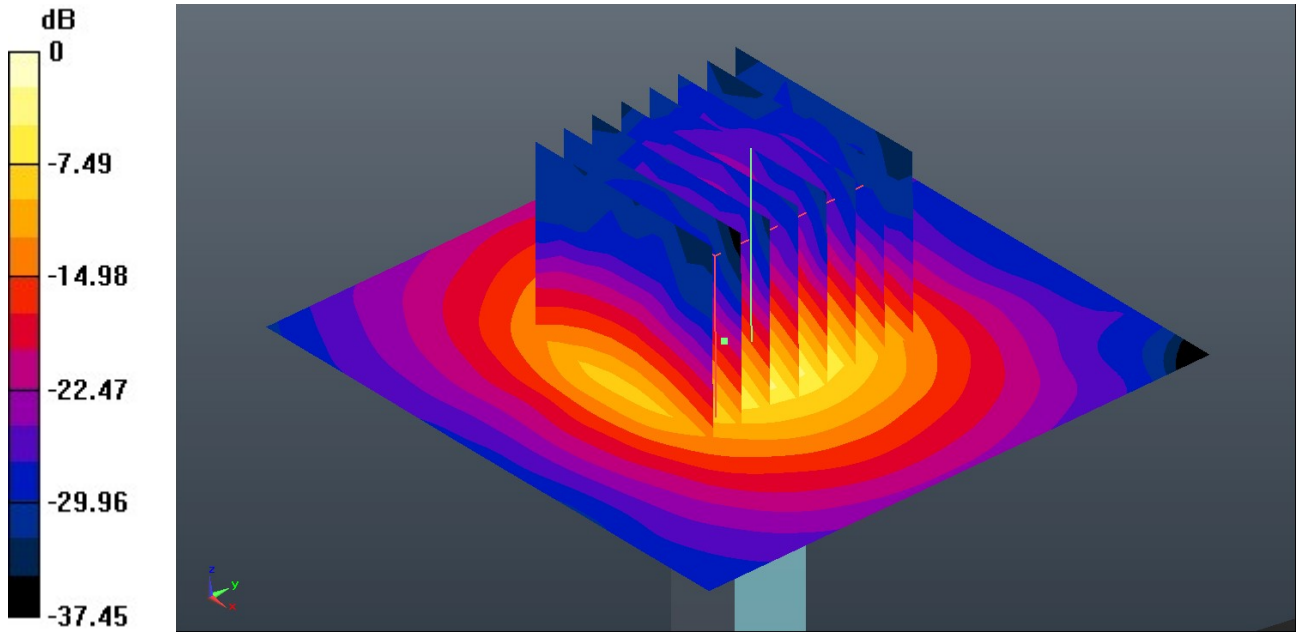
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5600 MHz; σ = 5.018 S/m; ε_r = 34.697; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(4.65, 4.65, 4.65); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn656; Calibrated: 2019.12.17
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.4 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 40.72 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 35.3 W/kg
SAR(1 g) = 8.31 W/kg; SAR(10 g) = 2.39 W/kg
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 19.2 W/kg = 12.83 dBW/kg