FCC SAR Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2407-1
FCC ID	: IHDT56AS2
STANDARD	: FCC 47 CFR Part 2 (2.1093)

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

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

Si Zhang

Approved by: Si Zhang

ACCREDITED Cert #5145.01

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People's Republic of China

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA441212-01	Rev. 01	Initial issue of report.	Jun. 05, 2024
FA441212-01	Rev. 02	Updated the report description of WLAN in section 18.	Jun. 07, 2024

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2407-1,** 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	0.17	0.86	0.86	1.59
		GSM1900	<0.10	0.78	0.76	
	WCDMA	WCDMA V	0.84	1.19	1.25	
		WCDMA IV	0.75	1.19	1.10	
		WCDMA II	0.89	1.03	1.03	
	LTE	LTE Band 12/17	0.86	0.86	0.86	
		LTE Band 13	0.88	1.04	1.04	
		LTE Band 5	0.89	0.93	0.98	
		LTE Band 66/4	0.73	1.17	1.17	
		LTE Band 2	0.85	1.25	1.25	
		LTE Band 7	0.78	**1.26**	1.08	
		LTE Band 41/38	0.82	1.24	1.23	
		LTE Band 42	0.85	1.25	0.88	
	5G NR	FR1 n26/n5	0.83	0.74	0.83	
		FR1 n7	0.89	1.25	1.11	
		FR1 n41/38	0.86	**1.26**	1.15	
		FR1 n77/78	0.88	1.08	0.82	
DTS	WLAN	2.4GHz WLAN	**1.26**	0.91	**1.25**	1.59
NII		5GHz WLAN	1.17	0.61	1.14	1.59
6XD		6GHz WLAN	0.45		0.37	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.22	0.46	0.28	1.59

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	WCDMA	WCDMA IV	2.87	3.88
		WCDMA II	2.72	
	LTE	LTE Band 66/4	2.78	
		LTE Band 2	2.58	
		LTE Band 7	3.05	
		LTE Band 41/38	2.69	
		LTE Band 42	2.17	
	5G NR	FR1 n7	3.05	
		FR1 n41/38	**3.12**	
		FR1 n77/78	2.29	
DTS	WLAN	2.4GHz WLAN	2.98	3.88
NII		5GHz WLAN	2.96	3.88
6XD		6GHz WLAN	0.38	3.88

Equipment Class	Frequency Band	Head	Body-worn	Product Specific
		Measured APD (W/m^2)	Measured APD (W/m^2)	Measured APD (W/m^2)
6XD	6GHz WLAN	2.04	1.85	6.05
Date of Testing:		2024/4/25 ~ 2024/5/26		

Remark:

1. This device supports LTE B4 / B17 / B38 and B66 / B12 / B41. Since the supported frequency span for LTE B4 / B17 / B38 falls completely within the supports frequency span for LTE B66 / B12 / B41, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B66 / B12 / B41.
2. This device supports 5GNR n5/n38/n78 and n26/n41/n77. Since the supported frequency span for 5GNR n5/n38/n78 falls completely within the supports frequency span for n26/n41/n77, both 5GNR bands have the same target power, and both 5GNR bands share the same transmission path; therefore, SAR was only assessed for n26/n41/n77.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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

2. Administration Data

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

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

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

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

3. Data Reuse Approach

3.1 Introduction Section

This application re-uses data collected on a similar device, FCC ID: IHDT56AS3 (reference model) and FCC ID: IHDT56AS2 (variant model). Due to the same design are identical between parent model and variant model, SAR data reuse is requested and spot check data in this report is used to justify the SAR data reuse.

Per KDB 484596 D01 v02r03, the deviation of variant model 1g SAR and 10g SAR spot check result was no larger than 3 dB, the WWAN/WLAN/BT maximum SAR summary was always choosing the higher SAR between parent model and variant model.

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AS2

3.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AS3 and FCC ID: IHDT56AS2 is as below:

- Removed LTE B25/26/41C and 5G NR n2/n66, and 5G NR n78(3450 MHz ~ 3550 MHz).
- Added LTE B20/32/39/43 and 5G NR n20/n26/n75/n77/n78(3700 MHz ~ 3800 MHz)

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2407-1_Operational Description of Product Equality Declaration).

3.3 Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band (MHz)	FCC ID (Reference)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Test on the variant
Part 2.1093	PCE	GSM	GSM850/1900	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
		WCDMA	B2/4/5	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
		LTE	B42				IHDT56AS2	Full Test
		LTE	B2/4/5/7/12/13/17/B38/41	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
		5G NR	n26/n77/n78, n38/n41 Ant 0/5				IHDT56AS2	Full Test
		5G NR	n5/n7, n38/n41 Ant 1/2	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
	DTS	BLE/ Wi-Fi	2400~2483.5	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
	NII	Wi-Fi	5150 ~ 5250 5250 ~ 5350 5470 ~ 5725 5725 ~ 5850	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
	DSS	Bluetooth	2400~2483.5	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check
	6XD	Wi-Fi	5925 ~ 7125	IHDT56AS3	Original Grant	FA441212	IHDT56AS2	Spot check on SAR, full test on PD
	DXX	NFC	13.56				IHDT56AS2	Full Test
	DCD	WPT	0.115~0.145				IHDT56AS2	Full Test

4. 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
- IEC/IEEE 62209-1528:2020
- 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
- FCC KDB 484596 D01 Referencing Test Data v02r03

5. Equipment Under Test (EUT) Information

5.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2407-1
FCC ID	IHDT56AS2
IMEI Code	Sample 1: IMEI1: 355519300014792 IMEI2: 355519300014800 Sample 2: IMEI1: 355519300021052 IMEI2: 355519300021060
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~3550 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz WLAN 6GHz U-NII-5: 5925 MHz ~ 6425 MHz WLAN 6GHz U-NII-6: 6425 MHz ~ 6525 MHz WLAN 6GHz U-NII-7: 6525 MHz ~ 6875 MHz WLAN 6GHz U-NII-8: 6875 MHz ~ 7125 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz WPT: 115 kHz ~ 145 kHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR : CP-OFDM / DFT-s-OFDM, PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac/ax VHT20/VHT40/HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac/ax VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160

	WLAN 6GHz 802.11a/ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC: ASK WPT: ASK
HW Version	DVT2
SW Version	U3UW34.46
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12.
5. For dual SIM card mobile has single SIM slots + eSIM (electronic SIM) and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active).
6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
7. For WLAN when transmit simultaneous with WWAN/BT, power reduction will be activated to head exposure condition. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and extremity exposure conditions.
8. This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, these techniques are employed in the 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 can be referred to section 18 and appendix G.
9. For 5GNR n77/n78 HPUE, 5GNR 77/78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands, using FTM to perform SAR with default 100% transmission.
10. This device supports HPUE mode for 5GNR n77/n78 with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verified the worst case of power class 3 SAR.
11. There are two samples, the different between them refer to the XT2407-1_Operational Description of Product Equality Declaration which is exhibit separately. According to the differences, sample 1 was chosen to perform full SAR testing and sample 2 to verify the worst case of sample 1.
12. This device has NFC function and the NFC SAR report will be separately submitted.
13. RF exposure report for WPC (Wireless power charging) will be separately submitted.
14. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately.

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n5	FDD	15	5, 10, 15, 20
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
SA	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 40
	n26	FDD	15	5, 10, 15, 20
	n38	TDD	30	10, 15, 20, 30, 40
	n41	TDD	30	20, 30, 40, 50, 60, 70, 80, 90, 100
	n77	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100

5.2 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>IHDT56AS2</td></tr>
<tr><td>Equipment Name</td><td>Mobile Cellular Phone</td></tr>
<tr><td>Operating Frequency Range of each LTE transmission band</td><td>LTE Band 2: 1850 MHz ~ 1910 MHz
LTE Band 4: 1710 MHz ~ 1755 MHz
LTE Band 5: 824 MHz ~ 849 MHz
LTE Band 7: 2500 MHz ~ 2570 MHz
LTE Band 12: 699 MHz ~ 716 MHz
LTE Band 13: 777 MHz ~ 787 MHz
LTE Band 17: 704 MHz ~ 716 MHz
LTE Band 38: 2570 MHz ~ 2620 MHz
LTE Band 41: 2496 MHz ~ 2690 MHz
LTE Band 42: 3450 MHz ~3550 MHz
LTE Band 66: 1710 MHz ~ 1780 MHz</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 38: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz
LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz</td></tr>
<tr><td>uplink modulations used</td><td>QPSK / 16QAM / 64QAM / 256QAM</td></tr>
<tr><td>LTE Voice / Data requirements</td><td>Voice and Data</td></tr>
<tr><td>LTE Release Version</td><td>R16, Cat18</td></tr>
<tr><td>CA Support</td><td>Supported, Uplink and Downlink</td></tr>
<tr><td>LTE MPR permanently built-in by design</td><td>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table></td></tr>
<tr><td>LTE A-MPR</td><td>In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)</td></tr>
<tr><td>Spectrum plots for RB configuration</td><td>A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
<tr><td>Power reduction applied to satisfy SAR compliance</td><td>Yes, when operating in Proximity sensors/receiver/hotspot detect mechanism, head/body -worn /hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 15.</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 15.</td></tr>
<tr><td>LTE Carrier Aggregation Additional Information</td><td>1. This device supports LTE Carrier Aggregation (CA) in the uplink for 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 and 2 carriers in the uplink.</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 38

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

LTE Band 41

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

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

LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460
M	42590	3500	42590	3500	42590	3500	42590	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540

<For LTE Overlap Bands Description>

1) LTE Bands SA BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 4	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Yes	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Yes	Yes	Yes	Yes		
LTE Band 17			Yes	Yes		
LTE Band 38			Yes	Yes	Yes	Yes
LTE Band 41			Yes	Yes	Yes	Yes

2) LTE Bands SA tune up

TX. freq.		Ant	Full Power max. tune up limit (dBm)	DSI 2 max. tune up limit (dBm)	DSI 3 max. tune up limit (dBm)	DSI 4 max. tune up limit (dBm)	DSI 6 max. tune up limit (dBm)	DSI 7 max. tune up limit (dBm)
LTE	LTE Band 12/17	0	24.00	24.00	24.00	24.00	24.00	24.00
	LTE Band 12/17	1	24.00	24.00	24.00	24.00	24.00	23.50
	LTE Band 66/4	0	24.00	24.00	22.60	24.00	24.00	22.60
	LTE Band 66/4	1	24.00	17.20	16.70	24.00	20.70	14.70
	LTE Band 66/4	2	24.00	24.00	22.70	24.00	24.00	22.70
	LTE Band 41/38	0	24.00	24.00	23.50	24.00	24.00	21.60
	LTE Band 41/38	1	24.00	19.30	21.30	24.00	23.30	17.30
	LTE Band 41/38	2	24.00	24.00	24.00	24.00	24.00	22.00

5.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
Channel Bandwidth	The detail please refers to section 5.1 5GNR FR1 bands table.
SCS	FDD: SCS15KHz, TDD: SCS30KHz
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM
A-MPR (Additional MPR) disabled for SAR Testing?	Yes
LTE Anchor Bands for n5	LTE B7
LTE Anchor Bands for n77	LTE B7
LTE Anchor Bands for n78	LTE B5/7/38/41

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

NR Band 7														
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550

NR Band 26								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	163300	816.5	163800	819	164300	821.5	164800	824
M	166300	831.5	166300	831.5	166300	831.5	166300	831.5
H	169300	846.5	168800	844	168300	841.5	167800	839

NR Band 38										
	Bandwidth10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	515000	2575	515500	2577.5	516000	2580	517000	2585.	518000	2590
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523000	2615	522500	2612.5	522000	2610	521000	2605	520000	2600

NR Band 41 SCS30KHz																		
	Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	500202	2501.01	507204	2536.02	508200	2541	509202	2546.01
M	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	537000	2685	529998	2649.99	528996	2644.98	528000	2640

NR Band 77																				
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930

	NR Band 78																			
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652832	3792.48	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98		

<For NR Overlap Bands Description>

1) NR Bands BW

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
FR1 NR	n38	TDD	30	10,15,20,30,40
	n41	TDD	30	20,30,40,50,60,70,80,90,100
FR1 NR	n77	TDD	30	10.15.20,30,40,50,60,70,80,90,100
	n78	TDD	30	10.15.20,30,40,50,60,70,80,90,100

2) NR Bands SA Tune up:

TX. freq.		Ant	Full Power max. tune up limit (dBm)	DSI 2 max. tune up limit (dBm)	DSI 3 max. tune up limit (dBm)	DSI 4 max. tune up limit (dBm)	DSI 6 max. tune up limit (dBm)	DSI 7 max. tune up limit (dBm)
FR1	n41/38	1	24.00	17.50	19.50	24.00	22.50	16.00
	n41/38	2	24.00	24.00	22.50	24.00	22.50	20.00
	n41/38	0	24.00	24.00	19.50	24.00	20.50	19.50
	n41/38	5	24.00	21.00	20.50	18.00	18.00	16.00
	n77/78 PC3	4	24.00	22.00	20.00	24.00	22.00	18.00
	n77/78 PC2	4	27.00	25.00	23.00	27.00	25.00	21.00
	n77/78 PC3	3	22.00	22.00	22.00	22.00	22.00	22.00
	n77/78 PC2	3	24.00	24.00	24.00	24.00	24.00	24.00
	n77/78 PC3	6	24.00	24.00	24.00	20.50	20.50	20.00
	n77/78 PC2	6	27.00	27.00	27.00	23.50	23.50	23.00
	n77/78 PC3	9	21.00	19.00	20.00	21.00	21.00	18.50
	n77/78 PC2	9	23.00	21.00	22.00	23.00	23.00	20.50

6. Smart Transmit feature for RF Exposure compliance

The Qualcomm® Smart Transmit™ 3.0 of Smart Transmit (Gen2) Feature operates based on pre-defined sub6 antenna groups (AG). This Device is enabled with the Qualcomm® Smart Transmit Gen2 feature. The RF exposure limit is defined based on time-averaged RF exposure. The RF exposure limit is defined based on time-averaged RF exposure. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6GHz). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.

Note that WLAN/BT operations are not enabled with Smart Transmit.

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) version 19 to enable the Smart Transmit Gen2 Feature.

<Terminologies in this report>

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

<SAR Characterization>

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

Antenna Group:

Antenna Group 0 (AG0)	ANT0 & ANT2 & ANT6
Antenna Group 1 (AG1)	ANT1 & ANT3 & ANT4 & ANT5 & ANT9

<SAR design target and uncertainty>

Item	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, below the predefined time-averaged power limit, for each characterized technology and band.

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

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

Band	Antenna	Head	Body Worn	Sensor OFF	Extremity	Hotspot	Pmax*
		DSI2	DSI3	DSI4	DSI6	DSI7	
GSM850**	Ant 0	33.5	25.9	24.2	24.2	25.9	24.2
GSM1900**	Ant 2	35.1	22.6	20.5	20.5	22.8	20.5
WCDMA II	Ant 2	32.3	21.7	23.0	23.7	21.7	23.0
WCDMA II	Ant 1	19.2	18.2	23.0	20.2	16.7	23.0
WCDMA IV	Ant 2	31.4	21.7	23.0	23.4	20.2	23.0
WCDMA IV	Ant 1	17.7	15.7	23.0	19.7	14.2	23.0
WCDMA V	Ant 0	30.4	23.5	23.0	23.0	23.5	23.0
WCDMA V	Ant 1	23.5	23.9	23.0	23.0	21.9	23.0
LTE Band 7	Ant 0	25.7	19.2	23.0	20.2	18.2	23.0
LTE Band 7	Ant 1	16.7	16.7	23.0	21.2	15.2	23.0
LTE Band 7_Other PA	Ant 1	16.7	16.7	23.0	21.2	15.2	23.0
LTE Band 7	Ant 2	34.8	21.4	23.0	21.9	18.9	23.0
LTE Band 7_Other PA	Ant 2	34.8	21.4	23.0	21.9	18.9	23.0
LTE Band 12/17	Ant 0	32.0	25.2	23.0	23.0	25.2	23.0
LTE Band 12/17	Ant 1	23.3	23.9	23.0	23.0	22.5	23.0
LTE Band 13	Ant 0	30.2	24.4	23.0	23.0	24.4	23.0
LTE Band 13	Ant 1	23.0	23.7	23.0	23.0	21.8	23.0
LTE Band 2	Ant 0	31.9	22.1	23.0	23.0	22.1	23.0
LTE Band 2	Ant 1	16.2	16.2	23.0	21.2	14.7	23.0
LTE Band 2	Ant 2	32.7	22.2	23.0	23.6	22.2	23.0
LTE Band 5	Ant 0	30.8	24.4	23.0	23.0	24.4	23.0
LTE Band 5	Ant 1	23.0	23.2	23.0	23.0	22.4	23.0
LTE Band 66/4	Ant 0	31.4	21.6	23.0	23.0	21.6	23.0
LTE Band 66/4	Ant 1	16.2	15.7	23.0	19.7	13.7	23.0
LTE Band 66/4	Ant 2	31.4	21.7	23.0	23.9	21.7	23.0
LTE Band 41/38	Ant 0	27.3	20.5	21.0	21.2	18.6	21.0
LTE Band 41/38	Ant 1	16.3	18.3	21.0	20.3	14.3	21.0
LTE Band 41/38	Ant 2	32.8	22.1	21.0	22.0	19.0	21.0
LTE Band 42	Ant 4	20.0	19.0	21.0	19.5	15.5	21.0
LTE Band 42	Ant 3	16.5	20.1	19.0	19.0	16.5	19.0
LTE Band 42	Ant 6	33.5	24.5	21.0	21.0	21.5	21.0
LTE Band 42	Ant 9	19.0	17.5	19.0	19.0	15.5	19.0
FR1 n5	Ant 0	36.4	25.4	23.0	23.0	25.4	23.0
FR1 n5	Ant 1	22.5	24.0	23.0	23.0	22.0	23.0
FR1 n26	Ant 0	36.1	27.5	23.0	23.0	27.5	23.0
FR1 n26	Ant 1	22.0	22.5	23.0	23.0	21.0	23.0
FR1 n7	Ant 0	26.0	19.5	23.0	20.0	18.0	23.0
FR1 n7	Ant 1	17.5	17.5	23.0	21.5	16.0	23.0
FR1 n7	Ant 2	34.0	22.0	23.0	22.5	20.0	23.0
FR1 n41/38	Ant 1	16.5	18.5	23.0	21.5	15.0	23.0
FR1 n41/38	Ant 2	33.6	21.5	23.0	21.5	19.0	23.0
FR1 n41/38	Ant 0	28.3	18.5	23.0	19.5	18.5	23.0
FR1 n41/38	Ant 5	20.0	19.5	17.0	17.0	15.0	21.0
FR1 n77/78 PC3	Ant 4	21.0	19.0	23.0	21.0	17.0	23.0
FR1 n77/78 PC2	Ant 4			23.0			23.0
FR1 n77 PC3	Ant 3	22.8	24.1	21.0	21.0	22.5	21.0

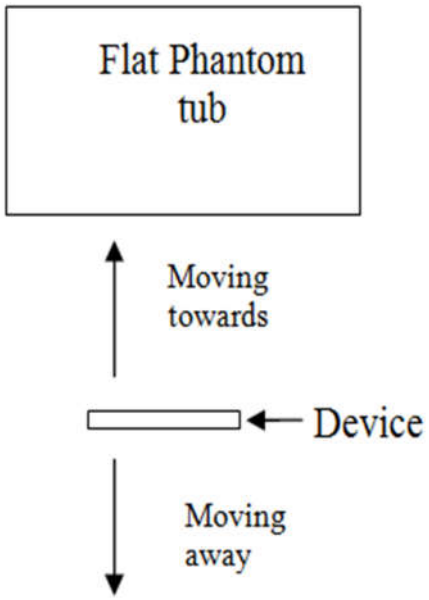
FR1 n77 PC2	Ant 3			20.0	20.0		20.0
FR1 n77/78 PC3	Ant 6	26.3	19.5	19.5	19.5	19.0	23.0
FR1 n77/78 PC2	Ant 6						23.0
FR1 n77/78 PC3	Ant 9	17.0	18.0	20.0	20.0	16.5	20.0
FR1 n77/78 PC2	Ant 9			19.0	19.0		19.0
FR1 n78 PC3	Ant 3	22.8	24.1	20.0	20.0	22.5	19.0
FR1 n78 PC2	Ant 3			22.0	22.0		18.0

Note:
1) *Pmax is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + 1.0 dB device uncertainty.
2) All Plimit 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 & LTE TDD & NR TDD).
3) The max allowed output power is the Plimit + 1.0 dB device uncertainty, and if Plimit is higher than Pmax, the device output power will be Pmax instead.

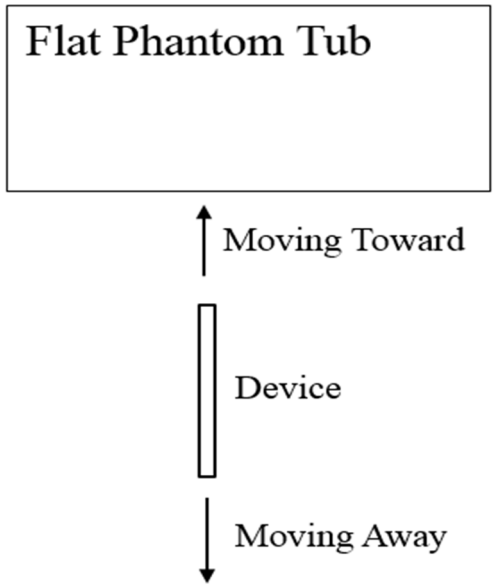
7. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance>:

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (5850MHz) and lowest (1750MHz) frequency was used for proximity sensor triggering testing.
2. Capacitive proximity sensors placed coincident with antenna elements at the top and bottom ends of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back of the device.
3. The output power will reduce to body worn power level when top and bottom sensor pad be detected.
4. The sensors used to detect the proximity of the user's body at the front or back surface of the device use a detection threshold distance. The data shown in the sections below shows the distance(s). When front or back body worn condition is detected reduced power will be active.
5. The device employs proximity sensors also can detect the presence of the user's a finger or hand when handheld state at the front/back/top/bottom/left/right sides of the device. When front/back/top/bottom/left/right sides of handheld condition is detected reduced power will be active.
6. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed:



Sensor/Handheld detection test set-up, Front and Back sides



Handheld detection test set-up, Left Side, Right Side, Bottom Side and Top Side

<P-Sensor>

Proximity Sensor Triggering Distance (mm)				
Position	Front		Back	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	15	15	20	20

<Handheld for ANT 0/2>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	4	4	7	7	6	6	7	7

<Handheld for ANT1/4>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	4	4	12	12	9	9	7	7

<Handheld for ANT3/7/8/9>

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Right Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	4	4	5	5	8	8	6	6

8. RF Exposure Limits

8.1 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.

8.2 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.

9. Specific Absorption Rate (SAR)

9.1 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.

9.2 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:

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

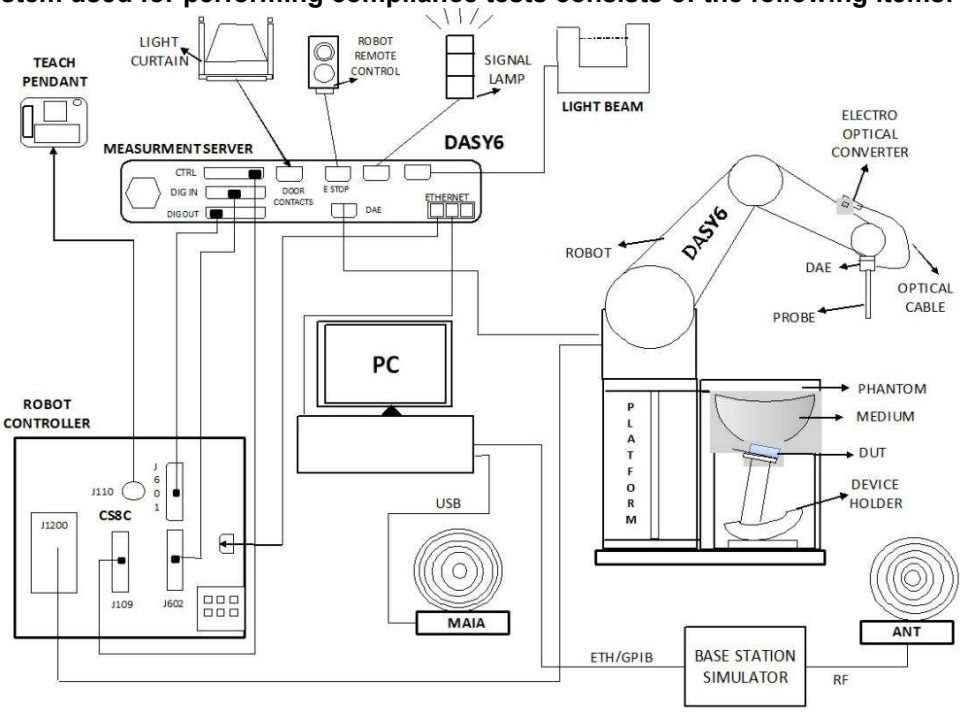
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

10. 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 Win7 or Win10 and the DASY5 or DASY6 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.

10.1 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

10.2 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

10.3 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

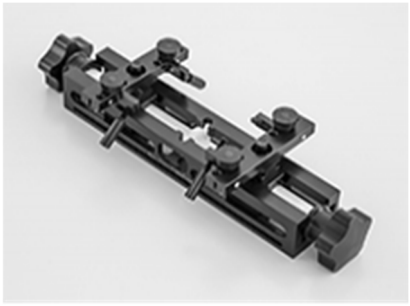
The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

10.4 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

11. 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

11.1 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

11.2 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.

11.3 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.	

11.4 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.

11.5 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.

11.6 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.

12. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1099	Dec. 15, 2021	Dec. 13, 2024
SPEAG	835MHz System Validation Kit	D835V2	4d162	Dec. 17, 2021	Dec. 15, 2024
SPEAG	1750MHz System Validation Kit	D1750V2	1137	Oct. 19, 2021	Oct. 17, 2024
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	Dec. 20, 2021	Dec. 18, 2024
SPEAG	2450MHz System Validation Kit	D2450V2	924	Nov. 03, 2023	Nov. 02, 2024
SPEAG	2600MHz System Validation Kit	D2600V2	1070	Dec. 20, 2021	Dec. 18, 2024
SPEAG	3500MHz System Validation Kit	D3500V2	1037	Nov. 20, 2023	Nov. 19, 2024
SPEAG	3700MHz System Validation Kit	D3700V2	1008	Nov. 20, 2023	Nov. 19, 2024
SPEAG	3900MHz System Validation Kit	D3900V2	1022	Aug. 18, 2022	Aug. 17, 2025
SPEAG	5000MHz System Validation Kit	D5GHzV2	1341	Dec. 13, 2021	Dec. 11, 2024
SPEAG	6500MHz System Validation Kit	D6.5GHzV2	1026	Jan. 25, 2024	Jan. 24, 2025
SPEAG	Data Acquisition Electronics	DAE4	1664	Jun. 06, 2023	Jun. 05, 2024
SPEAG	Data Acquisition Electronics	DAE4	1210	Jan. 15, 2024	Jan. 14, 2025
SPEAG	Dosimetric E-Field Probe	EX3DV4	7577	Dec. 13, 2023	Dec. 12, 2024
SPEAG	SAM Twin Phantom	QD 000 P40 CD	1795	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P41 AA	2033	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio communication analyzer	MT8820C	6201300653	Jul. 05, 2023	Jul. 04, 2024
Anritsu	Radio communication analyzer	MT8821C	6272278319	Jul. 05, 2023	Jul. 04, 2024
Agilent	Wireless Communication Test Set	E5515C	MY50267224	Jul. 05, 2023	Jul. 04, 2024
Keysight	Network Analyzer	E5071C	MY46523671	Oct. 16, 2023	Oct. 15, 2024
Speag	Dielectric Assessment KIT	DAK-3.5	1071	Feb. 19, 2024	Feb. 18, 2025
Agilent	Signal Generator	N5181A	MY50145381	Dec. 28, 2023	Dec. 27, 2024
R&S	Signal Generator	SMB100A	175779	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Power Senor	MA2411B	1306099	Oct. 16, 2023	Oct. 15, 2024
Anritsu	Power Meter	ML2495A	1349001	Oct. 16, 2023	Oct. 15, 2024
Anritsu	Power Sensor	MA2411B	1542004	Dec. 28, 2023	Dec. 27, 2024
Anritsu	Power Meter	ML2495A	1339473	Dec. 28, 2023	Dec. 27, 2024
R&S	Spectrum Analyzer	FSP7	100818	Jul. 05, 2023	Jul. 04, 2024
TES	Hygrometer	1310	200505600	Jul. 08, 2023	Jul. 07, 2024
Anymetre	Thermo-Hygrometer	JR593	2015030903	Jan. 02, 2024	Jan. 01, 2025
SPEAG	Device Holder	N/A	N/A	N/A	N/A
AR	Amplifier	5S1G4	0333096	Note 1	
Mini-Circuits	Amplifier	ZVE-3W-83+	599201528	Note 1	
Mini-Circuits	Amplifier	ZVA-183W-S+	726202215	Note 1	
ARRA	Power Divider	A3200-2	N/A	Note 1	
ET Industries	Dual Directional Coupler	C-058-10	N/A	Note 1	
Jinkexinhua	Attenuator	10db-8G	N/A	Note 1	

Note:

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

13. System Verification

13.1 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.

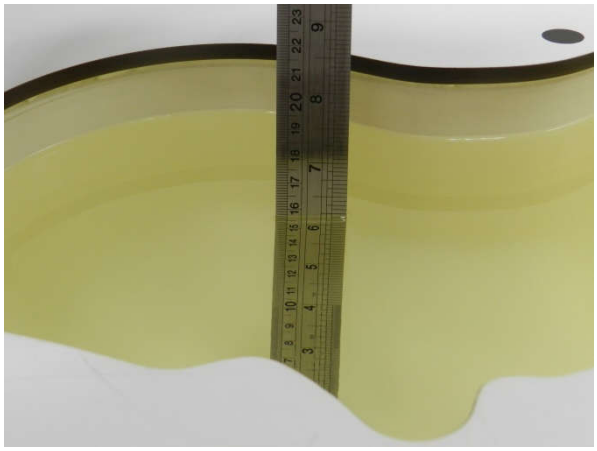


Fig 11.1 Photo of Liquid Height for Head SAR

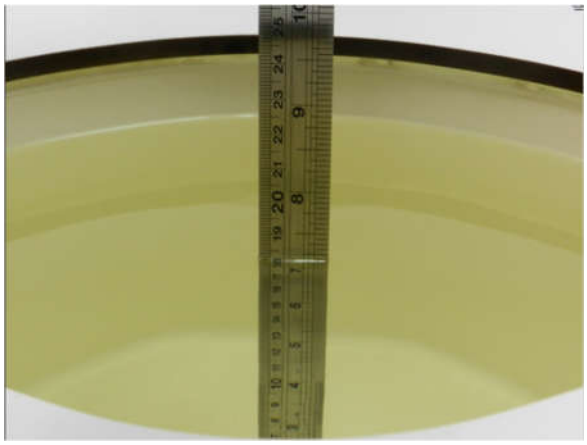


Fig 11.2 Photo of Liquid Height for Body SAR

13.2 Tissue Verification

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

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

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	Head	22.5	0.915	40.783	0.89	41.90	2.81	-2.67	±5	2024/4/23
750	Head	22.4	0.903	41.574	0.89	41.90	1.46	-0.78	±5	2024/5/19
835	Head	24.4	0.934	41.564	0.90	41.50	3.78	0.15	±5	2024/4/24
835	Head	22.5	0.911	43.132	0.90	41.50	1.22	3.93	±5	2024/5/26
1750	Head	22.3	1.351	39.859	1.37	40.10	-1.39	-0.60	±5	2024/4/26
1750	Head	22.5	1.382	41.560	1.37	40.10	0.88	3.64	±5	2024/5/24
1900	Head	22.4	1.433	40.643	1.40	40.00	2.36	1.61	±5	2024/4/29
1900	Head	22.2	1.451	39.514	1.40	40.00	3.64	-1.21	±5	2024/5/23
2450	Head	22.2	1.821	40.265	1.80	39.20	1.17	2.72	±5	2024/5/9
2450	Head	22.4	1.850	38.466	1.80	39.20	2.78	-1.87	±5	2024/5/21
2600	Head	22.5	1.908	38.730	1.96	39.00	-2.65	-0.69	±5	2024/4/29
2600	Head	22.2	1.939	37.938	1.96	39.00	-1.07	-2.72	±5	2024/5/20
3500	Head	22.4	2.853	37.185	2.91	37.90	-1.96	-1.89	±5	2024/5/2
3500	Head	22.3	2.981	39.219	2.91	37.90	2.44	3.48	±5	2024/5/17
3700	Head	22.3	3.005	36.910	3.12	37.70	-3.69	-2.10	±5	2024/5/5
3700	Head	22.3	3.141	38.960	3.12	37.70	0.67	3.34	±5	2024/5/16
3900	Head	22.5	3.175	36.657	3.33	37.51	-4.65	-2.27	±5	2024/5/7
3900	Head	22.5	3.312	38.755	3.33	37.51	-0.54	3.32	±5	2024/5/15
5250	Head	22.4	4.597	36.617	4.71	35.95	-2.40	1.86	±5	2024/5/8
5250	Head	22.2	4.668	36.850	4.71	35.95	-0.89	2.50	±5	2024/5/14
5600	Head	22.3	5.006	36.080	5.07	35.50	-1.26	1.63	±5	2024/5/9
5600	Head	22.3	5.037	36.344	5.07	35.50	-0.65	2.38	±5	2024/5/13
5750	Head	22.1	5.175	35.814	5.22	35.35	-0.86	1.31	±5	2024/5/10
5750	Head	22.3	5.197	36.134	5.22	35.35	-0.44	2.22	±5	2024/5/12
6500	Head	22.5	6.080	34.000	6.07	34.50	0.16	-1.45	±5	2024/5/22

13.3 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 (%)
2024/4/23	750	Head	250	1099	7577	1210	2.160	8.540	8.64	1.17
2024/5/19	750	Head	250	1099	7577	1210	2.070	8.540	8.28	-3.04
2024/4/24	835	Head	250	4d162	7577	1210	2.390	9.640	9.56	-0.83
2024/5/26	835	Head	250	4d162	7577	1210	2.600	9.640	10.4	7.88
2024/4/26	1750	Head	250	1137	7577	1210	8.700	36.500	34.8	-4.66
2024/5/24	1750	Head	250	1137	7577	1210	9.500	36.500	38	4.11
2024/4/29	1900	Head	250	5d182	7577	1210	10.500	39.600	42	6.06
2024/5/23	1900	Head	250	5d182	7577	1210	10.600	39.600	42.4	7.07
2024/5/9	2450	Head	250	924	7577	1210	12.700	52.300	50.8	-2.87
2024/5/21	2450	Head	250	924	7577	1210	13.100	52.300	52.4	0.19
2024/4/29	2600	Head	250	1070	7577	1210	13.600	56.200	54.4	-3.20
2024/5/20	2600	Head	250	1070	7577	1210	13.000	56.200	52	-7.47
2024/5/2	3500	Head	100	1037	7577	1210	6.530	65.400	65.3	-0.15
2024/5/17	3500	Head	100	1037	7577	1210	7.060	65.400	70.6	7.95
2024/5/5	3700	Head	100	1008	7577	1210	6.600	67.200	66	-1.79
2024/5/16	3700	Head	100	1008	7577	1210	6.430	67.200	64.3	-4.32
2024/5/7	3900	Head	100	1022	7577	1210	6.620	66.400	66.2	-0.30
2024/5/15	3900	Head	100	1022	7577	1210	7.050	66.400	70.5	6.17
2024/5/8	5250	Head	100	1341	7577	1210	7.640	80.700	76.4	-5.33
2024/5/14	5250	Head	100	1341	7577	1210	8.480	80.700	84.8	5.08
2024/5/9	5600	Head	100	1341	7577	1210	8.650	84.500	86.5	2.37
2024/5/13	5600	Head	100	1341	7577	1210	8.570	84.500	85.7	1.42
2024/5/10	5750	Head	100	1341	7577	1210	7.510	80.600	75.1	-6.82
2024/5/12	5750	Head	100	1341	7577	1210	8.340	80.600	83.4	3.47
2024/5/22	6500	Head	100	1026	7577	1664	30.000	295.000	300	1.69

<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 (%)
2024/4/23	750	Head	250	1099	7577	1210	1.380	5.650	5.52	-2.30
2024/5/19	750	Head	250	1099	7577	1210	1.320	5.650	5.28	-6.55
2024/4/24	835	Head	250	4d162	7577	1210	1.670	6.260	6.68	6.71
2024/5/26	835	Head	250	4d162	7577	1210	1.690	6.260	6.76	7.99
2024/4/26	1750	Head	250	1137	7577	1210	4.690	19.200	18.76	-2.29
2024/5/24	1750	Head	250	1137	7577	1210	5.060	19.200	20.24	5.42
2024/4/29	1900	Head	250	5d182	7577	1210	5.440	20.200	21.76	7.72
2024/5/23	1900	Head	250	5d182	7577	1210	5.360	20.200	21.44	6.14
2024/5/9	2450	Head	250	924	7577	1210	5.870	24.500	23.48	-4.16
2024/5/21	2450	Head	250	924	7577	1210	5.920	24.500	23.68	-3.35
2024/4/29	2600	Head	250	1070	7577	1210	5.840	24.600	23.36	-5.04
2024/5/20	2600	Head	250	1070	7577	1210	5.740	24.600	22.96	-6.67
2024/5/2	3500	Head	100	1037	7577	1210	2.500	24.700	25	1.21
2024/5/17	3500	Head	100	1037	7577	1210	2.620	24.700	26.2	6.07
2024/5/5	3700	Head	100	1008	7577	1210	2.410	24.400	24.1	-1.23
2024/5/16	3700	Head	100	1008	7577	1210	2.360	24.400	23.6	-3.28
2024/5/7	3900	Head	100	1022	7577	1210	2.310	23.700	23.1	-2.53
2024/5/15	3900	Head	100	1022	7577	1210	2.480	23.700	24.8	4.64
2024/5/8	5250	Head	100	1341	7577	1210	2.180	23.100	21.8	-5.63
2024/5/14	5250	Head	100	1341	7577	1210	2.320	23.100	23.2	0.43
2024/5/9	5600	Head	100	1341	7577	1210	2.510	24.000	25.1	4.58
2024/5/13	5600	Head	100	1341	7577	1210	2.560	24.000	25.6	6.67
2024/5/10	5750	Head	100	1341	7577	1210	2.190	22.700	21.9	-3.52
2024/5/12	5750	Head	100	1341	7577	1210	2.310	22.700	23.1	1.76
2024/5/22	6500	Head	100	1026	7577	1664	5.610	54.300	56.1	3.31

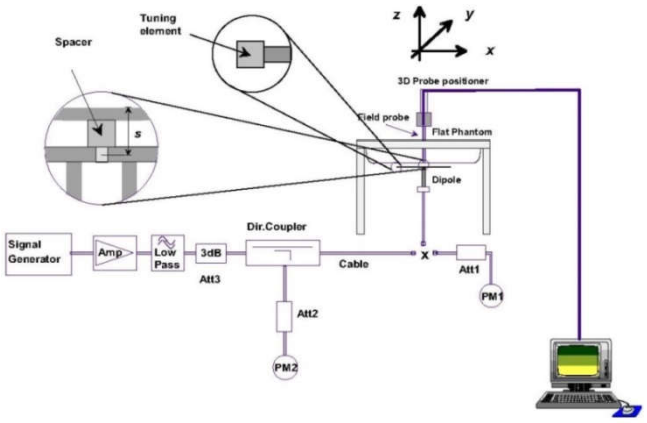


Fig 11.3.1 System Performance Check Setup

Fig 11.3.2 Setup Photo

14. RF Exposure Positions

14.1 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.

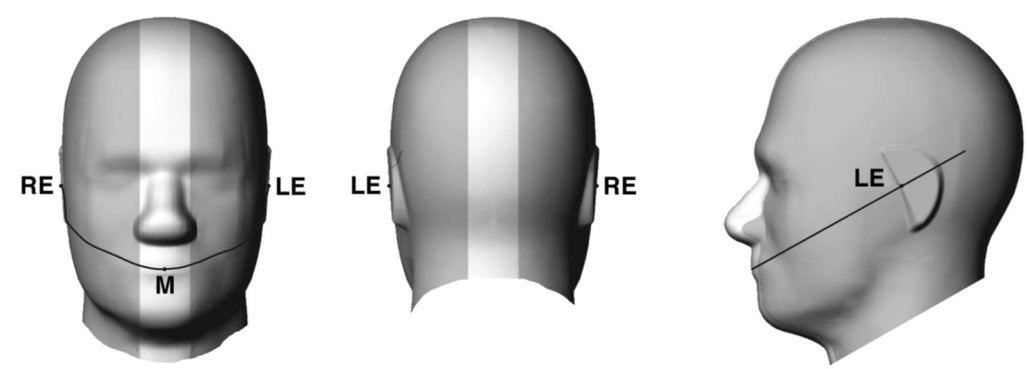


Fig 12.1.1 Front, back, and side views of SAM twin phantom

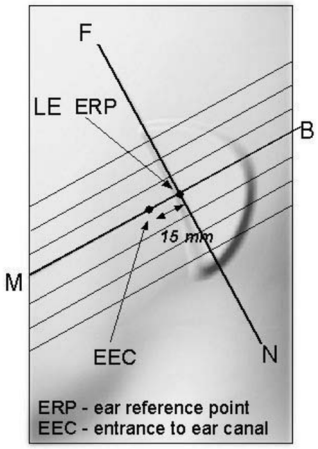


Fig 12.1.2 Close-up side view of phantom showing the ear region.

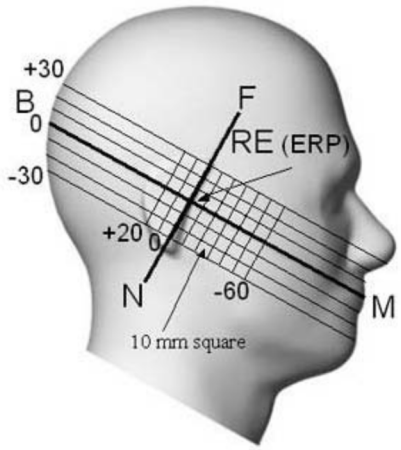


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

14.2 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.

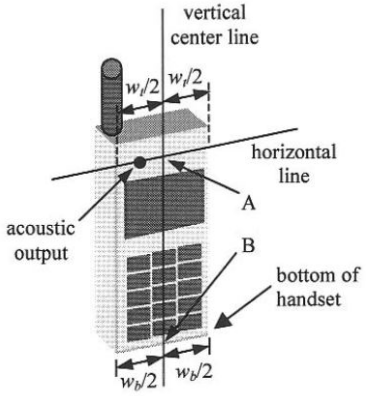


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

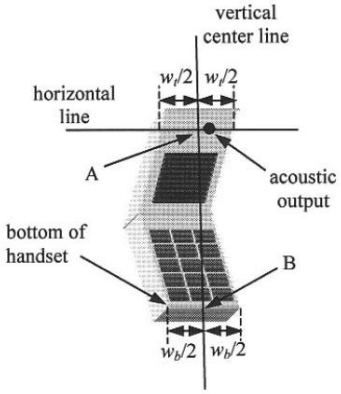


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

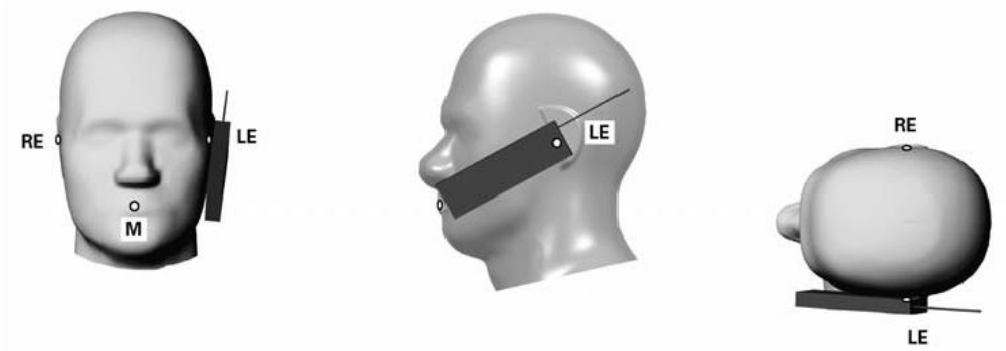


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

14.3 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

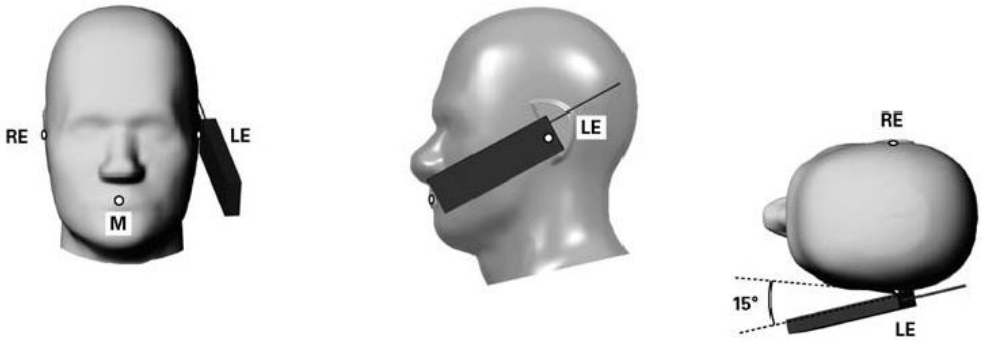


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

14.4 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 11.4). 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. 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.

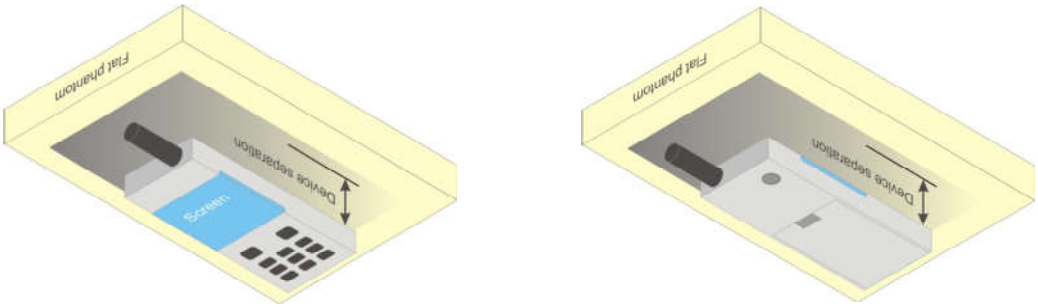


Fig 12.4 Body Worn Position

14.5 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 can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and 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.

14.6 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.

15. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

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

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

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

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

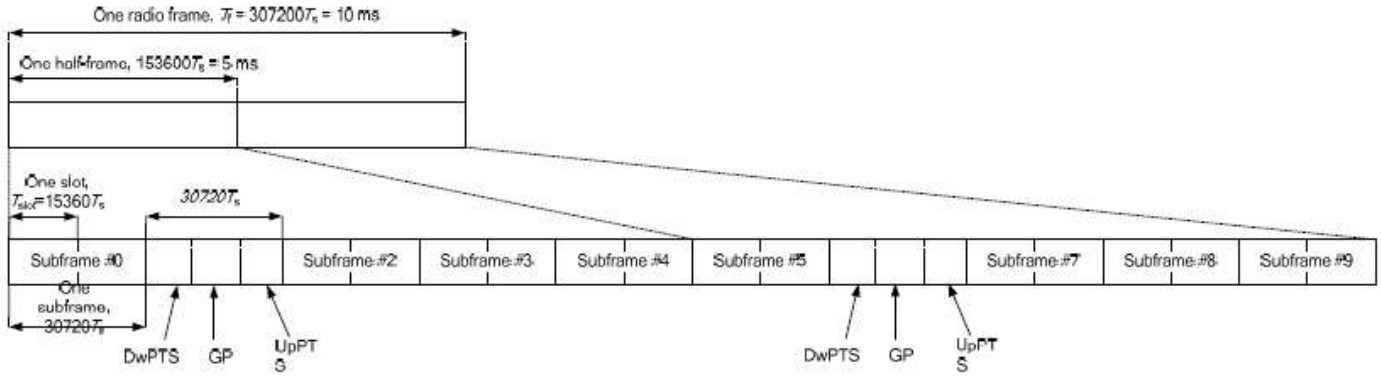


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

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

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

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

The highest duty factor is resulted from:

For LTE TDD Power class 3

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

<LTE Carrier Aggregation>

The detailed LTE Carrier Aggregation conducted power table can refer to Appendix F.

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	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Covered by Measurement Superset
1	CA_2A_5A	2A		1	CA_41A_41A_41A	41A-41A, 41A		1	CA_41A_41A_41C	41C, 41A-41A, 41A	
2	CA_38C	CA_38C, 38A		2	CA_41A_41C	41A-41C, 41C, 41A-41A, 41A	4CC-1	2	CA_41A_41D	41A	
3	CA_41A_41A	41A-41A, 41A	3CC-1	3	CA_41D	41D, 41C, 41A	4CC-2	3	CA_41C_41C	41C, 41A	
4	CA_41C	41C, 41A	3CC-2	4				4	CA_41E		
5	CA_5A_7A	7A		5				5			
6	CA_66A_66A	66A-66A, 66A		6				6			
7	CA_66B	66B, 66A		7				7			
8	CA_66C	66C, 66A		8				8			
9	CA_7A_7A	7A-7A, 7A		9				9			
10	CA_7B	7B, 7A		10				10			
11	CA_7C	CA_7C, 7A		11				11			

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

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

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

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

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

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

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Band 2/7/66/38/41 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

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

4X4 MIMO	Band
	LTE Band 2/7/66/38/41

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA Intra-band	2CC Uplink Carrier Aggregation
CA_7C	Ant 0/1/2
CA_38C	Ant 0/1/2

<Intra-band>

General Note:

i. The device supports intra-band uplink carrier aggregation for LTE B7/38 with a maximum of two uplink 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. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.

ii. The device supports uplink carrier aggregation with a maximum of two uplink 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. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre the 3GPP requirement.

iii. According Nov. 2017 TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

iv. Additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

5G NR Output Power (Unit: dBm)

General Note:

1. 5G NR n5/n7/n26/n38/n41/n77/n78 is SA mode.
2. 5G NR n5 /n77/n78 is NSA mode.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s QPSK and the reported SAR for the DFT-s QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
   b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
   c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
   d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
   f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. For 5GNR n77/n78 HPUE, 5GNR n77/n78 PC2 Maximum Duty Cycle is 50%, using FTM (Factory Test Mode) with 50% duty cycle is considered during SAR testing. For 5G NR other bands, using FTM to perform SAR with default 100% transmission.
5. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
6. 5GNR NSA mode, the power level is the same as 5GNR SA mode, so 5GNR NSA mode and SA mode power table only show one time.
7. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
8. This device supports HPUE mode for 5GNR n77/n78 with higher power. For HPUE power is higher than power class 3 but with lower duty cycle, the maximum average power for class 2 and class 3 is almost the same, so we chose power class 3 full SAR testing and power class 2 verified the worst case of power class 3 SAR.
9. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.

<3GPP 38.101 MPR for EN-DC>

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

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

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

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

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

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

<EN-DC combination>

ENDC	Band	Main TX	Asdiv TX	Asdiv TX	Asdiv TX	Asdiv TX	Asdiv TX	Asdiv TX	Asdiv TX
DC_7A_n5A	LTE B7	Ant 2	Ant 1						
	FR1 n5	Ant 1	Ant 0						
DC_7A_n77A	LTE B7	Ant 2	Ant 1	Ant 1	Ant 1	Ant 1	Ant 2	Ant 2	Ant 2
	FR1 n77	Ant 4	Ant 4	Ant 3	Ant 6	Ant 9	Ant 3	Ant 6	Ant 9
DC_5A_n78A	LTE B5	Ant 0	Ant 1	Ant 1	Ant 1	Ant 1	Ant 0	Ant 0	Ant 0
	FR1 n78	Ant 4	Ant 4	Ant 3	Ant 6	Ant 9	Ant 3	Ant 6	Ant 9
DC_7A_n78A	LTE B7	Ant 2	Ant 1	Ant 1	Ant 1	Ant 1	Ant 2	Ant 2	Ant 2
	FR1 n78	Ant 4	Ant 4	Ant 3	Ant 6	Ant 9	Ant 3	Ant 6	Ant 9
DC_38A_n78A	LTE B38	Ant 2	Ant 1	Ant 1	Ant 1	Ant 1	Ant 2	Ant 2	Ant 2
	FR1 n78	Ant 4	Ant 4	Ant 3	Ant 6	Ant 9	Ant 3	Ant 6	Ant 9
DC_41A_n78A	LTE B41	Ant 2	Ant 1	Ant 1	Ant 1	Ant 1	Ant 2	Ant 2	Ant 2
	FR1 n78	Ant 4	Ant 4	Ant 3	Ant 6	Ant 9	Ant 3	Ant 6	Ant 9

16. Antenna Location

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

17. SAR Test Results

Spot Check General Note:

1. According to section 3.3, spot check conducted power test against the variant project based on the worst-case SAR condition from the original project was performed in this filing to demonstrate the test data from original project remains representative for the variant project. Detail Conducted power measurement referred to appendix E.
2. SAR spot check verification on the worst cases from the original model was performed to demonstrate the test data from original model remains representative for the variant model.
3. Per KDB 484596 D01 v02r03, the variant filings must demonstrate that the referenced test data remain valid for the variant device by including spot-check measurements that meet the following criteria:
   a. Spot-check measurements shall be made in correspondence to the worst-case scenario reported in the reference device filing, i.e., for those conditions that are the closest to non-compliance
   b. Spot-check measurements, while being always compliant with the applicable rule part(s) for the test under consideration, may show a deviation ddB from the reference data no larger than 3 dB:
   $$d_{dB} = | VdB – RdB | \leq 3\ dB \quad (1)$$
   where between VdB, the variant spot-check level in dB, and RdB is the corresponding measurement level in dB for the reference model.
4. The Spot check results showed that deviation of the SAR results did not exceed 3 dB, therefore referring to the guidance in the KDB inquiry, SAR data reuse is justified.
5. 1st as parent model, 2nd as variant model.

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN/Bluetooth signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the Qualcomm smart transmit will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E.
5. For WLAN when transmit simultaneous with WWAN/BT, power reduction will be activated to head exposure condition. For WLAN when transmit simultaneous with WWAN and Proximity sensors trigger, power reduction will be activated to body-worn and extremity exposure conditions.
6. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR

must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of WCDMA Band II/IV, LTE Band 2/4/7/66/38/41/42, 5GNR n7/n38/n41/n77/n78, WLAN2.4/ 5.2/5.8GHz, therefore product specific 10g SAR is necessary.
b. WLAN 5.3/5.5GHz/6GHz 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.

7. Although the headset SAR is greater than 0.8 W/kg, the headset SAR verified the worst of the non-headset SAR and less than non-headset SAR, so there is no need to be tested other channels.
8. According to Nov. 2017 TCB workshop, when the reported 1gSAR for UL CA configuration is <1.2 W/kg, UL CA 1gSAR is not required for all required test channels (PCC based).
9. LTE Band 7 at ant1/2 support different PAs for some antennas, and LTE/NR bands support Other PA only under ENDC & UL CA. Some LTE/NR bands support different PAs for some antennas, whether it is the maximum power of Main PA is higher than and very close to the other PA, for RF exposure, after verification all PAs in a same position, so the worst-case PA was chosen to perform full SAR testing to ensure the RF exposure is compliance and other PAs verified the worst case.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE B4 / B17 / B38 SAR test was covered by B66 / B12 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
   a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion
   b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
   a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
   b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
   c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
   d. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
   e. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
   f. For 5G FR1 n5 /n7/ n26/n38/n41/n77 the maximum bandwidth does not support three non-overlapping channels, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

DSI status description：

The device has the following DSI state which used at different exposure condition.

This WWAN bands enabled with Qualcomm Smart Transmit feature which located at chapter 6. The default power is Pmax power, When Plimit power higher than Pmax power, the output power will be limited at Pmax, and so the SAR will use Pmax power to do the testing.

Exposure Condition	DSI	Trigger Conditions
Head SAR	DSI 2	Receiver on
Body worn SAR	DSI 3	Sensor On
Hotspot SAR	DSI 7	Hotspot On
Extremity (Handheld) SAR	DSI 6	Sensor On
Sensor Off SAR	DSI 4	Sensor Off

17.1 Head SAR

Plot No.	No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
750MHz																							
	1st	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23095	707.5	1	23.07	24.00	1.239	-	-	0.15	0.131	0.162	1.20
	2nd	LTE Band 12	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23095	707.5	1	23.14	24.00	1.219	-	-	0.15	0.101	0.123	
	1st	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23095	707.5	1	22.42	24.00	1.439	-	-	-0.18	0.574	0.826	0.19
01	2nd	LTE Band 12	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23095	707.5	1	22.52	24.00	1.406	-	-	0.02	0.613	**0.862**	
	1st	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23230	782	1	23.32	24.00	1.169	-	-	-0.06	0.209	0.244	1.67
	2nd	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	23230	782	1	23.44	24.00	1.138	-	-	-0.17	0.146	0.166	
	1st	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23230	782	1	22.87	24.00	1.297	-	-	-0.07	0.680	0.882	0.17
02	2nd	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	23230	782	1	23.01	24.00	1.256	-	-	-0.08	0.676	**0.849**	
835MHz																							
	1st	GSM850	-	-	-	-	GPRS(3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	189	836.4	1	28.70	29.50	1.202	-	-	0.18	0.139	0.167	1.05
03	2nd	GSM850	-	-	-	-	GPRS(3 Tx slots)	Left Cheek	0mm	Ant 0	DSI2	189	836.4	1	28.86	29.50	1.159	-	-	0.09	0.113	**0.131**	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	4182	836.4	1	22.97	24.00	1.268	-	-	-0.12	0.185	0.235	0.09
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSI2	4182	836.4	1	23.08	24.00	1.236	-	-	-0.11	0.194	0.240	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	4182	836.4	1	23.00	24.00	1.259	-	-	-0.03	0.616	0.775	0.33
04	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	4182	836.4	1	23.04	24.00	1.247	-	-	0	0.670	**0.836**	
	1st	LTE Band 26	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26865	831.5	1	22.89	24.00	1.291	-	-	-0.08	0.164	0.212	0.57
	2nd	LTE Band 5	15M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	20525	836.5	1	23.34	24.00	1.164	-	-	-0.18	0.160	0.186	
	1st	LTE Band 26	15M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26865	831.5	1	22.74	24.00	1.337	-	-	0.05	0.663	0.886	
05	2nd	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	20525	836.5	1	22.74	24.00	1.337	-	-	0.02	0.652	**0.871**	0.07
	2nd	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	20525	836.5	2	22.74	24.00	1.337	-	-	0.08	0.614	0.821	
	1st	FR1 n5	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	167300	836.5	1	22.84	24.00	1.306	-	-	-0.18	0.045	0.059	1.69
	2nd	FR1 n5	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	167300	836.5	1	23.08	24.00	1.236	-	-	0.03	0.032	0.040	
	1st	FR1 n5	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	167300	836.5	1	22.12	23.50	1.374	-	-	0.08	0.599	0.823	0.17
06	2nd	FR1 n5	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	167300	836.5	1	22.10	23.50	1.380	-	-	-0.04	0.573	**0.791**	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.18	24.00	1.208	-	-	0.12	0.041	0.050	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.18	24.00	1.208	-	-	-0.1	0.018	0.022	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.18	24.00	1.208	-	-	0.1	0.052	0.063	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.18	24.00	1.208	-	-	-0.12	0.031	0.037	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.11	24.00	1.227	-	-	0.03	0.039	0.048	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.11	24.00	1.227	-	-	-0.08	0.017	0.021	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 0	DSI2	166300	831.5	1	23.11	24.00	1.227	-	-	0.02	0.050	0.061	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 0	DSI2	166300	831.5	1	23.11	24.00	1.227	-	-	0.01	0.030	0.037	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.91	23.00	1.285	-	-	0.01	0.548	0.704	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Right Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.91	23.00	1.285	-	-	0.06	0.574	0.738	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.91	23.00	1.285	-	-	0.13	0.253	0.325	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.91	23.00	1.285	-	-	-0.11	0.243	0.312	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Right Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.88	23.00	1.294	-	-	-0.08	0.598	0.774	
07	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Right Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.88	23.00	1.294	-	-	0.07	0.644	**0.833**	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Cheek	0mm	Ant 1	DSI2	166300	831.5	1	21.88	23.00	1.294	-	-	0.1	0.273	0.353	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.88	23.00	1.294	-	-	-0.05	0.288	0.373	
	2nd	FR1 n26	20M	QPSK	100	0	DFT-15	Right Tilted	0mm	Ant 1	DSI2	166300	831.5	1	21.84	23.00	1.306	-	-	-0.01	0.622	0.812	
1750MHz																							
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DSI2	1413	1732.6	1	22.99	24.00	1.262	-	-	0.08	0.147	0.185	0.69
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DSI2	1413	1732.6	1	23.05	24.00	1.245	-	-	0.1	0.127	0.158	
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	1413	1732.6	1	17.14	18.70	1.432	-	-	-0.08	0.521	0.746	0.43
08	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	1413	1732.6	1	17.31	18.70	1.377	-	-	0.12	0.490	**0.675**	
	1st	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI2	132322	1745	1	22.58	24.00	1.387	-	-	0.06	0.134	0.186	0.57
	2nd	LTE Band 66	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSI2	132322	1745	1	22.66	24.00	1.361	-	-	0.15	0.120	0.163	

	1st	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	132322	1745	1	16.15	17.20	1.274	-	-	-0.02	0.541	0.689	0.27
09	2nd	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	132322	1745	1	15.96	17.20	1.330	-	-	0.09	0.552	**0.734**	
	1st	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132322	1745	1	22.61	24.00	1.377	-	-	-0.08	0.134	0.185	0.91
	2nd	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSI2	132322	1745	1	22.68	24.00	1.355	-	-	0.06	0.111	0.150	
1900MHz																							
	1st	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Right Cheek	0mm	Ant 2	DSI2	661	1880	1	25.76	25.80	1.009	-	-	0.01	0.047	0.047	1.16
10	2nd	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Right Cheek	0mm	Ant 2	DSI2	661	1880	1	25.77	25.80	1.007	-	-	0.02	0.035	**0.036**	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSI2	9400	1880	1	23.12	24.00	1.225	-	-	-0.04	0.121	0.148	0.95
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSI2	9400	1880	1	23.29	24.00	1.178	-	-	0.05	0.101	0.119	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9538	1907.6	1	18.23	20.20	1.574	-	-	-0.04	0.563	0.886	0.45
11	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSI2	9538	1907.6	1	18.47	20.20	1.489	-	-	0.09	0.536	**0.798**	
	1st	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	26340	1880	1	22.90	24.00	1.288	-	-	0.02	0.105	0.135	1.35
	2nd	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	18900	1880	1	23.08	24.00	1.236	-	-	0.02	0.080	0.099	
	1st	LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	26340	1880	1	15.95	17.20	1.334	-	-	-0.07	0.555	0.740	0.61
12	2nd	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	19100	1900	1	15.91	17.20	1.346	-	-	0.04	0.633	**0.852**	
	2nd	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSI2	19100	1900	2	15.91	17.20	1.346	-	-	-0.08	0.589	0.793	
	1st	LTE Band 25	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	26340	1880	1	23.07	24.00	1.239	-	-	-0.07	0.133	0.165	0.47
	2nd	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	18900	1880	1	23.04	24.00	1.247	-	-	-0.04	0.119	0.148	
2600MHz																							
	1st	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	21100	2535	1	23.36	24.00	1.159	-	-	-0.08	0.150	0.174	0.53
	2nd	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	21100	2535	1	23.45	24.00	1.135	-	-	0.19	0.136	0.154	
	2nd	LTE Band 7other PA	20M	QPSK	1	0		Right Cheek	0mm	Ant 2	DSI2	21100	2535	1	22.84	24.00	1.306			0.03	0.088	0.115	
	1st	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	21100	2535	1	16.60	17.70	1.288	-	-	0.01	0.558	0.719	0.33
13	2nd	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	21100	2535	1	16.71	17.70	1.256	-	-	0.07	0.617	**0.775**	
	2nd	LTE Band 7other PA	20M	QPSK	1	0		Right Cheek	0mm	Ant 1	DSI2	21100	2535		17.06	17.70	1.159	-	-	-0.12	0.588	0.681	
	1st	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	21100	2535	1	22.41	24.00	1.442	-	-	0.15	0.251	0.362	0.06
	2nd	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	21100	2535	1	22.51	24.00	1.409	-	-	-0.04	0.253	0.357	
	1st	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	40620	2593	1	23.70	24.00	1.072	62.9	1.006	0.05	0.078	0.084	0.38
	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSI2	40620	2593	1	23.66	24.00	1.081	62.9	1.006	0.06	0.071	0.077	
	1st	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.45	19.30	1.216	62.9	1.006	0.06	0.627	0.767	0.30
14	2nd	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSI2	40620	2593	1	18.53	19.30	1.194	62.9	1.006	0.17	0.684	**0.822**	
	1st	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	40620	2593	1	23.10	24.00	1.230	62.9	1.006	0.14	0.244	0.302	0.49
	2nd	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSI2	40620	2593	1	23.13	24.00	1.222	62.9	1.006	-0.11	0.220	0.270	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 2	DSI2	507000	2535	1	23.38	24.00	1.153	-	-	0.1	0.087	0.100	1.17
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Right Cheek	0mm	Ant 2	DSI2	507000	2535	1	23.07	24.00	1.239	-	-	0.01	0.106	0.131	
	1st	FR1 n7	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	DSI2	507000	2535	1	17.68	18.50	1.208	-	-	0.03	0.736	0.889	0.75
15	2nd	FR1 n7	40M	QPSK	108	54	DFT-15	Right Cheek	0mm	Ant 1	DSI2	507000	2535	1	17.68	18.50	1.208	-	-	0.03	0.619	**0.748**	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	507000	2535	1	22.55	24.00	1.396	-	-	0.06	0.238	0.332	0.72
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Left Cheek	0mm	Ant 0	DSI2	507000	2535	1	22.52	24.00	1.406	-	-	0.08	0.200	0.281	
	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 2	DSI2	518598	2592.99	1	23.05	24.00	1.245	-	-	0.08	0.089	0.111	0.85
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 2	DSI2	518598	2592.99	1	22.43	24.00	1.435	-	-	0.16	0.094	0.135	
	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	16.69	17.50	1.205	-	-	0.05	0.715	0.862	0.30
16	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 1	DSI2	518598	2592.99	1	16.69	17.50	1.205	-	-	-0.17	0.668	**0.805**	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 0	DSI2	518598	2592.99	1	22.82	24.00	1.312	-	-	0.11	0.183	0.240	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 0	DSI2	518598	2592.99	1	22.82	24.00	1.312	-	-	-0.12	0.147	0.193	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 0	DSI2	518598	2592.99	1	22.82	24.00	1.312	-	-	0.13	0.286	0.375	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 0	DSI2	518598	2592.99	1	22.82	24.00	1.312	-	-	-0.06	0.094	0.123	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 0	DSI2	518598	2592.99	1	22.68	24.00	1.355	-	-	0.19	0.171	0.232	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 0	DSI2	518598	2592.99	1	22.68	24.00	1.355	-	-	-0.12	0.133	0.180	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 0	DSI2	518598	2592.99	1	22.68	24.00	1.355	-	-	0	0.273	0.370	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 0	DSI2	518598	2592.99	1	22.68	24.00	1.355	-	-	-0.18	0.085	0.115	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 5	DSI2	518598	2592.99	1	20.38	21.00	1.153	-	-	-0.14	0.455	0.525	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 5	DSI2	518598	2592.99	1	20.38	21.00	1.153	-	-	0.02	0.081	0.093	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 5	DSI2	518598	2592.99	1	20.38	21.00	1.153	-	-	-0.14	0.412	0.475	

	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 5	DSI2	518598	2592.99	1	20.38	21.00	1.153	-	-	-0.18	0.160	0.185
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 5	DSI2	518598	2592.99	1	20.36	21.00	1.159	-	-	0.09	0.481	0.557
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 5	DSI2	518598	2592.99	1	20.36	21.00	1.159	-	-	0.13	0.094	0.109
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 5	DSI2	518598	2592.99	1	20.36	21.00	1.159	-	-	0.12	0.470	0.545
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 5	DSI2	518598	2592.99	1	20.36	21.00	1.159	-	-	-0.08	0.146	0.169
3-4GHz																						
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 3	DSI2	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.08	0.243	0.355
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 3	DSI2	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0	0.286	0.418
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 3	DSI2	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.19	0.409	0.597
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 3	DSI2	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.07	0.469	0.685
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 3	DSI2	42590	3500	1	17.85	19.50	1.462	62.9	1.006	-0.04	0.232	0.341
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 3	DSI2	42590	3500	1	17.85	19.50	1.462	62.9	1.006	-0.04	0.273	0.402
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 3	DSI2	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.1	0.391	0.575
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 3	DSI2	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.03	0.448	0.659
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI2	42590	3500	1	22.48	23.00	1.127	62.9	1.006	-0.06	0.712	0.807
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	DSI2	42590	3500	1	22.48	23.00	1.127	62.9	1.006	0.14	0.493	0.559
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	DSI2	42590	3500	1	22.48	23.00	1.127	62.9	1.006	0.16	0.355	0.403
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	DSI2	42590	3500	1	22.48	23.00	1.127	62.9	1.006	-0.08	0.238	0.270
17	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI2	42190	3460	1	22.46	23.00	1.132	62.9	1.006	-0.17	0.747	**0.851**
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	DSI2	42990	3540	1	22.44	23.00	1.138	62.9	1.006	0.16	0.709	0.811
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 4	DSI2	42590	3500	1	22.45	23.00	1.135	62.9	1.006	-0.04	0.680	0.776
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	DSI2	42590	3500	1	22.45	23.00	1.135	62.9	1.006	0.01	0.471	0.538
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 4	DSI2	42590	3500	1	22.45	23.00	1.135	62.9	1.006	0.19	0.339	0.387
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 4	DSI2	42590	3500	1	22.45	23.00	1.135	62.9	1.006	0.16	0.227	0.259
	2nd	LTE Band 42	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 4	DSI2	42590	3500	1	22.43	23.00	1.140	62.9	1.006	-0.03	0.663	0.761
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 6	DSI2	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.03	0.059	0.072
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 6	DSI2	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.05	0.000	0.000
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 6	DSI2	42590	3500	1	23.14	24.00	1.219	62.9	1.006	0.17	0.038	0.047
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 6	DSI2	42590	3500	1	23.14	24.00	1.219	62.9	1.006	0.1	0.000	0.000
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 6	DSI2	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.17	0.045	0.056
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 6	DSI2	42590	3500	1	23.11	24.00	1.227	62.9	1.006	0.14	0.000	0.000
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 6	DSI2	42590	3500	1	23.11	24.00	1.227	62.9	1.006	0.16	0.000	0.000
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 6	DSI2	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.03	0.000	0.000
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 9	DSI2	42190	3460	1	20.44	22.00	1.432	62.9	1.006	0.15	0.187	0.269
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 9	DSI2	42190	3460	1	20.44	22.00	1.432	62.9	1.006	0	0.267	0.385
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 9	DSI2	42190	3460	1	20.44	22.00	1.432	62.9	1.006	-0.12	0.326	0.470
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 9	DSI2	42190	3460	1	20.44	22.00	1.432	62.9	1.006	-0.01	0.338	0.487
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 9	DSI2	42190	3460	1	19.55	21.00	1.396	62.9	1.006	0.05	0.173	0.243
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 9	DSI2	42190	3460	1	19.55	21.00	1.396	62.9	1.006	-0.07	0.217	0.305
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 9	DSI2	42190	3460	1	19.55	21.00	1.396	62.9	1.006	0	0.268	0.376
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 9	DSI2	42190	3460	1	19.55	21.00	1.396	62.9	1.006	0.16	0.273	0.383
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 3	DSI2	656000	3840	1	21.07	22.00	1.239	-	-	0.18	0.190	0.235
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 3	DSI2	656000	3840	1	21.07	22.00	1.239	-	-	0.02	0.217	0.269
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 3	DSI2	656000	3840	1	21.07	22.00	1.239	-	-	-0.13	0.371	0.460
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 3	DSI2	656000	3840	1	21.07	22.00	1.239	-	-	-0.12	0.322	0.399
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 3	DSI2	656000	3840	1	23.06	24.00	1.242	50	1.000	-0.1	0.289	0.359
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 3	DSI2	656000	3840	1	20.98	22.00	1.265	-	-	-0.13	0.191	0.242
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 3	DSI2	656000	3840	1	20.98	22.00	1.265	-	-	0.11	0.213	0.269
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 3	DSI2	656000	3840	1	20.98	22.00	1.265	-	-	-0.07	0.353	0.446
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 3	DSI2	656000	3840	1	20.98	22.00	1.265	-	-	0.01	0.303	0.383
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 3	DSI2	656000	3840	1	20.98	22.00	1.265	-	-	-0.03	0.291	0.368
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 4	DSI2	656000	3840	1	21.70	22.00	1.072	-	-	0.18	0.736	0.789
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 4	DSI2	656000	3840	1	21.70	22.00	1.072	-	-	-0.17	0.483	0.518
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 4	DSI2	656000	3840	1	21.70	22.00	1.072	-	-	0.01	0.272	0.291
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 4	DSI2	656000	3840	1	21.70	22.00	1.072	-	-	-0.09	0.242	0.259
18	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI2	656000	3840	1	21.64	22.00	1.086	-	-	0.18	0.810	**0.880**

	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI2	656000	3840	2	21.64	22.00	1.086	-	-	-0.13	0.731	0.794	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 4	DSI2	656000	3840	1	21.64	22.00	1.086	-	-	-0.03	0.491	0.533	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 4	DSI2	656000	3840	1	21.64	22.00	1.086	-	-	0.15	0.296	0.322	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 4	DSI2	656000	3840	1	21.64	22.00	1.086	-	-	-0.03	0.256	0.278	
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 4	DSI2	656000	3840	1	24.58	25.00	1.102	50	1.000	0.15	0.755	0.832	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 4	DSI2	656000	3840	1	21.61	22.00	1.094		1.000	-0.06	0.802	0.877	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Tilted	0mm	Ant 4	DSI2	656000	3840	1	21.61	22.00	1.094	-	-	-0.07	0.518	0.567	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 6	DSI2	656000	3840	1	22.87	24.00	1.297	-	-	0.08	0.391	0.507	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 6	DSI2	656000	3840	1	22.87	24.00	1.297	-	-	0.07	0.105	0.136	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 6	DSI2	656000	3840	1	22.87	24.00	1.297	-	-	0.15	0.228	0.296	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 6	DSI2	656000	3840	1	22.87	24.00	1.297	-	-	-0.15	0.193	0.250	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI2	656000	3840	1	22.73	24.00	1.340	-	-	0.06	0.445	0.596	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 6	DSI2	656000	3840	1	22.73	24.00	1.340	-	-	0.07	0.110	0.147	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 6	DSI2	656000	3840	1	22.73	24.00	1.340	-	-	0.13	0.237	0.318	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 6	DSI2	656000	3840	1	22.73	24.00	1.340	-	-	-0.09	0.202	0.271	
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 6	DSI2	656000	3840	1	25.85	27.00	1.303	50	1.000	0.14	0.441	0.575	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Cheek	0mm	Ant 6	DSI2	656000	3840	1	22.73	24.00	1.340	-	-	-0.07	0.413	0.553	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Cheek	0mm	Ant 9	DSI2	656000	3840	1	18.57	19.00	1.104	-	-	-0.13	0.301	0.332	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Tilted	0mm	Ant 9	DSI2	656000	3840	1	18.57	19.00	1.104	-	-	0.02	0.308	0.340	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Cheek	0mm	Ant 9	DSI2	656000	3840	1	18.57	19.00	1.104	-	-	0.12	0.495	0.547	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Tilted	0mm	Ant 9	DSI2	656000	3840	1	18.57	19.00	1.104	-	-	-0.18	0.491	0.542	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Cheek	0mm	Ant 9	DSI2	656000	3840	1	18.53	19.00	1.114	-	-	0.12	0.330	0.368	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Tilted	0mm	Ant 9	DSI2	656000	3840	1	18.53	19.00	1.114	-	-	0.17	0.346	0.386	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	DSI2	656000	3840	1	18.53	19.00	1.114	-	-	-0.12	0.527	0.587	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Tilted	0mm	Ant 9	DSI2	656000	3840	1	18.53	19.00	1.114	-	-	0.14	0.524	0.584	
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Left Cheek	0mm	Ant 9	DSI2	656000	3840	1	20.27	21.00	1.183	50	1.000	-0.14	0.401	0.474	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Cheek	0mm	Ant 9	DSI2	656000	3840	1	18.50	19.00	1.122	-	-	0.11	0.491	0.551	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Tilted	0mm	Ant 9	DSI2	656000	3840	1	18.50	19.00	1.122	-	-	-0.06	0.499	0.560	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
WLAN&BT																			
	1st	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 8	Standalone/ Simultaneous	39	2441	1	12.25	14.00	1.496	77.03	1.298	0.05	0.103	0.200	0.35
19	2nd	Bluetooth	DH5 1Mbps	Left Cheek	0mm	Ant 8	Standalone/ Simultaneous	39	2441	1	12.25	14.00	1.479	77.03	1.298	0.06	0.113	**0.217**	
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Standalone	11	2462	1	17.68	19.00	1.355	100	1.000	0.13	0.931	1.262	0.04
20	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Standalone	11	2462	1	17.68	19.00	1.355	100	1.000	0.02	0.922	**1.249**	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Standalone	11	2462	2	17.68	19.00	1.355	100	1.000	0.13	0.883	1.197	
	1st	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Simultaneous	1	2412	1	15.16	16.50	1.361	100	1.000	-0.06	0.470	0.640	0.11
	2nd	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Simultaneous	1	2412	1	15.16	16.50	1.361	100	1.000	0.06	0.458	0.624	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(7)	Standalone	50	5250	1	13.33	15.00	1.469	100	1.000	-0.11	0.784	1.152	0.95
21	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(7)	Standalone	50	5250	1	13.33	15.00	1.469	100	1.000	0.06	0.630	**0.925**	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(8)	Simultaneous	50	5250	1	9.83	11.50	1.469	100	1.000	-0.12	0.310	0.455	0.83
	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(8)	Simultaneous	50	5250	1	9.83	11.50	1.469	100	1.000	0.03	0.256	0.376	
	1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(7)	Standalone	138	5690	1	13.01	14.50	1.409	100	1.000	-0.18	0.831	1.171	1.74
22	2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(7)	Standalone	138	5690	1	13.01	14.50	1.409	100	1.000	0.05	0.557	**0.785**	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(7)	Simultaneous	114	5570	1	9.52	11.00	1.406	100	1.000	0.06	0.306	0.430	1.61
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Left Cheek	0mm	Ant 8+7(7)	Simultaneous	114	5570	1	9.52	11.00	1.406	100	1.000	-0.16	0.211	0.297	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone	155	5775	1	13.16	14.50	1.361	100	1.000	-0.09	0.843	1.148	0.69
23	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone	155	5775	1	13.16	14.50	1.361	100	1.000	0.01	0.720	**0.980**	
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone	155	5775	2	13.16	14.50	1.361	100	1.000	0.17	0.666	0.907	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(8)	Simultaneous	155	5775	1	8.71	10.00	1.346	100	1.000	-0.05	0.326	0.439	0.58
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+7(8)	Simultaneous	155	5775	1	8.71	10.00	1.346	100	1.000	0.02	0.285	0.384	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Sample	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)	Measured APD (W/m^2)	Deviation d_{dB}(dB)
	1st	WLAN6GHz	802.11ax-HE160 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone/ Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.03	0.301	0.454	2.04	
24	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone/ Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.04	0.232	**0.350**	1.57	1.13
	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Left Cheek	0mm	Ant 8+7(8)	Standalone/ Simultaneous	15	6025	2	10.76	12.50	1.491	98.77	1.012	0.02	0.184	0.278	1.27	

17.2 Hotspot SAR

Plot No.	No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
750MHz																							
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	23095	707.5	1	23.07	24.00	1.239	-	-	-0.1	0.617	0.764	0.50
25	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	23095	707.5	1	23.14	24.00	1.219	-	-	0.13	0.703	**0.857**	
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	23095	707.5	1	21.80	23.50	1.479	-	-	0.14	0.381	0.564	0.94
	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	23095	707.5	1	21.93	23.50	1.435	-	-	-0.16	0.316	0.454	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	23230	782	1	23.32	24.00	1.169	-	-	-0.06	0.781	0.913	0.56
26	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	23230	782	1	23.44	24.00	1.138	-	-	0.13	0.913	**1.039**	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	23230	782	1	21.33	22.80	1.403	-	-	0.14	0.412	0.578	0.70
	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	23230	782	1	21.38	22.80	1.387	-	-	-0.03	0.355	0.492	
835MHz																							
	1st	GSM850		-	-	-	GPRS(3 Tx slots)	Back	5mm	Ant 0	DSI7	189	836.4	1	28.70	29.50	1.202	-	-	-0.11	0.719	0.864	1.43
27	2nd	GSM850		-	-	-	GPRS(3 Tx slots)	Back	5mm	Ant 0	DSI7	189	836.4	1	28.86	29.50	1.159	-	-	0.01	0.537	**0.622**	
	1st	WCDMA V		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI7	4182	836.4	1	22.97	24.00	1.268	-	-	0	0.888	1.126	
28	2nd	WCDMA V		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI7	4182	836.4	1	23.08	24.00	1.236	-	-	-0.05	0.959	**1.185**	0.45
	2nd	WCDMA V		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI7	4182	836.4	2	23.08	24.00	1.236	-	-	0.1	0.955	1.180	
	1st	WCDMA V		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	4182	836.4	1	21.88	22.90	1.265	-	-	0.08	0.436	0.551	0.25
	2nd	WCDMA V		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	4182	836.4	1	22.06	22.90	1.213	-	-	-0.06	0.481	0.584	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	26865	831.5	1	22.89	24.00	1.291	-	-	-0.14	0.720	0.930	0.22
29	2nd	LTE Band 5	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	20525	836.5	1	23.34	24.00	1.164	-	-	0.09	0.760	**0.885**	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	26865	831.5	1	22.10	23.40	1.349	-	-	0.12	0.468	0.631	1.22
	2nd	LTE Band 5	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	20525	836.5	1	22.74	23.40	1.164	-	-	-0.13	0.409	0.476	
	1st	FR1 n5	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI7	167300	836.5	1	22.79	24.00	1.321	-	-	0.15	0.559	0.739	1.31
30	2nd	FR1 n5	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI7	167300	836.5	1	23.08	24.00	1.236	-	-	0.17	0.442	**0.546**	
	1st	FR1 n5	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI7	167300	836.5	1	21.60	23.00	1.380	-	-	-0.11	0.405	0.559	0.27
	2nd	FR1 n5	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI7	167300	836.5	1	21.69	23.00	1.352	-	-	-0.11	0.388	0.525	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI7	166300	831.5	1	23.18	24.00	1.208	-	-	0.16	0.156	0.188	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI7	166300	831.5	1	23.18	24.00	1.208	-	-	-0.01	0.305	0.368	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 0	DSI7	166300	831.5	1	23.18	24.00	1.208	-	-	0.1	0.263	0.318	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	166300	831.5	1	23.18	24.00	1.208	-	-	0.16	0.151	0.182	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 0	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	0.1	0.194	0.238	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	0.11	0.365	0.448	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 0	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	-0.17	0.330	0.405	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Bottom Side	5mm	Ant 0	DSI7	166300	831.5	1	23.11	24.00	1.227	-	-	-0.12	0.180	0.221	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI7	166300	831.5	1	20.95	22.00	1.274	-	-	0.05	0.255	0.325	
31	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI7	166300	831.5	1	20.95	22.00	1.274	-	-	0.15	0.478	**0.609**	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Left Side	5mm	Ant 1	DSI7	166300	831.5	1	20.95	22.00	1.274	-	-	-0.13	0.241	0.307	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Top Side	5mm	Ant 1	DSI7	166300	831.5	1	20.95	22.00	1.274	-	-	0.07	0.453	0.577	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 1	DSI7	166300	831.5	1	20.90	22.00	1.288	-	-	-0.03	0.262	0.338	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 1	DSI7	166300	831.5	1	20.90	22.00	1.288	-	-	0.08	0.471	0.607	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Left Side	5mm	Ant 1	DSI7	166300	831.5	1	20.90	22.00	1.288	-	-	0.08	0.261	0.336	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Top Side	5mm	Ant 1	DSI7	166300	831.5	1	20.90	22.00	1.288	-	-	0.17	0.455	0.586	
1750MHz																							
	1st	WCDMA IV		-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 2	DSI7	1513	1752.6	1	20.00	21.20	1.318	-	-	0.02	0.902	1.189	0.66
32	2nd	WCDMA IV		-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 2	DSI7	1513	1752.6	1	20.18	21.20	1.265	-	-	0.11	0.807	**1.021**	
	1st	WCDMA IV		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	1413	1732.6	1	13.48	15.20	1.486	-	-	0.11	0.348	0.517	0.01
	2nd	WCDMA IV		-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	1413	1732.6	1	13.53	15.20	1.469	-	-	0.03	0.351	0.516	
	1st	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI7	132072	1720	1	21.25	22.70	1.396	-	-	-0.05	0.731	1.021	0.09
	2nd	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI7	132072	1720	1	21.30	22.70	1.380	-	-	0.01	0.755	1.042	
	1st	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	132322	1745	1	13.68	14.70	1.265	-	-	-0.14	0.397	0.502	0.81
	2nd	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	132322	1745	1	13.77	14.70	1.239	-	-	0.16	0.337	0.417	

	1st	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	132072	1720	1	20.94	22.60	1.466	-	-	0.06	0.797	1.168	0.08
33	2nd	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	132072	1720	1	21.04	22.60	1.432	-	-	0.07	0.800	**1.146**	
										1900MHz													
	1st	GSM1900					GPRS(3 Tx slots)	Front	5mm	Ant 2	DSI7	661	1880	1	25.76	25.80	1.009	-	-	-0.12	0.775	0.782	0.68
34	2nd	GSM1900					GPRS(3 Tx slots)	Front	5mm	Ant 2	DSI7	661	1880	1	25.77	25.80	1.007	-	-	-0.16	0.663	**0.668**	
	1st	WCDMA II					RMC 12.2Kbps	Front	5mm	Ant 2	DSI7	9400	1880	1	21.68	22.70	1.265	-	-	0.09	0.812	1.027	1.03
35	2nd	WCDMA II					RMC 12.2Kbps	Front	5mm	Ant 2	DSI7	9400	1880	1	22.09	22.70	1.151	-	-	0.02	0.704	**0.810**	
	1st	WCDMA II					RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	9400	1880	1	15.79	17.70	1.552	-	-	-0.11	0.392	0.609	0.70
	2nd	WCDMA II					RMC 12.2Kbps	Back	5mm	Ant 1	DSI7	9400	1880	1	16.01	17.70	1.476	-	-	0.04	0.351	0.518	
	1st	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI7	26590	1905	1	21.65	23.20	1.429	-	-	0.14	0.871	1.245	0.49
	2nd	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI7	19100	1900	1	21.81	23.20	1.377	-	-	0.04	0.808	1.113	
	1st	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	26340	1880	1	14.48	15.70	1.324	-	-	0.15	0.397	0.526	0.11
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	18900	1880	1	14.50	15.70	1.318	-	-	0.18	0.389	0.513	
	1st	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	26140	1860	1	21.78	23.10	1.355	-	-	0.06	0.791	1.072	0.59
36	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	18900	1880	1	21.92	23.10	1.312	-	-	0.08	0.935	**1.227**	
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	18900	1880	2	21.92	23.10	1.312	-	-	0.05	0.856	1.123	
										2600MHz													
	1st	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 2	DSI7	20850	2510	1	18.70	19.90	1.318	-	-	-0.08	0.955	1.259	0.55
37	2nd	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 2	DSI7	20850	2510	1	18.82	19.90	1.282	-	-	0.02	0.866	**1.110**	
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Bottom Side	5mm	Ant 2	DSI7	20850	2510	1	18.71	19.90	1.315	-	-	0.11	0.763	1.004	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	21100	2535	1	15.28	16.20	1.236	-	-	0.1	0.490	0.606	0.43
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI7	21100	2535	1	15.33	16.20	1.222	-	-	-0.1	0.449	0.549	
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Back	5mm	Ant 1	DSI7	21100	2535	1	15.47	16.20	1.183	-	-	0.03	0.304	0.360	
	1st	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	21100	2535	1	17.70	19.20	1.413	-	-	0.03	0.741	1.047	0.68
	2nd	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	21100	2535	1	17.82	19.20	1.374	-	-	0.18	0.652	0.896	
	1st	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 2	DSI7	39750	2506	1	21.08	22.00	1.236	62.9	1.006	-0.03	1.000	1.243	0.38
38	2nd	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 2	DSI7	39750	2506	1	21.22	22.00	1.197	62.9	1.006	0.04	0.945	**1.138**	
	1st	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	40620	2593	1	16.70	17.30	1.148	62.9	1.006	-0.03	0.478	0.552	0.15
	2nd	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	DSI7	40620	2593	1	16.73	17.30	1.140	62.9	1.006	0.05	0.465	0.533	
	1st	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	41490	2680	1	20.05	21.60	1.429	62.9	1.006	0.04	0.839	1.206	1.52
	2nd	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	DSI7	41490	2680	1	20.14	21.60	1.400	62.9	1.006	-0.05	0.604	0.850	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 2	DSI7	507000	2535	1	20.33	21.00	1.167	-	-	-0.09	0.998	1.164	0.32
39	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 2	DSI7	507000	2535	1	20.06	21.00	1.242	-	-	0.06	1.010	**1.254**	
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 2	DSI7	507000	2535	2	20.06	21.00	1.242	-	-	0.02	0.866	1.075	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI7	507000	2535	1	16.29	17.00	1.178	-	-	0.03	0.478	0.563	0.14
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI7	507000	2535	1	16.28	17.00	1.180	-	-	-0.13	0.492	0.581	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	507000	2535	1	17.60	19.00	1.380	-	-	0.01	0.884	1.220	0.31
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 0	DSI7	507000	2535	1	17.61	19.00	1.377	-	-	0.09	0.825	1.136	
	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	5mm	Ant 2	DSI7	518598	2592.99	1	19.14	20.00	1.219	-	-	0.07	1.030	1.256	0.46
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	5mm	Ant 2	DSI7	518598	2592.99	1	18.92	20.00	1.282	-	-	-0.01	0.882	1.131	
	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 1	DSI7	518598	2592.99	1	15.27	16.00	1.183	-	-	-0.02	0.500	0.592	0.15
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 1	DSI7	518598	2592.99	1	15.22	16.00	1.197	-	-	0.13	0.512	0.613	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 0	DSI7	518598	2592.99	1	18.35	19.50	1.303	-	-	0.07	0.554	0.722	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 0	DSI7	518598	2592.99	1	18.35	19.50	1.303	-	-	-0.09	0.646	0.842	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 0	DSI7	518598	2592.99	1	18.35	19.50	1.303	-	-	-0.01	0.384	0.500	
40	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	5mm	Ant 0	DSI7	518598	2592.99	1	18.35	19.50	1.303	-	-	-0.02	0.918	**1.196**	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 0	DSI7	518598	2592.99	1	18.33	19.50	1.309	-	-	0.09	0.660	0.864	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 0	DSI7	518598	2592.99	1	18.33	19.50	1.309	-	-	0.08	0.741	0.970	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 0	DSI7	518598	2592.99	1	18.33	19.50	1.309	-	-	-0.16	0.347	0.454	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	5mm	Ant 0	DSI7	518598	2592.99	1	18.33	19.50	1.309	-	-	0.02	0.860	1.126	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Front	5mm	Ant 0	DSI7	518598	2592.99	1	18.30	19.50	1.318	-	-	0.09	0.630	0.831	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 0	DSI7	518598	2592.99	1	18.30	19.50	1.318	-	-	0.08	0.331	0.436	

	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Bottom Side	5mm	Ant 0	DSI7	518598	2592.99	1	18.30	19.50	1.318	-	-	-0.16	0.821	1.082
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 5	DSI7	518598	2592.99	1	15.22	16.00	1.197	-	-	-0.03	0.128	0.153
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 5	DSI7	518598	2592.99	1	15.22	16.00	1.197	-	-	-0.08	0.187	0.224
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Side	5mm	Ant 5	DSI7	518598	2592.99	1	15.22	16.00	1.197	-	-	-0.18	0.398	0.476
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 5	DSI7	518598	2592.99	1	15.22	16.00	1.197	-	-	-0.17	0.018	0.022
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 5	DSI7	518598	2592.99	1	15.18	16.00	1.208	-	-	0.19	0.140	0.169
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 5	DSI7	518598	2592.99	1	15.18	16.00	1.208	-	-	0.06	0.221	0.267
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 5	DSI7	518598	2592.99	1	15.18	16.00	1.208	-	-	-0.01	0.433	0.523
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 5	DSI7	518598	2592.99	1	15.18	16.00	1.208	-	-	-0.18	0.046	0.056
3-4GHz																						
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI7	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.09	0.162	0.237
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI7	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.15	0.224	0.327
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 3	DSI7	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.02	0.066	0.096
	2nd	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant 3	DSI7	42590	3500	1	17.88	19.50	1.452	62.9	1.006	0.04	0.404	0.590
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 3	DSI7	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.02	0.143	0.210
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 3	DSI7	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.05	0.177	0.260
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 3	DSI7	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.13	0.066	0.097
	2nd	LTE Band 42	20M	QPSK	50	0	-	Top Side	5mm	Ant 3	DSI7	42590	3500	1	17.85	19.50	1.462	62.9	1.006	0.08	0.316	0.465
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI7	42590	3500	1	18.00	18.50	1.122	62.9	1.006	-0.19	0.145	0.164
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 4	DSI7	42590	3500	1	18.00	18.50	1.122	62.9	1.006	0.14	0.307	0.347
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Side	5mm	Ant 4	DSI7	42590	3500	1	18.00	18.50	1.122	62.9	1.006	-0.11	0.455	0.514
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 4	DSI7	42590	3500	1	17.95	18.50	1.135	62.9	1.006	-0.17	0.139	0.159
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 4	DSI7	42590	3500	1	17.95	18.50	1.135	62.9	1.006	0.17	0.295	0.337
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Side	5mm	Ant 4	DSI7	42590	3500	1	17.95	18.50	1.135	62.9	1.006	-0.05	0.437	0.499
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 6	DSI7	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.03	0.313	0.384
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 6	DSI7	42590	3500	1	23.14	24.00	1.219	62.9	1.006	0.09	0.465	0.570
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.05	0.834	1.023
	2nd	LTE Band 42	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 6	DSI7	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.07	0.352	0.432
41	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42190	3460	1	23.02	24.00	1.253	62.9	1.006	-0.03	0.991	**1.249**
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42190	3460	2	23.02	24.00	1.253	62.9	1.006	-0.11	0.833	1.050
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42990	3540	1	23.09	24.00	1.233	62.9	1.006	-0.04	0.788	0.978
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 6	DSI7	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.07	0.260	0.321
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 6	DSI7	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.02	0.374	0.462
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 6	DSI7	42590	3500	1	23.11	24.00	1.227	62.9	1.006	0.02	0.725	0.895
	2nd	LTE Band 42	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 6	DSI7	42590	3500	1	23.11	24.00	1.227	62.9	1.006	0.02	0.277	0.342
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 6	DSI7	42190	3460	1	23.00	24.00	1.259	62.9	1.006	-0.11	0.796	1.008
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 6	DSI7	42990	3540	1	23.05	24.00	1.245	62.9	1.006	-0.1	0.581	0.727
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 9	DSI7	42190	3460	1	17.10	18.50	1.380	62.9	1.006	-0.12	0.146	0.203
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	DSI7	42190	3460	1	17.10	18.50	1.380	62.9	1.006	-0.09	0.382	0.530
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 9	DSI7	42190	3460	1	17.10	18.50	1.380	62.9	1.006	-0.08	0.037	0.051
	2nd	LTE Band 42	20M	QPSK	1	0	-	Top Side	5mm	Ant 9	DSI7	42190	3460	1	17.10	18.50	1.380	62.9	1.006	0.02	0.186	0.258
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 9	DSI7	42190	3460	1	17.05	18.50	1.396	62.9	1.006	-0.14	0.102	0.143
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 9	DSI7	42190	3460	1	17.05	18.50	1.396	62.9	1.006	-0.11	0.361	0.507
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	5mm	Ant 9	DSI7	42190	3460	1	17.05	18.50	1.396	62.9	1.006	0.05	0.029	0.041
	2nd	LTE Band 42	20M	QPSK	50	0	-	Top Side	5mm	Ant 9	DSI7	42190	3460	1	17.05	18.50	1.396	62.9	1.006	-0.18	0.176	0.247
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 3	DSI7	656000	3840	1	21.07	22.00	1.239	-	-	0.08	0.168	0.208
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 3	DSI7	656000	3840	1	21.07	22.00	1.239	-	-	0.16	0.349	0.432
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	5mm	Ant 3	DSI7	656000	3840	1	21.07	22.00	1.239	-	-	-0.06	0.268	0.332
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 3	DSI7	656000	3840	1	21.07	22.00	1.239	-	-	-0.08	0.342	0.424
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 3	DSI7	656000	3840	1	23.06	24.00	1.242	50	1.000	0.01	0.267	0.332
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 3	DSI7	656000	3840	1	20.98	22.00	1.265	-	-	-0.11	0.169	0.214
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 3	DSI7	656000	3840	1	20.98	22.00	1.265	-	-	0.18	0.329	0.416
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 3	DSI7	656000	3840	1	20.98	22.00	1.265	-	-	0.05	0.245	0.310
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 3	DSI7	656000	3840	1	20.98	22.00	1.265	-	-	0.18	0.333	0.421
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 3	DSI7	656000	3840	1	20.24	21.00	1.191	-	-	0.08	0.314	0.374

	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Top Side	5mm	Ant 3	DSI7	656000	3840	1	20.24	21.00	1.191	-	-	0.16	0.328	0.391
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 4	DSI7	656000	3840	1	17.66	18.00	1.081	-	-	-0.08	0.196	0.212
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 4	DSI7	656000	3840	1	17.66	18.00	1.081	-	-	-0.04	0.335	0.362
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 4	DSI7	656000	3840	1	17.66	18.00	1.081	-	-	0.19	0.536	0.580
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 4	DSI7	656000	3840	1	20.71	21.00	1.069	50	1.000	0.05	0.534	0.571
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 4	DSI7	656000	3840	1	17.59	18.00	1.099	-	-	-0.18	0.205	0.225
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 4	DSI7	656000	3840	1	17.59	18.00	1.099	-	-	-0.11	0.317	0.348
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 4	DSI7	656000	3840	1	17.59	18.00	1.099	-	-	-0.19	0.399	0.439
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Side	5mm	Ant 4	DSI7	656000	3840	1	17.58	18.00	1.102	-	-	0.19	0.388	0.427
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	-0.18	0.253	0.330
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	0.03	0.308	0.402
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	-0.06	0.718	0.938
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Bottom Side	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	-0.06	0.098	0.128
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 6	DSI7	656000	3840	1	18.76	20.00	1.330	-	-	-0.11	0.262	0.349
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 6	DSI7	656000	3840	1	18.76	20.00	1.330	-	-	0.19	0.348	0.463
42	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	1	18.76	20.00	1.330	-	-	-0.13	0.815	**1.084**
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Bottom Side	5mm	Ant 6	DSI7	656000	3840	1	18.76	20.00	1.330	-	-	-0.11	0.101	0.134
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	1	21.88	23.00	1.294	50	1.000	0.14	0.812	1.051
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	-0.18	0.332	0.434
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	1	18.84	20.00	1.306	-	-	0.03	0.778	1.016
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 9	DSI7	656000	3840	1	18.07	18.50	1.104	-	-	-0.06	0.210	0.232
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	DSI7	656000	3840	1	18.07	18.50	1.104	-	-	-0.18	0.481	0.531
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	5mm	Ant 9	DSI7	656000	3840	1	18.07	18.50	1.104	-	-	0.16	0.068	0.075
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Top Side	5mm	Ant 9	DSI7	656000	3840	1	18.07	18.50	1.104	-	-	-0.15	0.330	0.364
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 9	DSI7	656000	3840	1	18.06	18.50	1.107	-	-	-0.17	0.222	0.246
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	DSI7	656000	3840	1	18.06	18.50	1.107	-	-	-0.04	0.515	0.570
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 9	DSI7	656000	3840	1	18.06	18.50	1.107	-	-	-0.04	0.107	0.118
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 9	DSI7	656000	3840	1	18.06	18.50	1.107	-	-	-0.04	0.407	0.450
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	DSI7	656000	3840	1	19.86	20.50	1.159	50	1.000	0.04	0.390	0.452
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	DSI7	656000	3840	1	18.03	18.50	1.114	-	-	-0.17	0.492	0.548
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Top Side	5mm	Ant 9	DSI7	656000	3840	1	18.03	18.50	1.114	-	-	-0.04	0.389	0.433

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
WLAN&BT																			
	1st	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 8	Hotspot	39	2441	1	12.25	14.00	1.496	77.03	1.298	0.15	0.172	0.334	1.41
43	2nd	Bluetooth	DH5 1Mbps	Right Side	5mm	Ant 8	Hotspot	39	2441	1	12.25	14.00	1.496	77.03	1.298	0.03	0.238	**0.462**	
	1st	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 8+7(7)	Hotspot	11	2462	1	15.46	17.00	1.426	100	1.000	-0.08	0.641	0.914	1.18
44	2nd	WLAN2.4GHz	802.11b 1Mbps	Top Side	5mm	Ant 8+7(7)	Hotspot	11	2462	1	15.46	17.00	1.426	100	1.000	0.05	0.489	**0.697**	
	1st	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8+7(8)	Hotspot	42	5210	1	11.81	13.50	1.476	100	1.000	0.02	0.413	0.609	2.65
45	2nd	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8+7(8)	Hotspot	42	5210	1	11.81	13.50	1.476	100	1.000	-0.07	0.224	**0.331**	
	2nd	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8+7(8)	Hotspot	42	5210	2	11.81	13.50	1.476	100	1.000	0.05	0.188	0.277	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8+7(8)	Hotspot	155	5775	1	11.37	12.50	1.297	100	1.000	-0.11	0.448	0.581	2.55
46	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 8+7(8)	Hotspot	155	5775	1	11.37	12.50	1.297	100	1.000	-0.08	0.249	**0.323**	

17.3 Body Worn Accessory SAR

Plot No.	No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
750MHz																							
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23095	707.5	1	23.07	24.00	1.239	-	-	-0.1	0.617	0.764	0.50
47	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23095	707.5	1	23.14	24.00	1.219	-	-	0.13	0.703	**0.857**	
	1st	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23095	707.5	1	22.42	24.00	1.439	-	-	0.15	0.493	0.709	1.37
	2nd	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23095	707.5	1	22.52	24.00	1.406	-	-	-0.17	0.368	0.517	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23230	782	1	23.32	24.00	1.169	-	-	-0.06	0.781	0.913	0.56
48	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23230	782	1	23.44	24.00	1.138	-	-	0.13	0.913	**1.039**	
	1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23230	782	1	22.87	24.00	1.297	-	-	0.05	0.571	0.741	1.67
	2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	23230	782	1	23.01	24.00	1.256	-	-	-0.02	0.402	0.505	
835MHz																							
	1st	GSM850	-	-	-	-	GPRS(3 Tx slots)	Back	5mm	Ant 0	DSI3	189	836.4	1	28.70	29.50	1.202	-	-	-0.11	0.719	0.864	1.43
49	2nd	GSM850	-	-	-	-	GPRS(3 Tx slots)	Back	5mm	Ant 0	DSI3	189	836.4	1	28.86	29.50	1.159	-	-	0.01	0.537	**0.622**	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	1	22.97	24.00	1.268	-	-	0.02	0.888	1.126	0.45
50	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	1	23.08	24.00	1.236	-	-	-0.05	1.010	**1.248**	
	2nd	WCDMA V -Headset					RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	1	23.08	24.00	1.236			0.02	0.930	1.149	
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	2	23.08	24.00	1.236	-	-	0.01	0.988	1.221	
	1st	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	4182	836.4	1	23.00	24.00	1.259	-	-	-0.15	0.571	0.719	0.29
	2nd	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	4182	836.4	1	23.04	24.00	1.247	-	-	0.06	0.616	0.768	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	26865	831.5	1	22.89	24.00	1.291	-	-	-0.14	0.720	0.930	0.23
51	2nd	LTE Band 5	15M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	20525	836.5	1	23.34	24.00	1.291	-	-	0.09	0.760	**0.981**	
	1st	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26865	831.5	1	22.74	24.00	1.337	-	-	0.02	0.631	0.843	0.93
	2nd	LTE Band 5	15M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	20525	836.5	1	22.74	24.00	1.337	-	-	-0.15	0.509	0.680	
	1st	FR1 n5	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI3	167300	836.5	1	22.79	24.00	1.321	-	-	0.15	0.559	0.739	1.02
	2nd	FR1 n5	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI3	167300	836.5	1	23.00	24.00	1.321	-	-	0.17	0.442	0.584	
	1st	FR1 n5	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	167300	836.5	1	22.63	24.00	1.371	-	-	-0.07	0.510	0.699	0.56
52	2nd	FR1 n5	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	167300	836.5	1	22.62	24.00	1.374	-	-	0.06	0.579	**0.796**	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 0	DSI3	166300	831.5	1	23.18	24.00	1.208	-	-	0.02	0.156	0.188	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	166300	831.5	1	23.18	24.00	1.208	-	-	-0.19	0.305	0.368	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 0	DSI3	166300	831.5	1	23.11	24.00	1.227	-	-	-0.1	0.194	0.238	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 0	DSI3	166300	831.5	1	23.11	24.00	1.227	-	-	0.11	0.365	0.448	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Front	5mm	Ant 1	DSI3	166300	831.5	1	22.41	23.50	1.285	-	-	0.13	0.291	0.374	
53	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	166300	831.5	1	22.41	23.50	1.285	-	-	0.06	0.644	**0.828**	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Front	14mm	Ant 1	DSI4	166300	831.5	1	22.91	24.00	1.285	-	-	-0.11	0.092	0.118	
	2nd	FR1 n26	20M	QPSK	1	1	DFT-15	Back	19mm	Ant 1	DSI4	166300	831.5	1	22.91	24.00	1.285	-	-	-0.04	0.076	0.098	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Front	5mm	Ant 1	DSI3	166300	831.5	1	22.40	23.50	1.288	-	-	0.19	0.299	0.385	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Back	5mm	Ant 1	DSI3	166300	831.5	1	22.40	23.50	1.288	-	-	0	0.538	0.693	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Front	14mm	Ant 1	DSI4	166300	831.5	1	22.87	24.00	1.297	-	-	0.01	0.093	0.121	
	2nd	FR1 n26	20M	QPSK	50	28	DFT-15	Back	19mm	Ant 1	DSI4	166300	831.5	1	22.87	24.00	1.297	-	-	0.17	0.079	0.102	
	2nd	FR1 n26	20M	QPSK	100	0	DFT-15	Back	5mm	Ant 1	DSI3	166300	831.5	1	22.38	23.50	1.294	-	-	0.01	0.592	0.766	
1750MHz																							
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI3	1513	1752.6	1	21.42	22.70	1.343	-	-	-0.15	0.822	1.104	0.83
54	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI3	1513	1752.6	1	21.58	22.70	1.343	-	-	0.02	0.679	**0.912**	
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	1413	1732.6	1	15.02	16.70	1.472	-	-	-0.06	0.511	0.752	1.08
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	1413	1732.6	1	15.38	16.70	1.355	-	-	0.18	0.433	0.587	
	1st	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI3	132072	1720	1	21.25	22.70	1.396	-	-	-0.05	0.731	1.021	0.02
	2nd	LTE Band 66	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI3	132072	1720	1	21.37	22.70	1.358	-	-	0.08	0.755	1.026	
	1st	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	132322	1745	1	15.66	16.70	1.271	-	-	-0.11	0.566	0.719	0.69
	2nd	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	132322	1745	1	15.76	16.70	1.242	-	-	0.18	0.494	0.613	
	1st	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132072	1720	1	20.94	22.60	1.466	-	-	0.06	0.797	1.168	0.11
55	2nd	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	132072	1720	1	21.06	22.60	1.426	-	-	0.07	0.800	**1.140**	
1900MHz																							

	1st	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Front	5mm	Ant 2	DSI3	661	1880	1	25.76	25.80	1.009	-	-	0.07	0.749	0.756	0.54
56	2nd	GSM1900	-	-	-	-	GPRS(3 Tx slots)	Front	5mm	Ant 2	DSI3	661	1880	1	25.77	25.80	1.007	-	-	-0.16	0.663	**0.668**	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI3	9400	1880	1	21.68	22.70	1.265	-	-	0.09	0.812	1.027	1.03
57	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	5mm	Ant 2	DSI3	9400	1880	1	22.09	22.70	1.151	-	-	0.02	0.704	**0.810**	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	9400	1880	1	17.32	19.20	1.542	-	-	0.12	0.537	0.828	0.93
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 1	DSI3	9400	1880	1	17.78	19.20	1.387	-	-	0.06	0.482	0.668	
	1st	LTE Band 25	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI3	26590	1905	1	21.65	23.20	1.429	-	-	0.14	0.871	1.245	0.77
	2nd	LTE Band 2	20M	QPSK	1	0	-	Front	5mm	Ant 2	DSI3	19100	1900	1	21.81	23.20	1.291	-	-	-0.14	0.808	1.043	
	1st	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	26340	1880	1	15.95	17.20	1.334	-	-	0.02	0.561	0.748	0.30
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	18700	1860	1	15.92	17.20	1.343	-	-	0.17	0.520	0.698	
	1st	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	26140	1860	1	21.78	23.10	1.355	-	-	0.06	0.791	1.072	0.59
58	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	18700	1860	1	21.92	23.10	1.312	-	-	0.08	0.935	**1.227**	
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	18700	1860	2	21.92	23.10	1.312	-	-	0.01	0.884	1.160	
2600MHz																							
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI3	20850	2510	1	21.22	22.40	1.312	-	-	0.03	0.821	1.077	1.12
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI3	20850	2510	1	21.33	22.40	1.279	-	-	-0.18	0.651	0.833	
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Back	5mm	Ant 2	DSI3	20850	2510	1	21.29	22.40	1.291			0.06	0.601	0.776	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	20850	2510	1	16.57	17.70	1.297	-	-	-0.16	0.655	0.850	2.14
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	20850	2510	1	16.69	17.70	1.262	-	-	0.09	0.411	0.519	
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Back	5mm	Ant 1	DSI3	20850	2510		16.93	17.70	1.194			-0.11	0.403	0.481	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	21100	2535	1	18.50	20.20	1.479	-	-	0.06	0.707	1.046	0.43
59	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	21100	2535	1	18.62	20.20	1.439	-	-	0.09	0.658	**0.947**	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI3	39750	2506	1	23.48	24.00	1.127	62.9	1.006	-0.01	0.890	1.009	1.04
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 2	DSI3	39750	2506	1	23.46	24.00	1.132	62.9	1.006	0.04	0.697	0.794	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	41490	2680	1	20.33	21.30	1.250	62.9	1.006	0.15	0.685	0.862	1.55
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	DSI3	41490	2680	1	20.36	21.30	1.242	62.9	1.006	-0.05	0.483	0.603	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	41490	2680	1	22.33	23.50	1.309	62.9	1.006	-0.09	0.937	1.234	0.61
60	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	41490	2680	1	22.44	23.50	1.276	62.9	1.006	0.1	0.835	**1.072**	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 2	DSI3	507000	2535	1	22.35	23.00	1.161	-	-	0.06	0.959	1.114	0.88
61	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 2	DSI3	507000	2535	1	22.11	23.00	1.227	-	-	0.06	0.741	**0.910**	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	507000	2535	1	17.80	18.50	1.175	-	-	0.15	0.696	0.818	0.12
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 1	DSI3	507000	2535	1	17.72	18.50	1.197	-	-	-0.14	0.703	0.841	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	507000	2535	1	19.08	20.50	1.387	-	-	-0.17	0.782	1.084	1.18
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	5mm	Ant 0	DSI3	507000	2535	1	19.10	20.50	1.380	-	-	0.19	0.599	0.827	
	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 2	DSI3	518598	2593	1	21.74	22.50	1.191	-	-	0.01	0.967	1.152	0.15
62	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 2	DSI3	518598	2593	1	21.37	22.50	1.297	-	-	0.04	0.859	**1.114**	
	1st	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 1	DSI3	518598	2593	1	18.82	19.50	1.169	-	-	-0.15	0.711	0.832	0.31
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 1	DSI3	518598	2593	1	18.69	19.50	1.205	-	-	-0.16	0.742	0.894	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 0	DSI3	518598	2593	1	18.33	19.50	1.309	-	-	-0.15	0.578	0.757	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 0	DSI3	518598	2593	1	18.33	19.50	1.309	-	-	-0.08	0.674	0.882	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	14mm	Ant 0	DSI4	518598	2593	1	22.82	24.00	1.312	-	-	-0.17	0.167	0.219	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	19mm	Ant 0	DSI4	518598	2593	1	22.82	24.00	1.312	-	-	0.02	0.065	0.085	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 0	DSI3	518598	2593	1	18.28	19.50	1.324	-	-	-0.1	0.688	0.911	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 0	DSI3	518598	2593	1	18.28	19.50	1.324	-	-	-0.08	0.811	1.074	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	14mm	Ant 0	DSI4	518598	2593	1	22.68	24.00	1.355	-	-	-0.16	0.177	0.240	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	19mm	Ant 0	DSI4	518598	2593	1	22.68	24.00	1.355	-	-	-0.03	0.076	0.103	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Front	5mm	Ant 0	DSI3	518598	2593	1	18.23	19.50	1.340	-	-	-0.11	0.552	0.740	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 0	DSI3	518598	2593	1	18.23	19.50	1.340	-	-	0.03	0.644	0.863	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 5	DSI3	518598	2593	1	19.68	20.50	1.208	-	-	-0.03	0.358	0.432	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 5	DSI3	518598	2593	1	19.68	20.50	1.208	-	-	-0.07	0.523	0.632	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	14mm	Ant 5	DSI4	518598	2593	1	21.19	22.00	1.205	-	-	0.15	0.120	0.145	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	19mm	Ant 5	DSI4	518598	2593	1	21.19	22.00	1.205	-	-	-0.18	0.100	0.121	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 5	DSI3	518598	2593	1	19.65	20.50	1.216	-	-	-0.05	0.391	0.476	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 5	DSI3	518598	2593	1	19.65	20.50	1.216	-	-	-0.18	0.617	0.750	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	14mm	Ant 5	DSI4	518598	2593	1	20.90	22.00	1.288	-	-	-0.01	0.124	0.160	

	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	19mm	Ant 5	DSI4	518598	2593	1	20.90	22.00	1.288	-	-	0.12	0.102	0.131
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 5	DSI3	518598	2593	1	19.53	20.50	1.250	-	-	-0.1	0.567	0.709
											3-4GHz											
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 3	DSI3	42590	3500	1	20.32	22.00	1.472	62.9	1.006	-0.14	0.334	0.495
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 3	DSI3	42590	3500	1	20.32	22.00	1.472	62.9	1.006	-0.02	0.462	0.684
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 3	DSI3	42590	3500	1	19.28	21.00	1.486	62.9	1.006	0.13	0.295	0.441
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 3	DSI3	42590	3500	1	19.28	21.00	1.486	62.9	1.006	0.03	0.364	0.544
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 4	DSI3	42590	3500	1	21.51	22.00	1.119	62.9	1.006	0.16	0.355	0.400
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 4	DSI3	42590	3500	1	21.51	22.00	1.119	62.9	1.006	0.11	0.740	0.833
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 4	DSI3	42190	3460	1	21.46	22.00	1.132	62.9	1.006	0.05	0.719	0.819
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 4	DSI3	42990	3540	1	21.50	22.00	1.122	62.9	1.006	0.08	0.585	0.660
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	14mm	Ant 4	DSI4	42590	3500	1	23.51	24.00	1.119	62.9	1.006	-0.12	0.211	0.238
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	19mm	Ant 4	DSI4	42590	3500	1	23.51	24.00	1.119	62.9	1.006	0.02	0.334	0.376
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 4	DSI3	42590	3500	1	21.48	22.00	1.127	62.9	1.006	-0.17	0.296	0.336
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 4	DSI3	42590	3500	1	21.48	22.00	1.127	62.9	1.006	-0.16	0.591	0.670
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 4	DSI3	42190	3460	1	21.45	22.00	1.135	62.9	1.006	-0.09	0.681	0.778
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 4	DSI3	42990	3540	1	21.46	22.00	1.132	62.9	1.006	0.04	0.569	0.648
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	14mm	Ant 4	DSI4	42590	3500	1	23.43	24.00	1.140	62.9	1.006	-0.08	0.169	0.194
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	19mm	Ant 4	DSI4	42590	3500	1	23.43	24.00	1.140	62.9	1.006	-0.14	0.267	0.306
	2nd	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant 4	DSI3	42590	3500	1	21.46	22.00	1.132	62.9	1.006	0.05	0.677	0.771
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 6	DSI3	42590	3500	1	23.14	24.00	1.219	62.9	1.006	-0.03	0.313	0.384
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 6	DSI3	42590	3500	1	23.14	24.00	1.219	62.9	1.006	0.09	0.465	0.570
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 6	DSI3	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.07	0.260	0.321
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 6	DSI3	42590	3500	1	23.11	24.00	1.227	62.9	1.006	-0.02	0.374	0.462
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	5mm	Ant 9	DSI3	42190	3460	1	18.94	20.50	1.432	62.9	1.006	0.18	0.193	0.278
63	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	DSI3	42190	3460	1	18.94	20.50	1.432	62.9	1.006	-0.02	0.608	**0.876**
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	DSI3	42190	3460	2	18.94	20.50	1.432	62.9	1.006	0.03	0.574	0.827
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	DSI3	42590	3500	1	18.79	20.50	1.483	62.9	1.006	-0.01	0.554	0.826
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 9	DSI3	42990	3540	1	18.85	20.50	1.462	62.9	1.006	-0.19	0.530	0.780
	2nd	LTE Band 42	20M	QPSK	1	0	-	Front	14mm	Ant 9	DSI4	42590	3500	1	20.44	22.00	1.432	62.9	1.006	-0.08	0.088	0.127
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	19mm	Ant 9	DSI4	42590	3500	1	20.44	22.00	1.432	62.9	1.006	-0.14	0.103	0.148
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	5mm	Ant 9	DSI3	42190	3460	1	18.91	20.50	1.442	62.9	1.006	0.13	0.135	0.196
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 9	DSI3	42190	3460	1	18.91	20.50	1.442	62.9	1.006	-0.08	0.517	0.750
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 9	DSI3	42590	3500	1	18.75	20.50	1.496	62.9	1.006	0.04	0.527	0.793
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	5mm	Ant 9	DSI3	42990	3540	1	18.79	20.50	1.483	62.9	1.006	0.05	0.488	0.728
	2nd	LTE Band 42	20M	QPSK	50	0	-	Front	14mm	Ant 9	DSI4	42190	3460	1	19.55	21.00	1.396	62.9	1.006	-0.08	0.092	0.129
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	19mm	Ant 9	DSI4	42590	3500	1	19.39	21.00	1.449	62.9	1.006	-0.14	0.111	0.162
	2nd	LTE Band 42	20M	QPSK	100	0	-	Back	5mm	Ant 9	DSI3	42190	3460	1	18.83	20.50	1.469	62.9	1.006	-0.02	0.555	0.820
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 3	DSI3	656000	3840	1	21.07	22.00	1.239	-	-	0.08	0.168	0.208
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 3	DSI3	656000	3840	1	21.07	22.00	1.239	-	-	0.16	0.349	0.432
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 3	DSI3	656000	3840	1	23.06	24.00	1.242	50	1.000	0.01	0.267	0.332
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 3	DSI3	656000	3840	1	20.98	22.00	1.265	-	-	-0.11	0.169	0.214
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 3	DSI3	656000	3840	1	20.98	22.00	1.265	-	-	0.18	0.329	0.416
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 3	DSI3	656000	3840	1	20.24	21.00	1.191	-	-	0.06	0.314	0.374
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 4	DSI3	656000	3840	1	19.71	20.00	1.069	-	-	-0.12	0.435	0.465
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 4	DSI3	656000	3840	1	19.71	20.00	1.069	-	-	-0.12	0.720	0.770
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 4	DSI3	656000	3840	1	22.53	23.00	1.114	50	1.000	0.02	0.681	0.759
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	14mm	Ant 4	DSI4	656000	3840	1	23.63	24.00	1.089	-	-	-0.12	0.254	0.277
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	19mm	Ant 4	DSI4	656000	3840	1	23.63	24.00	1.089	-	-	0.13	0.246	0.268
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 4	DSI3	656000	3840	1	19.70	20.00	1.072	-	-	0.13	0.456	0.489
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 4	DSI3	656000	3840	1	19.70	20.00	1.072	-	-	-0.18	0.727	0.779
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	14mm	Ant 4	DSI4	656000	3840	1	23.62	24.00	1.091	-	-	0.16	0.275	0.300
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	19mm	Ant 4	DSI4	656000	3840	1	23.62	24.00	1.091	-	-	0.13	0.237	0.259
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Front	5mm	Ant 4	DSI3	656000	3840	1	19.70	20.50	1.202	-	-	0.11	0.446	0.536
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 4	DSI3	656000	3840	1	19.70	20.50	1.202	-	-	0.07	0.618	0.743
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 6	DSI3	656000	3840	1	19.36	20.50	1.300	-	-	0.06	0.304	0.395

	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	DSI3	656000	3840	1	19.36	20.50	1.300	-	-	-0.07	0.421	0.547
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 6	DSI3	656000	3840	1	22.37	23.50	1.297	50	1.000	0.18	0.415	0.538
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 6	DSI3	656000	3840	1	19.32	20.50	1.312	-	-	0.19	0.314	0.412
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 6	DSI3	656000	3840	1	19.32	20.50	1.312	-	-	0.14	0.408	0.535
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 6	DSI3	656000	3840	1	21.73	23.00	1.340	-	-	0.13	0.399	0.535
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	5mm	Ant 9	DSI3	656000	3840	1	19.57	20.00	1.104	-	-	0.05	0.290	0.320
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	5mm	Ant 9	DSI3	656000	3840	1	19.57	20.00	1.104	-	-	0.02	0.665	0.734
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Front	14mm	Ant 9	DSI4	656000	3840	1	20.50	21.00	1.122	-	-	0.05	0.095	0.107
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	19mm	Ant 9	DSI4	656000	3840	1	20.50	21.00	1.122	-	-	-0.03	0.131	0.147
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	5mm	Ant 9	DSI3	656000	3840	1	19.50	20.00	1.122	-	-	0.12	0.306	0.343
64	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	DSI3	656000	3840	1	19.50	20.00	1.122	-	-	-0.07	0.733	**0.822**
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Back	5mm	Ant 9	DSI3	656000	3840	1	21.42	22.00	1.143	50	1.000	0.07	0.553	0.632
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Front	14mm	Ant 9	DSI4	656000	3840	1	20.45	21.00	1.135	-	-	0.16	0.109	0.124
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	19mm	Ant 9	DSI4	656000	3840	1	20.45	21.00	1.135	-	-	0.06	0.160	0.182
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	5mm	Ant 9	DSI3	656000	3840	1	19.55	20.00	1.109	-	-	0.03	0.296	0.328

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
WLAN&BT																			
	1st	Bluetooth	DH5 1Mbps	Back	5mm	Ant 8	Standalone/Simultaneous	39	2441	1	12.25	14.00	1.496	77.03	1.298	-0.01	0.105	0.204	1.41
65	2nd	Bluetooth	DH5 1Mbps	Back	5mm	Ant 8	Standalone/Simultaneous	39	2441	1	12.25	14.00	1.496	77.03	1.298	0.04	0.145	**0.282**	
	1st	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8+7(7)	Standalone	1	2412	1	17.71	19.00	1.346	100	1.000	-0.05	0.929	1.250	0.43
66	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8+7(7)	Standalone	1	2412	1	17.71	19.00	1.346	100	1.000	0.03	0.841	**1.132**	
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8+7(7)	Standalone	1	2412	1	17.71	19.00	1.346	100	1.000	0.03	0.813	1.094	
	1st	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8+7(7)	Simultaneous	1	2412	1	15.61	17.00	1.377	100	1.000	-0.03	0.506	0.697	0.40
	2nd	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 8+7(7)	Simultaneous	1	2412	1	15.61	17.00	1.377	100	1.000	0.05	0.462	0.636	
	1st	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8+7(8)	Standalone	54	5270	1	15.59	17.00	1.384	100	1.000	0.03	0.826	1.143	1.94
67	2nd	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8+7(8)	Standalone	54	5270	1	15.59	17.00	1.384	100	1.000	0.09	0.529	**0.732**	
	2nd	WLAN5.3GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8+7(8)	Standalone	54	5270	1	15.59	17.00	1.384	100	1.000	0.09	0.488	0.675	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Back	5mm	Ant 8+7(8)	Simultaneous	50	5250	1	11.59	13.00	1.384	100	1.000	0.12	0.352	0.487	1.59
	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Back	5mm	Ant 8+7(8)	Simultaneous	50	5250	1	11.59	13.00	1.384	100	1.000	-0.07	0.244	0.338	
	1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(7)	Standalone	138	5690	1	14.32	15.50	1.312	100	1.000	0.08	0.845	1.109	2.73
68	2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(7)	Standalone	138	5690	1	14.32	15.50	1.312	100	1.000	0.03	0.451	**0.592**	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Back	5mm	Ant 8+7(7)	Simultaneous	114	5570	1	11.37	13.00	1.455	100	1.000	0.02	0.335	0.488	2.07
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Back	5mm	Ant 8+7(7)	Simultaneous	114	5570	1	11.37	13.00	1.455	100	1.000	0.03	0.208	0.303	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(8)	Standalone	155	5775	1	15.19	16.50	1.352	100	1.000	0.07	0.804	1.087	2.02
69	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(8)	Standalone	155	5775	1	15.19	16.50	1.352	100	1.000	0.09	0.505	**0.683**	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(8)	Simultaneous	155	5775	1	11.94	13.00	1.276	100	1.000	0.02	0.368	0.470	1.94
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 8+7(8)	Simultaneous	155	5775	1	11.94	13.00	1.276	100	1.000	0.08	0.236	0.301	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Measured APD (W/m^2)	Deviation d_{dB}(dB)
	1st	WLAN6GHz	802.11ax-HE160 MCS0	Back	5mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.1	0.248	0.374	1.85	
70	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Back	5mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	0.11	0.210	**0.317**	1.58	0.72
	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Back	5mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	2	10.76	12.50	1.491	98.77	1.012	0.09	0.149	0.225	1.13	

17.4 Product specific 10g SAR

Plot No.	No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
1750MHz																							
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 2	DSI6	1513	1752.6	1	22.76	24.00	1.330	-	-	0.07	2.160	2.874	1.61
	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 2	DSI6	1513	1752.6	1	22.93	24.00	1.279	-	-	0.19	1.550	1.983	
	1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 1	DSI6	1513	1752.6	1	19.02	20.70	1.472	-	-	0.16	1.580	2.326	0.21
71	2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 1	DSI6	1513	1752.6	1	19.20	20.70	1.413	-	-	0.01	1.570	**2.218**	
	1st	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 2	DSI6	132322	1745	1	22.58	24.00	1.387	-	-	0.03	1.840	2.552	0.63
	2nd	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 2	DSI6	132322	1745	1	22.66	24.00	1.361	-	-	0.13	1.620	2.206	
	1st	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	132572	1770	1	19.22	20.70	1.406	-	-	-0.06	1.520	2.137	0.79
	2nd	LTE Band 66	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	132572	1770	1	19.36	20.70	1.361	-	-	-0.14	1.310	1.783	
	1st	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	132072	1720	1	22.58	24.00	1.387	-	-	0.08	2.000	2.774	
72	2nd	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	132072	1720	1	22.59	24.00	1.384	-	-	0.06	2.010	**2.781**	0.01
	2nd	LTE Band 66	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	132072	1720	2	22.59	24.00	1.384	-	-	0.13	1.830	2.532	
1900MHz																							
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 2	DSI6	9262	1852.4	1	22.94	24.00	1.276	-	-	-0.03	2.130	2.719	0.66
73	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	0mm	Ant 2	DSI6	9262	1852.4	1	23.19	24.00	1.205	-	-	0.05	1.940	**2.338**	
	1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 1	DSI6	9400	1880	1	19.28	21.20	1.556	-	-	0.04	1.400	2.178	0.31
	2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	0mm	Ant 1	DSI6	9400	1880	1	19.65	21.20	1.429	-	-	0.13	1.420	2.029	
	1st	LTE Band 25	20M	QPSK	1	0	-	Front	0mm	Ant 2	DSI6	26140	1860	1	22.80	24.00	1.318	-	-	0.07	2.100	2.768	2.54
	2nd	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 2	DSI6	18700	1860	1	23.02	24.00	1.253	-	-	-0.13	1.230	1.541	
	1st	LTE Band 25	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	26340	1880	1	21.00	22.20	1.318	-	-	-0.11	1.540	2.030	0.12
	2nd	LTE Band 2	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	18900	1880	1	21.02	22.20	1.312	-	-	-0.1	1.590	2.086	
	1st	LTE Band 25	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	26590	1905	1	22.95	24.00	1.274	-	-	-0.01	1.780	2.267	0.56
74	2nd	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	19100	1900	1	22.98	24.00	1.265	-	-	0.09	2.040	**2.580**	
2600MHz																							
	1st	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI6	21100	2535	1	21.77	22.90	1.297	-	-	0.01	2.350	3.048	
75	2nd	LTE Band 7	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI6	21100	2535	1	21.84	22.90	1.276	-	-	0.08	2.250	**2.872**	0.26
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Bottom Side	0mm	Ant 2	DSI6	21100	2535	1	21.75	22.90	1.303	-	-	-0.13	2.160	2.815	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	20850	2510	1	21.15	22.20	1.274	-	-	0.03	1.810	2.305	
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	20850	2510	1	21.22	22.20	1.253	-	-	0.12	1.910	2.393	0.16
	2nd	LTE Band 7Other PA	20M	QPSK	1	0		Back	0mm	Ant 1	DSI6	20850	2510	1	21.49	22.20	1.178	-	-	-0.07	1.740	2.049	
	1st	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 0	DSI6	20850	2510	1	19.48	21.20	1.486	-	-	0.08	1.590	2.363	1.03
	2nd	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 0	DSI6	20850	2510	1	19.50	21.20	1.479	-	-	-0.15	1.260	1.864	
	1st	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI6	40620	2593	1	23.70	24.00	1.072	62.9	1.006	0.04	2.340	2.522	0.31
76	2nd	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 2	DSI6	40620	2593	1	23.66	24.00	1.081	62.9	1.006	0.02	2.160	**2.350**	
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	41490	2680	1	22.28	23.30	1.265	62.9	1.006	0.06	1.940	2.468	
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 1	DSI6	41490	2680	1	22.30	23.30	1.259	62.9	1.006	-0.19	1.520	1.925	1.08
	1st	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 0	DSI6	39750	2506	1	22.80	24.00	1.318	62.9	1.006	-0.1	2.030	2.692	
	2nd	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 0	DSI6	39750	2506	1	22.80	24.00	1.318	62.9	1.006	0.00	1.520	2.016	1.26
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	0mm	Ant 2	DSI6	507000	2535	1	22.82	23.50	1.169	-	-	0.13	2.610	3.052	0.02
77	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	0mm	Ant 2	DSI6	507000	2535	1	22.57	23.50	1.239	-	-	0.05	2.450	**3.035**	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	0mm	Ant 1	DSI6	507000	2535	1	21.70	22.50	1.202	-	-	-0.12	1.750	2.104	0.14
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	0mm	Ant 1	DSI6	507000	2535	1	21.91	22.50	1.146	-	-	0.09	1.780	2.039	
	1st	FR1 n7	40M	QPSK	1	1	DFT-15	Back	0mm	Ant 0	DSI6	507000	2535	1	19.59	21.00	1.384	-	-	0.01	2.000	2.767	0.21
	2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Back	0mm	Ant 0	DSI6	507000	2535	1	19.53	21.00	1.403	-	-	-0.07	1.880	2.637	
	1st	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 2	DSI6	518598	2592.99	1	21.76	22.50	1.186	-	-	0.03	2.630	3.119	
78	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 2	DSI6	518598	2592.99	1	21.60	22.50	1.230	-	-	0.05	2.510	**3.088**	0.04
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 2	DSI6	518598	2592.99	2	21.60	22.50	1.230	-	-	-0.17	2.290	2.817	

	1st	FR1 n41	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 1	DSI6	518598	2592.99	1	21.78	22.50	1.180	-	-	-0.01	2.060	2.431	0.08
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 1	DSI6	518598	2592.99	1	21.62	22.50	1.225	-	-	0.18	2.020	2.474	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	0mm	Ant 0	DSI6	518598	2592.99	1	19.33	20.50	1.309	-	-	-0.13	1.280	1.676	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 0	DSI6	518598	2592.99	1	19.33	20.50	1.309	-	-	-0.17	1.730	2.265	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 0	DSI6	518598	2592.99	1	19.33	20.50	1.309	-	-	0.14	0.907	1.187	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 0	DSI6	518598	2592.99	1	19.33	20.50	1.309	-	-	0.06	1.340	1.754	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Front	3mm	Ant 0	DSI4	518598	2592.99	1	22.82	24.00	1.312	-	-	-0.14	1.040	1.365	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Back	6mm	Ant 0	DSI4	518598	2592.99	1	22.82	24.00	1.312	-	-	0.11	0.667	0.875	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Left Side	5mm	Ant 0	DSI4	518598	2592.99	1	22.82	24.00	1.312	-	-	-0.17	0.415	0.545	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	6mm	Ant 0	DSI4	518598	2592.99	1	22.82	24.00	1.312	-	-	0.19	0.875	1.148	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	0mm	Ant 0	DSI6	518598	2592.99	1	19.30	20.50	1.318	-	-	0.17	1.170	1.542	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 0	DSI6	518598	2592.99	1	19.30	20.50	1.318	-	-	-0.04	1.640	2.162	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	0mm	Ant 0	DSI6	518598	2592.99	1	19.30	20.50	1.318	-	-	-0.04	0.771	1.016	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	0mm	Ant 0	DSI6	518598	2592.99	1	19.30	20.50	1.318	-	-	-0.17	1.230	1.621	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Front	3mm	Ant 0	DSI4	518598	2592.99	1	22.68	24.00	1.355	-	-	-0.06	1.040	1.409	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Back	6mm	Ant 0	DSI4	518598	2592.99	1	22.68	24.00	1.355	-	-	-0.13	0.731	0.991	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Left Side	5mm	Ant 0	DSI4	518598	2592.99	1	22.68	24.00	1.355	-	-	0.07	0.368	0.499	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Bottom Side	6mm	Ant 0	DSI4	518598	2592.99	1	22.68	24.00	1.355	-	-	0.06	0.954	1.293	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Front	0mm	Ant 0	DSI6	518598	2592.99	1	19.26	20.50	1.330	-	-	-0.13	1.110	1.477	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Back	0mm	Ant 0	DSI6	518598	2592.99	1	19.26	20.50	1.330	-	-	-0.17	1.560	2.076	
	2nd	FR1 n41	100M	QPSK	270	0	DFT-30	Bottom Side	0mm	Ant 0	DSI6	518598	2592.99	1	19.26	20.50	1.330	-	-	0.14	1.170	1.557	
	2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 5	DSI4	518598	2592.99	1	17.23	18.00	1.194	-	-	-0.13	0.662	0.790	
	2nd	FR1 n41	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 5	DSI4	518598	2592.99	1	17.20	18.00	1.202	-	-	-0.14	0.677	0.814	
3-4GHz																							
	2nd	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 4	DSI6	42590	3500	1	22.10	22.50	1.096	62.9	1.006	0.13	0.560	0.618	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Side	0mm	Ant 4	DSI6	42590	3500	1	22.10	22.50	1.096	62.9	1.006	-0.06	1.830	2.019	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Side	0mm	Ant 4	DSI6	42190	3460	1	21.96	22.50	1.132	62.9	1.006	-0.03	1.800	2.051	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Left Side	0mm	Ant 4	DSI6	42990	3540	1	22.03	22.50	1.114	62.9	1.006	0.19	1.640	1.838	
	2nd	LTE Band 42	20M	QPSK	50	0	-	Back	0mm	Ant 4	DSI6	42590	3500	1	22.07	22.50	1.104	62.9	1.006	0.07	0.538	0.598	
	2nd	LTE Band 42	20M	QPSK	50	0	-	Left Side	0mm	Ant 4	DSI6	42590	3500	1	22.07	22.50	1.104	62.9	1.006	0.11	1.750	1.944	
	2nd	LTE Band 42	20M	QPSK	100	0	-	Left Side	0mm	Ant 4	DSI6	22.05	3500	1	22.05	22.50	1.109	62.9	1.006	-0.06	1.680	1.875	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	0mm	Ant 6	DSI4	42590	3500	1	23.14	24.00	1.219	62.9	1.006	0.07	1.680	2.060	
79	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	0mm	Ant 6	DSI4	42190	3460	1	23.02	24.00	1.253	62.9	1.006	0.02	1.720	**2.168**	
	2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	0mm	Ant 6	DSI4	42990	3540	1	23.09	24.00	1.233	62.9	1.006	0.15	1.520	1.886	
	2nd	LTE Band 42	20M	QPSK	50	0	-	Right Side	0mm	Ant 6	DSI4	42590	3500	1	23.11	24.00	1.227	62.9	1.006	0.06	1.540	1.902	
	2nd	LTE Band 42	20M	QPSK	100	0	-	Right Side	0mm	Ant 6	DSI4	42590	3500	1	23.07	24.00	1.239	62.9	1.006	0.07	1.480	1.844	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 4	DSI6	656000	3840	1	21.59	22.00	1.099	-	-	-0.05	1.760	1.934	
80	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	1	21.59	22.00	1.099	-	-	-0.03	2.080	**2.286**	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	2	21.59	22.00	1.099	-	-	0.01	1.840	2.022	
	2nd	FR1 n77 HPUE	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	1	24.46	25.00	1.132	50	1.000	-0.03	1.960	2.220	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	11mm	Ant 4	DSI4	656000	3840	1	23.63	24.00	1.089	-	-	0.14	0.247	0.269	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	8mm	Ant 4	DSI4	656000	3840	1	23.63	24.00	1.089	-	-	0.02	0.532	0.579	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 4	DSI6	656000	3840	1	21.54	22.00	1.112	-	-	0.14	1.780	1.979	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	1	21.54	22.00	1.112	-	-	0.01	1.760	1.957	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	11mm	Ant 4	DSI4	656000	3840	1	23.62	24.00	1.091	-	-	-0.07	0.226	0.247	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Left Side	8mm	Ant 4	DSI4	656000	3840	1	23.62	24.00	1.091	-	-	-0.06	0.536	0.585	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Back	0mm	Ant 4	DSI6	656000	3840	1	21.49	22.00	1.125	-	-	-0.05	1.680	1.889	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	1	21.49	22.00	1.125	-	-	-0.03	1.980	2.227	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Back	0mm	Ant 6	DSI4	656000	3840	1	19.36	20.50	1.300	-	-	0.02	0.560	0.728	
	2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Right Side	0mm	Ant 6	DSI4	656000	3840	1	19.36	20.50	1.300	-	-	-0.19	1.580	2.054	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Back	0mm	Ant 6	DSI4	656000	3840	1	19.32	20.50	1.312	-	-	0.11	0.470	0.617	
	2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 6	DSI4	656000	3840	1	19.32	20.50	1.312	-	-	0.02	1.620	2.126	
	2nd	FR1 n77 HPUE	100M	QPSK	135	69	DFT-30	Right Side	0mm	Ant 6	DSI4	656000	3840	1	22.34	23.50	1.306	50	1.000	0.02	1.580	2.064	
	2nd	FR1 n77	100M	QPSK	270	0	DFT-30	Right Side	0mm	Ant 6	DSI4	656000	3840	1	19.35	20.50	1.303	-	-	-0.19	1.540	2.007	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Deviation d_{dB}(dB)
WLAN&BT																			
	1st	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 8+7(7)	Standalone	1	2412	1	19.51	20.50	1.256	100	1.000	0.08	2.370	2.977	0.96
81	2nd	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 8+7(7)	Standalone	1	2412	1	19.51	20.50	1.256	100	1.000	-0.09	1.900	**2.386**	
	1st	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 8+7(7)	Simultaneous	1	2412	1	14.36	15.50	1.300	100	1.000	0.08	0.763	0.992	0.68
	2nd	WLAN2.4GHz	802.11b 1Mbps	Top Side	0mm	Ant 8+7(7)	Simultaneous	1	2412	1	14.36	15.50	1.300	100	1.000	-0.09	0.653	0.849	
	1st	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	46	5230	1	17.41	19.00	1.442	100	1.000	-0.12	2.050	2.956	1.47
82	2nd	WLAN5.2GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	46	5230	1	17.41	19.00	1.442	100	1.000	-0.04	1.460	**2.105**	
	1st	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	42	5210	1	11.58	13.00	1.387	100	1.000	-0.05	0.660	0.915	1.22
	2nd	WLAN5.2GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	42	5210	1	11.58	13.00	1.387	100	1.000	0.18	0.498	0.691	
	1st	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	54	5270	1	16.94	18.50	1.432	100	1.000	0.15	2.050	2.936	1.05
83	2nd	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	54	5270	1	16.94	18.50	1.432	100	1.000	0.03	1.610	**2.306**	
	2nd	WLAN5.3GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	54	5270	2	16.94	18.50	1.432	100	1.000	0.05	1.480	2.120	
	1st	WLAN5.3GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	50	5250	1	11.89	13.50	1.449	100	1.000	0.11	0.655	0.949	1.07
	2nd	WLAN5.3GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	50	5250	1	11.89	13.50	1.449	100	1.000	-0.05	0.512	0.742	
	1st	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(7)	Standalone	138	5690	1	16.68	18.00	1.355	100	1.000	0.12	1.940	2.629	1.67
84	2nd	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(7)	Standalone	138	5690	1	16.68	18.00	1.355	100	1.000	0.07	1.320	**1.789**	
	1st	WLAN5.5GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	114	5570	1	11.16	13.00	1.528	100	1.000	0.12	0.646	0.987	1.33
	2nd	WLAN5.5GHz	802.11ac-VHT160 MCS0	Top Side	0mm	Ant 8+7(7)	Simultaneous	114	5570	1	11.16	13.00	1.528	100	1.000	0.11	0.475	0.726	
	1st	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	151	5755	1	17.58	19.00	1.387	100	1.000	0.13	2.110	2.926	2.52
85	2nd	WLAN5.8GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+7(8)	Standalone	151	5755	1	17.58	19.00	1.387	100	1.000	0.05	1.180	**1.636**	
	1st	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(8)	Simultaneous	155	5775	1	11.28	12.50	1.324	100	1.000	0.01	0.686	0.908	1.92
	2nd	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant 8+7(8)	Simultaneous	155	5775	1	11.28	12.50	1.324	100	1.000	-0.07	0.441	0.584	

Plot No.	No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Sample	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)	Measured APD (W/m^2)	Deviation d_{dB}(dB)
	1st	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.09	0.254	0.383	6.05	
86	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.12	0.228	**0.344**	5.39	0.47
	2nd	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+7(8)	Standalone/Simultaneous	15	6025	1	10.76	12.50	1.491	98.77	1.012	-0.07	0.161	0.243	3.77	

17.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42190	3460	23.02	24.00	1.253	62.9	1.006	-0.03	0.991	1	1.249
2nd	LTE Band 42	20M	QPSK	1	0	-	Right Side	5mm	Ant 6	DSI7	42190	3460	23.02	24.00	1.253	62.9	1.006	0.06	0.932	1.063	1.175
1st	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	18.76	20.00	1.330	-	-	-0.13	0.815	1	1.084
2nd	FR1 n77	100M	QPSK	135	69	DFT-30	Right Side	5mm	Ant 6	DSI7	656000	3840	18.76	20.00	1.330	-	-	-0.13	0.755	1.079	1.004
1st	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Standalone	11	2462	17.68	19.00	1.355	100	1.000	0.02	0.922	1	1.249
2nd	WLAN2.4GHz	-	-	-	-	802.11b 1Mbps	Left Tilted	0mm	Ant 8+7(7)	Standalone	11	2462	17.68	19.00	1.355	100	1.000	0.13	0.881	1.047	1.194
1st	WCDMA V					RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	23.08	24.00	1.236	-	-	-0.05	1.010	1	1.248
2nd	WCDMA V					RMC 12.2Kbps	Back	5mm	Ant 0	DSI3	4182	836.4	23.08	24.00	1.236	-	-	-0.05	0.959	1.053	1.185
1st	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 2	DSI7	1513	1752.6	20.18	21.20	1.265	-	-	0.11	0.807	1	1.021
2nd	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 2	DSI7	1513	1752.6	20.18	21.20	1.265	-	-	0.02	0.782	1.032	0.989
1st	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	18900	1880	21.92	23.10	1.312	-	-	0.08	0.951	1	1.248
2nd	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	DSI7	18900	1880	21.92	23.10	1.312	-	-	0.05	0.935	1.017	1.227
1st	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 2	DSI7	507000	2535	20.06	21.00	1.242	-	-	0.06	1.010	1	1.254
2nd	FR1 n7	40M	QPSK	1	1	DFT-15	Bottom Side	5mm	Ant 2	DSI7	507000	2535	20.06	21.00	1.242	-	-	0.05	0.930	1.086	1.155
1st	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23230	782	23.44	24.00	1.138	-	-	0.13	0.913	1	1.039
2nd	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	DSI3	23230	782	23.44	24.00	1.138	-	-	0.05	0.842	1.084	0.958

<10g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	21.59	22.00	1.099	-	-	-0.03	2.080	1	2.286
2nd	FR1 n77	100M	QPSK	1	1	DFT-30	Left Side	0mm	Ant 4	DSI6	656000	3840	21.59	22.00	1.099	-	-	0.04	1.950	1.067	2.143
1st	LTE Band 66	20M	QPSK	1	0	DFT-30	Front	0mm	Ant 0	DSI6	132072	1720	22.59	24.00	1.384	-	-	0.06	2.010	1	2.781
2nd	LTE Band 66	20M	QPSK	1	0	DFT-30	Front	0mm	Ant 0	DSI6	132072	1720	22.59	24.00	1.384	-	-	0.04	1.920	1.047	2.656
1st	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	19100	1900	22.98	24.00	1.265	-	-	0.09	2.040	1	2.580
2nd	LTE Band 2	20M	QPSK	1	0	-	Front	0mm	Ant 0	DSI6	19100	1900	22.98	24.00	1.265	-	-	0.09	1.920	1.063	2.428
1st	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 2	DSI6	518598	2592.99	21.60	22.50	1.230	-	-	0.05	2.510	1	3.088
2nd	FR1 n41	100M	QPSK	1	1	DFT-30	Bottom Side	0mm	Ant 2	DSI6	518598	2592.99	21.60	22.50	1.230	-	-	0.15	2.310	1.087	2.842

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.

17.6 TDD 5GNR Linearity Data Analysis

General Note:
This device support Power Class 2 and Power Class 3 operations for TDD n77/78. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg for 1g and < 3.5 W/kg for 10g, Separate SAR testing for Power Class 2 is not required.

FR1 n77_Ant 3(HPUE)-Linearity Data for DSI 2			FR1 n77_Ant 4(HPUE)-Linearity Data for DSI 2		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)		FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	21.07	23.06	Maximum Tune up Power (dBm)	21.64	24.58
Reported 1g SAR (W/kg)	0.460	0.359	Reported 1g SAR (W/kg)	0.880	0.832
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	127.94	101.15	Frame Averaged (mW)	145.88	143.54
Linearity SAR (W/kg)	0.364		Linearity SAR (W/kg)	0.866	
% deviation from expected linearity		-1.29%	% deviation from expected linearity		-3.91%
FR1 n77_Ant 3(HPUE)-Linearity Data for DSI 3			**FR1 n77_Ant 4(HPUE)-Linearity Data for DSI 3**		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)		FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	21.07	23.06	Maximum Tune up Power (dBm)	19.71	22.53
Reported 1g SAR (W/kg)	0.432	0.332	Reported 1g SAR (W/kg)	0.770	0.759
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	127.94	101.15	Frame Averaged (mW)	93.54	89.53
Linearity SAR (W/kg)	0.342		Linearity SAR (W/kg)	0.737	
% deviation from expected linearity		-2.80%	% deviation from expected linearity		2.99%
FR1 n77_Ant 3(HPUE)-Linearity Data for DSI 7			**FR1 n77_Ant 4(HPUE)-Linearity Data for DSI 6**		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)		FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	21.07	23.06	Maximum Tune up Power (dBm)	21.59	24.46
Reported 1g SAR (W/kg)	0.432	0.332	Reported 10g SAR (W/kg)	2.286	2.220
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	127.94	101.15	Frame Averaged (mW)	144.21	139.63
Linearity SAR (W/kg)	0.342		Linearity SAR (W/kg)	2.213	
% deviation from expected linearity		-2.80%	% deviation from expected linearity		0.30%

FR1 n77_Ant 4(HPUE)-Linearity Data for DSI 7		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.66	20.71
Reported 1g SAR (W/kg)	0.580	0.571
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	58.34	58.88
Linearity SAR (W/kg)	0.585	
% deviation from expected linearity		-2.45%

FR1 n77_Ant 6(HPUE)-Linearity Data for DSI 2		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	22.73	25.85
Reported 1g SAR (W/kg)	0.596	0.575
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	187.50	192.30
Linearity SAR (W/kg)	0.611	
% deviation from expected linearity		-5.93%

FR1 n77_Ant 9(HPUE)-Linearity Data for DSI 2		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.53	20.27
Reported 1g SAR (W/kg)	0.587	0.474
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	71.29	53.21
Linearity SAR (W/kg)	0.438	
% deviation from expected linearity		8.19%

FR1 n77_Ant 6(HPUE)-Linearity Data for DSI 3		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	19.36	22.37
Reported 1g SAR (W/kg)	0.547	0.538
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	86.30	86.29
Linearity SAR (W/kg)	0.547	
% deviation from expected linearity		-1.64%

FR1 n77_Ant 9(HPUE)-Linearity Data for DSI 3		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	19.50	21.42
Reported 1g SAR (W/kg)	0.822	0.632
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	89.13	69.34
Linearity SAR (W/kg)	0.640	
% deviation from expected linearity		-1.17%

FR1 n77_Ant 6(HPUE)-Linearity Data for DSI 4		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	19.32	22.34
Reported 10g SAR (W/kg)	2.126	2.064
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	85.51	85.70
Linearity SAR (W/kg)	2.131	
% deviation from expected linearity		-3.13%

FR1 n77_Ant 9(HPUE)-Linearity Data for DSI 7		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.06	19.86
Reported 1g SAR (W/kg)	0.570	0.452
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	63.97	48.41
Linearity SAR (W/kg)	0.431	
% deviation from expected linearity		4.78%

FR1 n77_Ant 6(HPUE)-Linearity Data for DSI 7		
	FR1 n77 (Power Class 3)	FR1 n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.76	21.88
Reported 1g SAR (W/kg)	1.084	1.051
Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	75.16	77.09
Linearity SAR (W/kg)	1.112	
% deviation from expected linearity		-5.46%

18. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + WLAN6GHz	Yes	Yes		Yes
4.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
5.	WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
6.	WLAN6GHz+ Bluetooth	Yes	Yes		Yes
7.	WWAN + WLAN5GHz+ Bluetooth	Yes	Yes	Yes	Yes
8.	WWAN + WLAN6GHz+ Bluetooth	Yes	Yes		Yes
9.	WWAN + WLAN2.4GHz + NFC				Yes
10.	WWAN + WLAN5GHz + NFC				Yes
11.	WWAN + WLAN6GHz + NFC				Yes
12.	WWAN + Bluetooth + NFC				Yes
13.	WLAN5GHz+ Bluetooth + NFC				Yes
14.	WLAN6GHz+ Bluetooth + NFC				Yes
15.	WWAN + WLAN5GHz+ Bluetooth + NFC				Yes
16.	WWAN + WLAN6GHz+ Bluetooth + NFC				Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. WWAN above includes 5G NR bands and EN-DC combination.
3. EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
4. For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In Part 1 Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
5. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
6. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only). WLAN6GHz has no hotspot function.
7. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
8. According to the EUT characteristic, WLAN 5GHz/6GHz and Bluetooth can transmit simultaneously.
9. According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can't transmit simultaneously.
10. According to the EUT characteristic, WLAN 2.4GHz and Bluetooth cannot transmit simultaneously.
11. NFC can transmit simultaneously with other Radios in extremity exposure condition.
12. For Headset SAR and non-Headset SAR always chose higher SAR to do co-located analysis.
13. For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
14. For co-located SAR with WWAN, always chose higher SAR among WLAN5GHz, WLAN 6GHz, it is the worst co-located analysis and can represent each WLAN5GHz and WLAN 6GHz bands.
15. For standalone WWAN, always choose the highest SAR among all WWAN bands within the selected antenna for Head/hotspot/extremity exposure condition each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each band.
16. The maximum SAR summation is calculated based on the same configuration and test position.
17. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
    ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
    iii) If SPLSR ≤ 0.04 for 1g SAR and SPLSR≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is

not necessary.

iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

v) The SPLSR calculated results please refer to section 18.6.

18. The WLAN6GHz Sim-Tx analysis guidance with other transmitters was based on SAR test results. The simultaneous transmission and test exemption analysis were compliant with KDB 447498 D01. For the device does not support FR2 or other MPE field measurement, therefore section 18 in the SAR report has no TER analysis according to KDB 987594 requirement.

18.1 Sub6 Antenna Groups

The Qualcomm® Smart Transmit™ 3.0 of Smart Transmit (Gen2) Feature operates based on pre-defined sub6 antenna groups (AG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating below conditions for all exposure positions under each DSI for a given exposure category.

1) Case 1: Demonstrate that Sum of maximum reported SAR from each of the sub6 AGs and the reported normalized SAR values from radios outside Smart Transmit should be less than regulatory limits for each supported DSI. This condition must be demonstrated for all antenna combinations of sub6 AGs.
   i. For a given DSI, obtain the highest *reported* SAR for each antenna out of all supported technologies and frequency bands. Obtain the maximum *reported* SAR for each AG by taking the maximum out of *reported* SAR for all antennas belonging to each AG.
   ii. Demonstrate that the sum of maximum reported SAR (normalized to regulatory limit) from each of the sub6 AGs and the sum of reported SAR (normalized to regulatory limit) from all supported radios outside of Smart Transmit should be less than 1.0
2) Case 2: If the Case 1 is NOT met, then for a given antenna grouping scheme plus external radios/antennas (ERs) (referred to as 'configuration'), demonstrate all AG pairs, all ER pairs and all (AG, ER) pairs in the configuration meet SPLSR criteria (Section 4.3.2 (c) in FCC KDB 447498 D01 v06) for each exposure position under each supported DSI. For a given exposure position under a given DSI, prove all AG pairs, all ER pairs and all (AG, ER) pairs (if there are external radios outside Smart Transmit) in the configuration meet SPLSR.

This device supports two sub6 AG: AG0 and AG1, the detailed please refer to the below table:

Antenna Group 0 (AG0)	ANT0 & ANT2 & ANT6
Antenna Group 1 (AG1)	ANT1 & ANT3 & ANT4 & ANT5 & ANT9

3) This model's multi_Tx_factor is 1.0.

The conditions are verified through the following criterias:

i) (SAR1 + SAR2 criteria): If SPLSR criteria is not used, then the highest reported SAR at *Plimit* for each antenna should be obtained out of all supported technologies and frequency bands for each DSI. Demonstrate that the sum of reported SAR of one antenna from each of the sub6 AGs and the sum of RF exposure from all supported radios outside of Smart Transmit should be less than the regulatory limit as given below for each DSI.

1. Obtain the worst-case reported SAR for each antenna group (i.e., maximum *reported* SAR at *Plimit* out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure for each external radio, and demonstrate that the sum of these RF exposures meets: { [max.SAR.AG0+ max.SAR.AG1] + WIFI/BT worst-case reported SAR} ≤ 1.6 (for 1g, or 4.0 for 10g). (WIFI/BT worst-case reported SAR is the worst SAR in all combinations of WIFI and BT simultaneous transmission)

ii) (SPLSR criteria): For each antenna, obtain the highest reported SAR value at *Plimit* out of all supported technologies for each frequency band. Using these values, demonstrate for a given DSI that every antenna from one sub6 AG meets SPLSR criteria with every antenna in another sub6 AG for all frequency bands. This criteria must be demonstrated for all antenna pair combinations irrespective of supported simultaneous transmission scenarios as given below for each DSI:

a. SPLSR criteria should be met for all antenna pair combinations of AG0 and AG1. As it can be seen, these include all combinations of antenna groups, antennas, and frequency bands.
b. Obtain combined SAR per AG: Obtain the worst-case conservative combined SAR and its peak location for each AG.
c. Use the 'closest' peak location out of all antennas of AGj to evaluate SPLSR with other AGs in the configuration. Note, by 'closest', select the peak location out of all antennas (ϵ AGj) that is closest to the peak location of other AG where SPLSR is evaluated.

iii) (combination of SPLSR & SAR1+SAR2 criteria): If SPLSR criteria for all the combinations of sub6 antenna groups in (i) is demonstrated to show that each AG is mutually exclusive from other AGs, and if the WIFI/BT antennas supported outside of Smart Transmit do not meet SPLSR criteria, then the condition in (ii) reduces to: {max.SAR.AG0 + worst-case reported SAR} ≤ 1.6 and {max.SAR.AG1+ worst-case reported SAR } ≤ 1.6 for compliance demonstration (for 1g, or 4.0 for 10g).

For summed SAR results and SPLSR detailed analysis, please refer to section 18.2/18.3 / 18.4 / 18.5 / 18.6 of this report. All of the combinations of sub6 antenna groups are sufficient to show that AG0 is mutually exclusive from AG1 and that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

18.2 Head Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.
Simultaneous Transmission Evaluation of WWAN+WLAN+BT:
<AG0 maximum report SAR>:

Test Position	Ant 0	Ant 2	Ant 6	All Antenna MAX SAR 1g W/kg
Right Cheek	0.240	0.154	0.596	**0.596**
Right Tilted	0.193		0.147	**0.193**
Left Cheek	0.375	0.163	0.318	**0.375**
Left Tilted	0.123		0.271	**0.271**

<AG1 maximum report SAR>:

Test Position	Ant 1	Ant 3	Ant 4	Ant 5	Ant 9	All Antenna MAX SAR 1g W/kg
Right Cheek	0.822	0.355	0.880	0.557	0.368	**0.880**
Right Tilted	0.871	0.418	0.567	0.109	0.386	**0.871**
Left Cheek	0.353	0.597	0.403	0.545	0.587	**0.597**
Left Tilted	0.373	0.685	0.278	0.185	0.584	**0.685**

<WLAN2.4GHz/5GHz/6GHz+BT Worse-case SAR>:

	1	2	3	1+3 Summed 1g SAR (W/kg)	WLAN/BT worse case
Test Position	Bluetooth	2.4GWLAN	5G/6GWLAN		
Right Cheek	0.052	0.433	0.329	0.381	**0.433**
Right Tilted	0.059	0.444	0.348	0.407	**0.444**
Left Cheek	0.217	0.573	0.455	0.672	**0.672**
Left Tilted	0.182	0.640	0.427	0.609	**0.640**

<Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case>:

Test Position	AG1	AG0	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case
Right Cheek	0.880	0.596	0.433	**1.91**
Right Tilted	0.871	0.193	0.444	**1.51**
Left Cheek	0.597	0.375	0.672	**1.64**
Left Tilted	0.685	0.271	0.640	**1.60**

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Right Cheek					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.822	0.240	0.433	1.50	
ANT3-ANT0	0.355	0.240	0.433	1.03	
ANT4-ANT0	0.880	0.240	0.433	1.55	
ANT5-ANT0	0.557	0.240	0.433	1.23	
ANT9-ANT0	0.368	0.240	0.433	1.04	
ANT1-ANT2	0.822	0.154	0.433	1.41	
ANT3-ANT2	0.355	0.154	0.433	0.94	
ANT4-ANT2	0.880	0.154	0.433	1.47	
ANT5-ANT2	0.557	0.154	0.433	1.14	
ANT9-ANT2	0.368	0.154	0.433	0.96	
ANT1-ANT6	0.822	0.596	0.433	**1.85**	**Case 1**
ANT3-ANT6	0.355	0.596	0.433	1.38	
ANT4-ANT6	0.880	0.596	0.433	**1.91**	**Case 2**
ANT5-ANT6	0.557	0.596	0.433	1.59	
ANT9-ANT6	0.368	0.596	0.433	1.40	

Left Cheek					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.353	0.375	0.672	1.40	
ANT3-ANT0	0.597	0.375	0.672	**1.64**	**Case 3**
ANT4-ANT0	0.403	0.375	0.672	1.45	
ANT5-ANT0	0.545	0.375	0.672	**1.59**	
ANT9-ANT0	0.587	0.375	0.672	**1.63**	**Case 4**
ANT1-ANT2	0.353	0.163	0.672	1.19	
ANT3-ANT2	0.597	0.163	0.672	1.43	
ANT4-ANT2	0.403	0.163	0.672	1.24	
ANT5-ANT2	0.545	0.163	0.672	1.38	
ANT9-ANT2	0.587	0.163	0.672	1.42	
ANT1-ANT6	0.353	0.318	0.672	1.34	
ANT3-ANT6	0.597	0.318	0.672	1.59	
ANT4-ANT6	0.403	0.318	0.672	1.39	
ANT5-ANT6	0.545	0.318	0.672	1.54	
ANT9-ANT6	0.587	0.318	0.672	1.58	

18.3 Hotspot Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.
Simultaneous Transmission Evaluation of WWAN+WLAN+BT:
<AG0 maximum report SAR>:

Test Position	Ant 0	Ant 2	Ant 6	All Antenna MAX SAR 1g W/kg
Front	0.864	1.113	0.384	**1.113**
Back	1.248	1.138	0.570	**1.248**
Left side	0.500			**0.500**
Right side		0.595	1.259	**1.259**
Top side				**0.000**
Bottom side	1.196	1.254	0.432	**1.254**

<AG1 maximum report SAR>:

Test Position	Ant 1	Ant 3	Ant 4	Ant 5	Ant 9	All Antenna MAX SAR 1g W/kg
Front	0.338	0.237	0.225	0.169	0.246	**0.338**
Back	0.609	0.432	0.362	0.267	0.570	**0.609**
Left side	0.613		0.580			**0.613**
Right side		0.332		0.332	0.118	**0.332**
Top side	0.586	0.590		0.056	0.450	**0.590**
Bottom side						**0.000**

<WLAN2.4GHz/5GHz/6GHz+BT Worse-case SAR>:

	1	2	3	1+3 Summed 1g SAR (W/kg)	WLAN/BT worse case
Test Position	Bluetooth	2.4GWLAN	5GWLAN		
Front	0.102	0.395	0.294	0.396	**0.396**
Back	0.204	0.788	0.370	0.574	**0.788**
Left side				0.000	**0.000**
Right side	0.462	0.212	0.256	0.718	**0.718**
Top side	0.112	0.697	0.331	0.443	**0.697**
Bottom side				0.000	**0.000**

<Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case>:

Test Position	AG0	AG1	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case
Front	0.338	1.113	0.396	**1.85**
Back	0.609	1.248	0.788	**2.65**
Left side	0.613	0.500	0.000	**1.11**
Right side	0.332	1.259	0.718	**2.31**
Top side	0.590	0.000	0.697	**1.29**
Bottom side	0.000	1.254	0.000	**1.25**

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Front					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.338	0.864	0.396	1.60	
ANT3-ANT0	0.237	0.864	0.396	1.50	
ANT4-ANT0	0.225	0.864	0.396	1.49	
ANT5-ANT0	0.169	0.864	0.396	1.43	
ANT9-ANT0	0.246	0.864	0.396	1.51	
ANT1-ANT2	0.338	1.113	0.396	**1.85**	**Case 5**
ANT3-ANT2	0.237	1.113	0.396	**1.75**	**Case 6**
ANT4-ANT2	0.225	1.113	0.396	**1.73**	**Case 7**
ANT5-ANT2	0.169	1.113	0.396	**1.68**	**Case 8**
ANT9-ANT2	0.246	1.113	0.396	**1.76**	**Case 9**
ANT1-ANT6	0.338	0.384	0.396	1.12	
ANT3-ANT6	0.237	0.384	0.396	1.02	
ANT4-ANT6	0.225	0.384	0.396	1.01	
ANT5-ANT6	0.169	0.384	0.396	0.95	
ANT9-ANT6	0.246	0.384	0.396	1.03	

Back					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.609	1.248	0.788	**2.65**	**Case 10**
ANT3-ANT0	0.432	1.248	0.788	**2.47**	**Case 11**
ANT4-ANT0	0.362	1.248	0.788	**2.40**	**Case 12**
ANT5-ANT0	0.267	1.248	0.788	**2.30**	**Case 13**
ANT9-ANT0	0.570	1.248	0.788	**2.61**	**Case 14**
ANT1-ANT2	0.609	1.138	0.788	**2.54**	**Case 15**
ANT3-ANT2	0.432	1.138	0.788	**2.36**	**Case 16**
ANT4-ANT2	0.362	1.138	0.788	**2.29**	**Case 17**
ANT5-ANT2	0.267	1.138	0.788	**2.19**	**Case 18**
ANT9-ANT2	0.570	1.138	0.788	**2.50**	**Case 19**
ANT1-ANT6	0.609	0.570	0.788	**1.97**	**Case 20**
ANT3-ANT6	0.432	0.570	0.788	**1.79**	**Case 21**
ANT4-ANT6	0.362	0.570	0.788	**1.72**	**Case 22**
ANT5-ANT6	0.267	0.570	0.788	**1.63**	**Case 23**
ANT9-ANT6	0.570	0.570	0.788	**1.93**	**Case 24**

Right side					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0			0.718	0.72	
ANT3-ANT0	0.332		0.718	1.05	
ANT4-ANT0			0.718	0.72	
ANT5-ANT0	0.332		0.718	1.05	
ANT9-ANT0	0.118		0.718	0.84	
ANT1-ANT2		0.595	0.718	1.31	
ANT3-ANT2	0.332	0.595	0.718	**1.65**	**Case 25**
ANT4-ANT2		0.595	0.718	1.31	
ANT5-ANT2	0.332	0.595	0.718	**1.65**	**Case 26**
ANT9-ANT2	0.118	0.595	0.718	1.43	
ANT1-ANT6		1.259	0.718	**1.98**	**Case 27**
ANT3-ANT6	0.332	1.259	0.718	**2.31**	**Case 28**
ANT4-ANT6		1.259	0.718	**1.98**	**Case 29**
ANT5-ANT6	0.332	1.259	0.718	**2.31**	**Case 30**
ANT9-ANT6	0.118	1.259	0.718	**2.10**	**Case 31**

18.4 Body-Worn Accessory Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.
Simultaneous Transmission Evaluation of WWAN+WLAN+BT:
<AG0 maximum report SAR>:

Test Position	Ant 0	Ant 2	Ant 6	All Antenna MAX SAR 1g W/kg
Front	0.911	1.245	0.412	**1.245**
Back	1.248	1.152	0.570	**1.248**

<AG1 maximum report SAR>:

Test Position	Ant 1	Ant 3	Ant 4	Ant 5	Ant 9	All Antenna MAX SAR 1g W/kg
Front	0.385	0.495	0.536	0.476	0.343	**0.536**
Back	0.894	0.684	0.833	0.750	0.876	**0.894**

<WLAN2.4GHz/5GHz/6GHz+BT Worse-case SAR>:

	1	2	3	1+3 Summed 1g SAR (W/kg)	WLAN/BT worse case
Test Position	Bluetooth	2.4GWLAN	5G/6GWLAN		
Front	0.102	0.373	0.361	0.463	**0.463**
Back	0.282	0.697	0.488	0.770	**0.770**

<Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case>:

Test Position	AG0	AG1	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case
Front	0.536	1.245	0.463	**2.24**
Back	0.894	1.248	0.770	**2.91**

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Front					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.385	0.911	0.463	**1.76**	**Case 43**
ANT3-ANT0	0.495	0.911	0.463	**1.87**	**Case 44**
ANT4-ANT0	0.536	0.911	0.463	**1.91**	**Case 45**
ANT5-ANT0	0.476	0.911	0.463	**1.85**	**Case 46**
ANT9-ANT0	0.343	0.911	0.463	**1.72**	**Case 47**
ANT1-ANT2	0.385	1.245	0.463	**2.09**	**Case 48**
ANT3-ANT2	0.495	1.245	0.463	**2.20**	**Case 49**
ANT4-ANT2	0.536	1.245	0.463	**2.24**	**Case 50**
ANT5-ANT2	0.476	1.245	0.463	**2.18**	**Case 51**
ANT9-ANT2	0.343	1.245	0.463	**2.05**	**Case 52**
ANT1-ANT6	0.385	0.412	0.463	1.26	
ANT3-ANT6	0.495	0.412	0.463	1.37	
ANT4-ANT6	0.536	0.412	0.463	1.41	
ANT5-ANT6	0.476	0.412	0.463	1.35	
ANT9-ANT6	0.343	0.412	0.463	1.22	

Back					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT worse case	AG0+AG1+WLAN/BT worse case	SPLSR
ANT1-ANT0	0.894	1.248	0.770	**2.91**	**Case 53**
ANT3-ANT0	0.684	1.248	0.770	**2.70**	**Case 54**
ANT4-ANT0	0.833	1.248	0.770	**2.85**	**Case 55**
ANT5-ANT0	0.750	1.248	0.770	**2.77**	**Case 56**
ANT9-ANT0	0.876	1.248	0.770	**2.89**	**Case 57**
ANT1-ANT2	0.894	1.152	0.770	**2.82**	**Case 58**
ANT3-ANT2	0.684	1.152	0.770	**2.61**	**Case 59**
ANT4-ANT2	0.833	1.152	0.770	**2.76**	**Case 60**
ANT5-ANT2	0.750	1.152	0.770	**2.67**	**Case 61**
ANT9-ANT2	0.876	1.152	0.770	**2.80**	**Case 62**
ANT1-ANT6	0.894	0.570	0.770	**2.23**	**Case 63**
ANT3-ANT6	0.684	0.570	0.770	**2.02**	**Case 64**
ANT4-ANT6	0.833	0.570	0.770	**2.17**	**Case 65**
ANT5-ANT6	0.750	0.570	0.770	**2.09**	**Case 66**
ANT9-ANT6	0.876	0.570	0.770	**2.22**	**Case 67**

18.5 Product specific 10g SAR Exposure Conditions

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.

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT+NFC:

<AG0 maximum report SAR>:

Test Position	Ant 0	Ant 2	Ant 6	All Antenna MAX SAR 1g W/kg
Front	2.781	2.338		**2.781**
Back	2.637	2.395	0.728	**2.637**
Left side	1.187			**1.187**
Right side			2.168	**2.168**
Top side				**0.000**
Bottom side	1.754	3.119		**3.119**

<AG1 maximum report SAR>:

Test Position	Ant 1	Ant 3	Ant 4	Ant 5	Ant 9	All Antenna MAX SAR 1g W/kg
Front	2.195		0.940			**2.195**
Back	2.474	0.773	1.979		1.643	**2.474**
Left side	1.960		2.286			**2.286**
Right side				0.814		**0.814**
Top side	2.218	2.291				**2.291**
Bottom side						**0.000**

<WLAN2.4GHz/5GHz/6GHz+BT+NFC Worse-case SAR>:

	1	2	3	4			
Test Position	Bluetooth	2.4GWLAN	5G/6GWLAN	NFC	2+4 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)	WLAN/BT+NFC worse case
Front 0mm		0.569	0.877	0.000	0.569	0.877	**0.877**
Back 0mm		0.663	0.303	0.011	0.674	0.314	**0.674**
Left side 0mm				0.000	0.000	0.000	**0.000**
Right side 0mm			0.587	0.000	0.000	0.587	**0.587**
Top side 0mm		0.992	0.987	0.000	**0.992**	**0.987**	**0.992**
Bottom side 0mm				0.000	0.000	0.000	**0.000**

<Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT+NFC Worse-case>:

Test Position	AG0	AG1	WLAN/BT +NFC worse case	AG0+AG1+WLAN/BT+NFC worse case
Front	2.195	2.781	0.877	**5.85**
Back	2.474	2.637	0.674	**5.79**
Left side	2.286	1.187	0.000	**3.47**
Right side	0.814	2.168	0.587	**3.57**
Top side	2.291	0.000	0.992	**3.28**
Bottom side	0.000	3.119	0.000	**3.12**

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

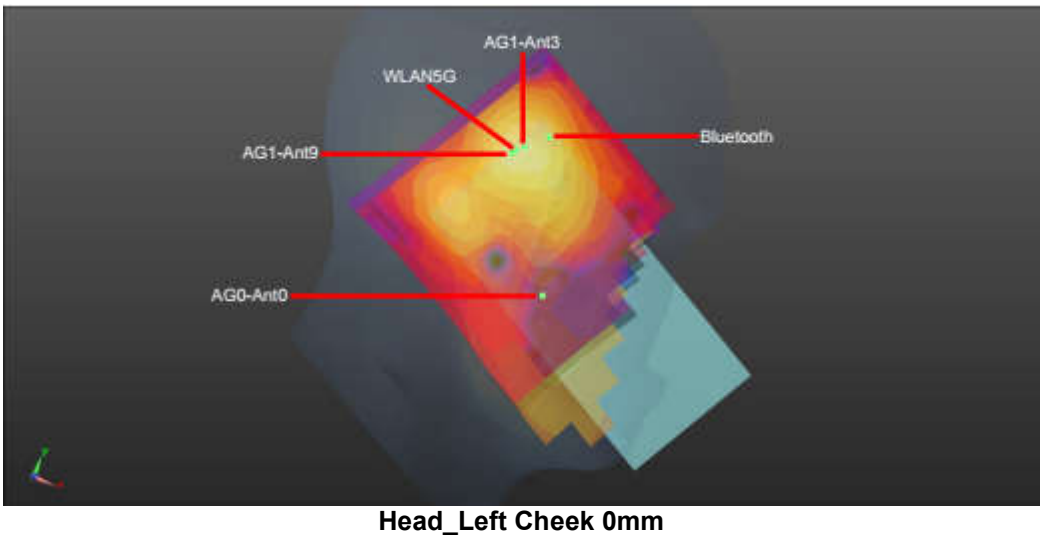
Front					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT +NFC worse case	AG0+AG1+WLAN/BT+NFC worse case	SPLSR
ANT1-ANT0	2.195	2.781	0.877	**5.85**	**Case 32**
ANT3-ANT0		2.781	0.877	3.66	
ANT4-ANT0	0.940	2.781	0.877	**4.60**	**Case 33**
ANT5-ANT0		2.781	0.877	3.66	
ANT9-ANT0		2.781	0.877	3.66	
ANT1-ANT2	2.195	2.338	0.877	**5.41**	**Case 34**
ANT3-ANT2		2.338	0.877	3.22	
ANT4-ANT2	0.940	2.338	0.877	**4.16**	**Case 35**
ANT5-ANT2		2.338	0.877	3.22	
ANT9-ANT2		2.338	0.877	3.22	
ANT1-ANT6	2.195		0.877	3.07	
ANT3-ANT6			0.877	0.88	
ANT4-ANT6	0.940		0.877	1.82	
ANT5-ANT6			0.877	0.88	
ANT9-ANT6			0.877	0.88	

Back					
Ant,combination	AG1 SAR	AG0 SAR	WLAN/BT +NFC worse case	AG0+AG1+WLAN/BT+NFC worse case	SPLSR
ANT1-ANT0	2.474	2.637	0.674	**5.79**	**Case 36**
ANT3-ANT0	0.773	2.637	0.674	**4.08**	**Case 37**
ANT4-ANT0	1.979	2.637	0.674	**5.29**	**Case 38**
ANT5-ANT0		2.637	0.674	3.31	
ANT9-ANT0	1.643	2.637	0.674	**4.95**	**Case 39**
ANT1-ANT2	2.474	2.395	0.674	**5.54**	**Case 40**
ANT3-ANT2	0.773	2.395	0.674	3.84	
ANT4-ANT2	1.979	2.395	0.674	**5.05**	**Case 41**
ANT5-ANT2		2.395	0.674	3.07	
ANT9-ANT2	1.643	2.395	0.674	**4.71**	**Case 42**
ANT1-ANT6	2.474	0.728	0.674	**3.88**	
ANT3-ANT6	0.773	0.728	0.674	2.18	
ANT4-ANT6	1.979	0.728	0.674	3.38	
ANT5-ANT6		0.728	0.674	1.40	
ANT9-ANT6	1.643	0.728	0.674	3.05	

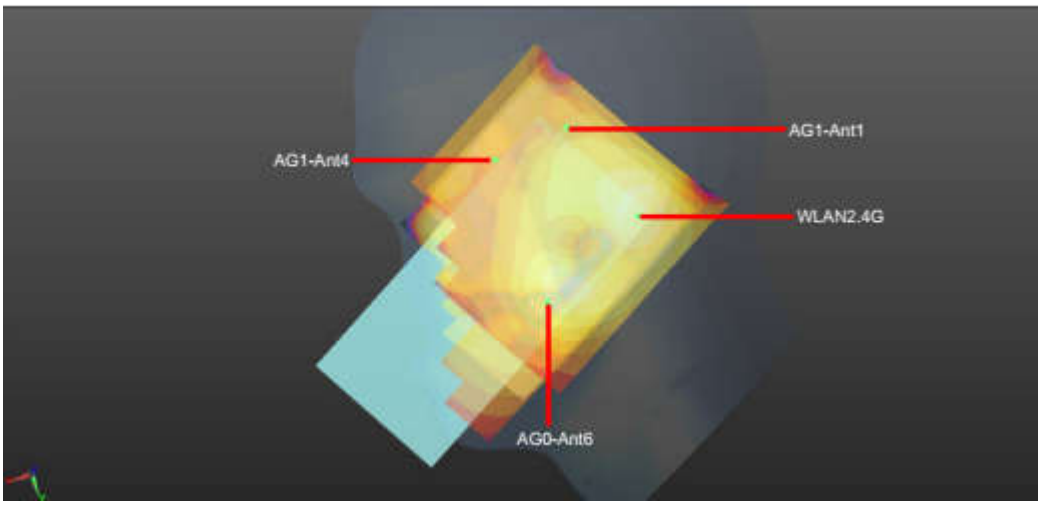
18.6 SPLSR Evaluation and Analysis

General Note:

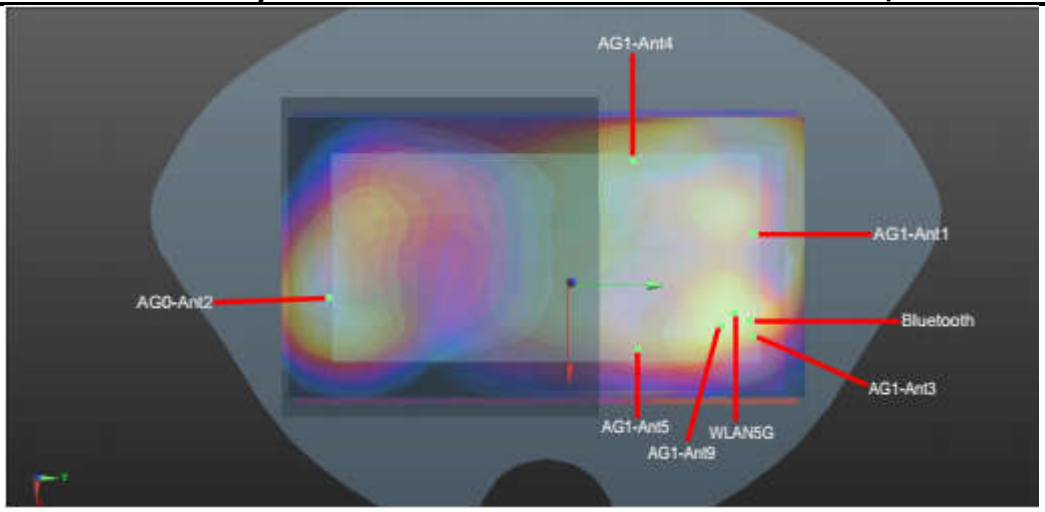
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of [(x1−x2)2 + (y1−y2)2 + (z1−z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. SPLSR = (SAR1 + SAR2)1.5 / (min. separation distance, mm). If SPLSR ≤ 0.04 for 1g SAR and SPLSR ≤ 0.10 for 10g SAR, simultaneously transmission SAR measurement is not necessary.
3. Per April 2022 TCB Workshop Notes, AG1 was summed algebraically with the BT/WIFI Antenna 7/8 and NFC antenna for the purposes of hybrid SPLSR combination and they are located at the Top of the device.
4. Per April 2022 TCB Workshop, instead of doing a small volume scan over a co-located antenna pair, used summing the SAR values of the co-located pair and using that value in SPLSR calculation. In the calculation used the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.
5. The axis peak locations refer to Section 18.7.



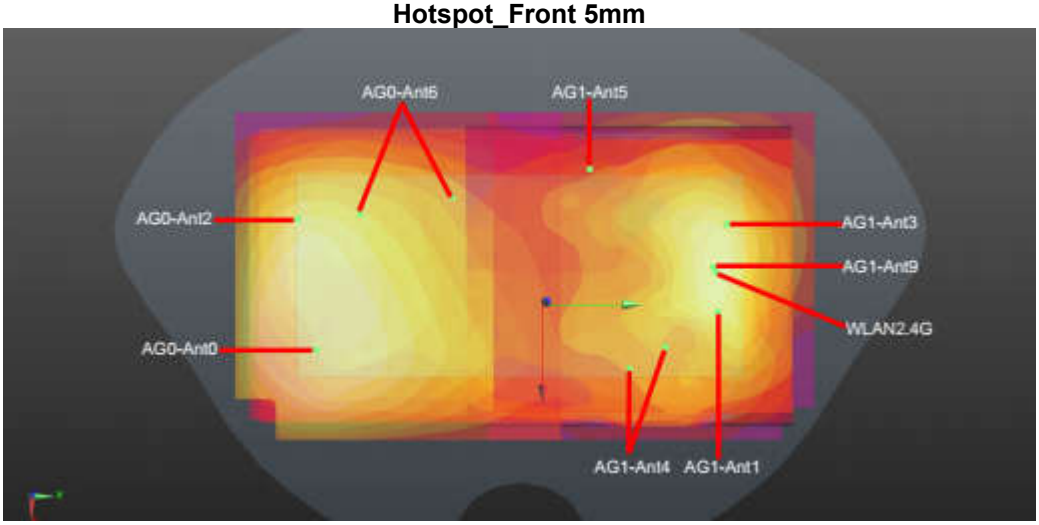
Head_Left Cheek 0mm



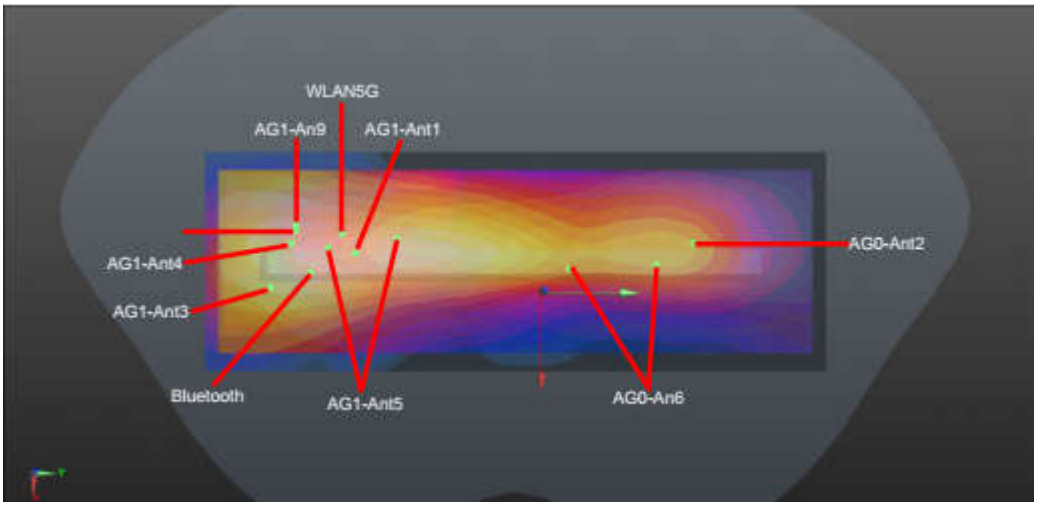
Head_Right Cheek 0mm



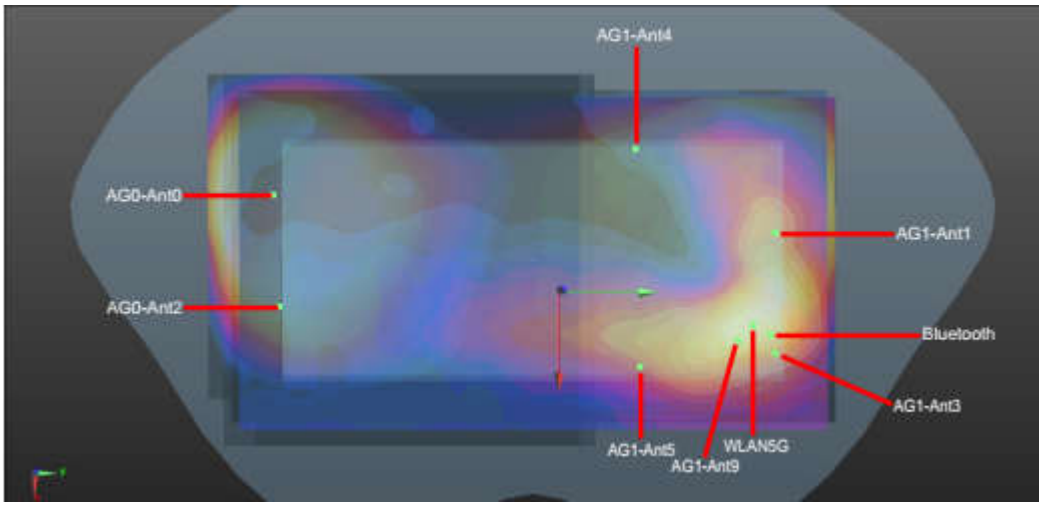
Hotspot_Front 5mm



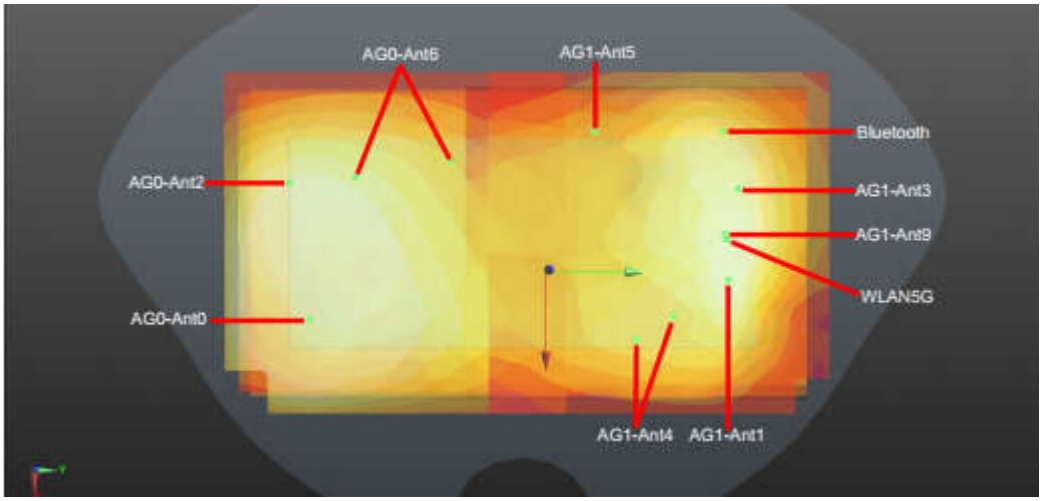
Hotspot_Back 5mm



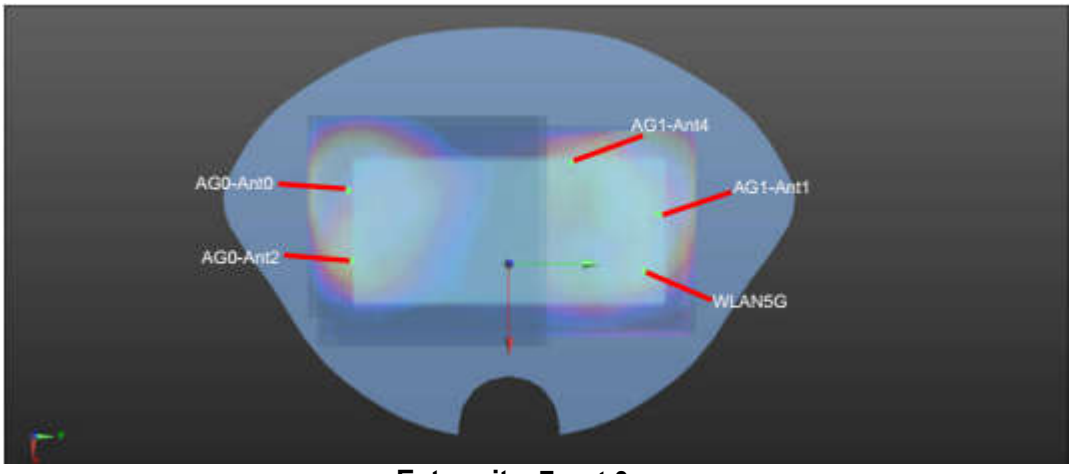
Hotspot_Right Side 5mm



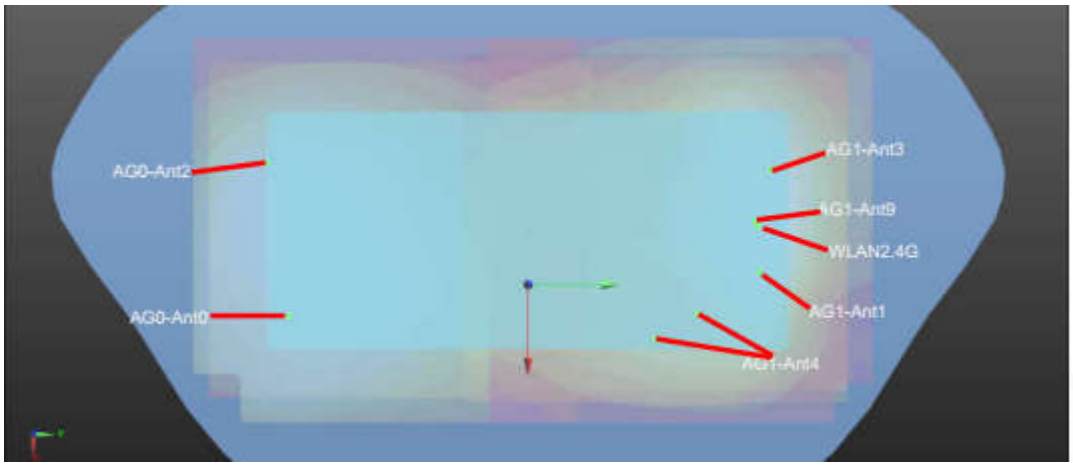
Body_Front 5mm



Body_Back 5mm



Extremity_Front 0mm



Extremity_ Back 0mm

<Head>

Right Cheek												
Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	AG0-ANT6	Right Cheek	0.596	0.60	0mm	46.80	-251.20	-170.10	82.5	1.85	0.03	Not required
	AG1-ANT1		0.822	1.26	0mm	9.10	-324.60	-169.60				
	WLAN		0.433		0mm							
	AG0-ANT6	Right Cheek	0.596	0.60	0mm	46.80	-251.20	-170.10	69.6	1.91	0.04	Not required
	AG1-ANT1		0.880	1.31	0mm							
	WLAN		0.433		0mm	-7.30	-294.70	-165.00				
Case 2	AG0-ANT6	Right Cheek	0.596	0.60	0mm	46.80	-251.20	-170.10	74.6	1.91	0.04	Not required
	AG1-ANT4		0.880	1.31	0mm	55.80	-325.30	-169.40				
	WLAN		0.433		0mm							
	AG0-ANT6	Right Cheek	0.596	0.60	0mm	46.80	-251.20	-170.10	69.6	1.91	0.04	Not required
	AG1-ANT4		0.880	1.31	0mm							
	WLAN		0.433		0mm	-7.30	-294.70	-165.00				

Left Cheek												
Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	AG0-ANT0	Left Cheek	0.375	0.38	0mm	56.90	296.20	-171.60	56.1	1.64	0.04	Not required
	AG1-ANT3		0.597	1.27	0mm	17.90	336.50	-169.90				
	WLAN		0.672		0mm							
	AG0-ANT0	Left Cheek	0.375	0.38	0mm	56.90	296.20	-171.60	55.9	1.64	0.04	Not required
	AG1-ANT3		0.597	1.27	0mm							
	WLAN		0.672		0mm	6.60	320.50	-169.40				
Case 4	AG0-ANT0	Left Cheek	0.375	0.38	0mm	56.90	296.20	-171.60	621.1	1.63	0.00	Not required
	AG1-ANT9		0.587	1.26	0mm	20.10	-323.80	-170.60				
	WLAN		0.672		0mm							
	AG0-ANT0	Left Cheek	0.375	0.38	0mm	56.90	296.20	-171.60	55.9	1.63	0.04	Not required
	AG1-ANT9		0.587	1.26	0mm							
	WLAN		0.672		0mm	6.60	320.50	-169.40				

<Hotspot>

Front												
Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap (mm)	SAR peak location (mm) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	AG0-Ant2	Front	0.338	0.34	5mm	-5.00	-72.00	-203.00	155.4	1.85	0.02	Not required
	AG1-Ant1		1.113	1.51	5mm	-55.00	75.10	-203.00				
	WLAN		0.396		5mm							
	AG0-Ant2	Front	0.338	0.34	5mm	-5.00	-72.00	-203.00	150.4	1.85	0.02	Not required
	AG1-Ant1		1.113	1.51	5mm							
	WLAN		0.396		5mm	5.00	78.10	-203.00				
Case 6	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	158.1	1.75	0.01	Not required
	AG1-Ant3		0.237	0.63	5mm	-5.00	86.10	-203.00				
	WLAN		0.396		5mm							
	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	150.4	1.75	0.02	Not required
	AG1-Ant3		0.237	0.63	5mm							
	WLAN		0.396		5mm	5.00	78.10	-203.00				
Case 7	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	133.8	1.73	0.02	Not required
	AG1-Ant4		0.225	0.62	5mm	-65.00	47.60	-203.00				
	WLAN		0.396		5mm							
	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	150.4	1.73	0.02	Not required

	AG1-Ant4		0.225	0.62	5mm							
	WLAN		0.396		5mm	5.00	78.10	-203.00				
Case 8	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	118.4	1.68	0.02	Not required
	AG1-Ant5		0.169	0.57	5mm	38.20	38.20	-203.00				
	WLAN		0.396		5mm							
	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	150.4	1.68	0.01	Not required
	AG1-Ant5		0.169	0.57	5mm							
	WLAN		0.396		5mm	5.00	78.10	-203.00				
Case 9	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	155.8	1.76	0.01	Not required
	AG1-Ant9		0.246	0.64	5mm	-5.00	83.80	-203.00				
	WLAN		0.396		5mm							
	AG0-Ant2	Front	1.113	1.11	5mm	-5.00	-72.00	-203.00	150.4	1.76	0.02	Not required
	AG1-Ant9		0.246	0.64	5mm							
	WLAN		0.396		5mm	5.00	78.10	-203.00				

Back

Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 10	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	142.5	2.65	0.03	Not required
	AG1-Ant1		0.609	1.40	5mm	-10.00	73.80	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.65	0.03	Not required
	AG1-Ant1		0.609	1.40	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 11	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	159.5	2.47	0.02	Not required
	AG1-Ant3		0.432	1.22	5mm	-55.00	79.90	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.47	0.03	Not required
	AG1-Ant3		0.432	1.22	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 12	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	137.6	2.40	0.03	Not required
	AG1-Ant4		0.362	1.15	5mm	5.00	69.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.40	0.02	Not required
	AG1-Ant4		0.362	1.15	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 13	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	124.5	2.30	0.03	Not required
	AG1-Ant5		0.267	1.06	5mm	-65.00	35.00	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.30	0.02	Not required
	AG1-Ant5		0.267	1.06	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 14	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	147.7	2.61	0.03	Not required
	AG1-Ant9		0.570	1.36	5mm	-25.00	76.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.61	0.03	Not required
	AG1-Ant9		0.570	1.36	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 15	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	156.0	2.54	0.03	Not required
	AG1-Ant1		0.609	1.40	5mm	-10.00	73.80	-203.00				
	WLAN		0.788		5mm							

	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	148.8	2.54	0.03	Not required
	AG1-Ant1		0.609	1.40	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 16	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	155.5	2.36	0.02	Not required
	AG1-Ant3		0.432	1.22	5mm	-55.00	79.90	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	148.8	2.36	0.02	Not required
	AG1-Ant3		0.432	1.22	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 17	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	157.2	2.29	0.02	Not required
	AG1-Ant4		0.362	1.15	5mm	5.00	69.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	148.8	2.29	0.02	Not required
	AG1-Ant4		0.362	1.15	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 18	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	111.1	2.19	0.03	Not required
	AG1-Ant5		0.267	1.06	5mm	-65.00	35.00	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	148.8	2.19	0.02	Not required
	AG1-Ant5		0.267	1.06	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 19	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	155.2	2.50	0.03	Not required
	AG1-Ant9		0.570	1.36	5mm	-25.00	76.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant2	Back	1.138	1.14	5mm	-55.00	-75.60	-203.00	148.8	2.50	0.03	Not required
	AG1-Ant9		0.570	1.36	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 20	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	127.7	1.97	0.02	Not required
	AG1-Ant1		0.609	1.40	5mm	-10.00	73.80	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	1.97	0.02	Not required
	AG1-Ant1		0.609	1.40	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 21	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	121.8	1.79	0.02	Not required
	AG1-Ant3		0.432	1.22	5mm	-55.00	79.90	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	1.79	0.02	Not required
	AG1-Ant3		0.432	1.22	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 22	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	131.4	1.72	0.02	Not required
	AG1-Ant4		0.362	1.15	5mm	5.00	69.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	1.72	0.02	Not required
	AG1-Ant4		0.362	1.15	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				
Case 23	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	76.5	1.63	0.03	Not required
	AG1-Ant5		0.267	1.06	5mm	-65.00	35.00	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	1.63	0.02	Not required
	AG1-Ant5		0.267	1.06	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				

Case 24	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	124.8	1.93	0.02	Not required
	AG1-Ant9		0.570	1.36	5mm	-25.00	76.70	-203.00				
	WLAN		0.788		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	1.93	0.02	Not required
	AG1-Ant9		0.570	1.36	5mm							
	WLAN		0.788		5mm	-55.00	73.20	-203.00				

Right side

Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 25	AG0-Ant2	Right side	0.595	0.60	5mm	-25.00	57.00	-203.00	138.7	1.65	0.02	Not required
	AG1-Ant3		0.332	1.05	5mm	-25.00	-81.70	-203.00				
	WLAN		0.718		5mm							
	AG0-Ant2	Right side	0.595	0.60	5mm	-25.00	57.00	-203.00	114.0	1.65	0.02	Not required
	AG1-Ant3		0.332	1.05	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 26	AG0-Ant2	Right side	0.595	0.60	5mm	-25.00	57.00	-203.00	138.7	1.65	0.02	Not required
	AG1-Ant5		0.332	1.05	5mm	-25.00	-81.70	-203.00				
	WLAN		0.718		5mm							
	AG0-Ant2	Right side	0.595	0.60	5mm	-25.00	57.00	-203.00	114.0	1.65	0.02	Not required
	AG1-Ant5		0.332	1.05	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 27	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	208.1	1.98	0.01	Not required
	AG1-Ant1			0.72	5mm							
	WLAN		0.718		5mm							
	AG0-Ant6	Right side	1.273	1.27	5mm	-25.00	38.10	-203.00	95.1	1.99	0.03	Not required
	AG1-Ant1			0.72	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 28	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	119.8	2.31	0.03	Not required
	AG1-Ant3		0.332	1.05	5mm	-25.00	-81.70	-203.00				
	WLAN		0.718		5mm							
	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	95.1	2.31	0.04	Not required
	AG1-Ant3		0.332	1.05	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 29	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	208.1	1.98	0.01	Not required
	AG1-Ant4			0.72	5mm							
	WLAN		0.718		5mm							
	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	95.1	1.98	0.03	Not required
	AG1-Ant4			0.72	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 30	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	208.1	2.31	0.02	Not required
	AG1-Ant5		0.332	1.05	5mm							
	WLAN		0.718		5mm							
	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	95.1	2.31	0.04	Not required
	AG1-Ant5		0.332	1.05	5mm							
	WLAN		0.718		5mm	-25.00	-57.00	-203.00				
Case 31	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	117.9	2.10	0.03	Not required
	AG1-Ant9		0.118	0.84	5mm	-41.00	-78.70	-203.00				
	WLAN		0.718		5mm							
	AG0-Ant6	Right side	1.259	1.26	5mm	-25.00	38.10	-203.00	95.1	2.10	0.03	Not required
	AG1-Ant9		0.118	0.84	5mm							

	WLAN		0.718		5mm	-25.00	-57.00	-203.00				

<Body-worn>

Front												
Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 43	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	145.0	1.76	0.02	Not required
	AG1-Ant1		0.385	0.85	5mm	-55.00	75.10	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	159.7	1.76	0.01	Not required
	AG1-Ant1		0.385	0.85	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 44	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	163.8	1.87	0.02	Not required
	AG1-Ant3		0.495	0.96	5mm	-5.00	86.10	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	159.7	1.87	0.02	Not required
	AG1-Ant3		0.495	0.96	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 45	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	117.9	1.91	0.02	Not required
	AG1-Ant4		0.536	1.00	5mm	-65.00	47.60	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	159.7	1.91	0.02	Not required
	AG1-Ant4		0.536	1.00	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 46	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	128.8	1.85	0.02	Not required
	AG1-Ant5		0.476	0.94	5mm	15.00	38.20	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	159.7	1.85	0.02	Not required
	AG1-Ant5		0.476	0.94	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 47	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	161.6	1.72	0.01	Not required
	AG1-Ant9		0.343	0.81	5mm	-5.00	83.80	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant0	Front	0.911	0.91	5mm	-55.00	-69.90	-203.00	159.7	1.72	0.01	Not required
	AG1-Ant9		0.343	0.81	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 48	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	167.5	2.09	0.02	Not required
	AG1-Ant1		0.385	0.85	5mm	75.10	75.10	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	150.4	2.09	0.02	Not required
	AG1-Ant1		0.385	0.85	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 49	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	158.1	2.20	0.02	Not required
	AG1-Ant3		0.495	0.96	5mm	-5.00	86.10	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	150.4	2.20	0.02	Not required
	AG1-Ant3		0.495	0.96	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 50	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	133.8	2.24	0.03	Not required
	AG1-Ant4		0.536	1.00	5mm	-65.00	47.60	-203.00				

	WLAN		0.463		5mm							
	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	150.4	2.24	0.02	Not required
	AG1-Ant4		0.536	1.00	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 51	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	112.0	2.18	0.03	Not required
	AG1-Ant5		0.476	0.94	5mm	15.00	38.20	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	150.4	2.18	0.02	Not required
	AG1-Ant5		0.476	0.94	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				
Case 52	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	155.8	2.05	0.02	Not required
	AG1-Ant9		0.343	0.81	5mm	-5.00	83.80	-203.00				
	WLAN		0.463		5mm							
	AG0-Ant2	Front	1.245	1.25	5mm	-5.00	-72.00	-203.00	150.4	2.05	0.02	Not required
	AG1-Ant9		0.343	0.81	5mm							
	WLAN		0.463		5mm	5.00	78.10	-203.00				

Back

Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 53	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	142.5	2.91	0.03	Not required
	AG1-Ant1		0.894	1.66	5mm	-10.00	73.80	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.91	0.03	Not required
	AG1-Ant1		0.894	1.66	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 54	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	159.5	2.70	0.03	Not required
	AG1-Ant3		0.684	1.45	5mm	-55.00	79.90	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.70	0.03	Not required
	AG1-Ant3		0.684	1.45	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 55	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	137.6	2.85	0.04	Not required
	AG1-Ant4		0.833	1.60	5mm	5.00	69.70	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.85	0.03	Not required
	AG1-Ant4		0.833	1.60	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 56	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	124.5	2.77	0.04	Not required
	AG1-Ant5		0.750	1.52	5mm	-65.00	35.00	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.77	0.03	Not required
	AG1-Ant5		0.750	1.52	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 57	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	147.7	2.89	0.03	Not required
	AG1-Ant9		0.876	1.65	5mm	-25.00	76.70	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant0	Back	1.248	1.25	5mm	5.00	-67.90	-203.00	153.3	2.89	0.03	Not required
	AG1-Ant9		0.876	1.65	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 58	AG0-Ant2	Back	1.152	1.15	5mm	-55.00	-75.60	-203.00	156.0	2.82	0.03	Not required

	AG1-Ant1		0.894	1.66	5mm	-10.00	73.80	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant1	Back	0.894	1.66	5mm				148.8	2.82	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant3	Back	0.684	1.45	5mm	-55.00	79.90	-203.00	155.5	2.61	0.03	Not required
Case 59	WLAN		0.770		5mm							
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant3	Back	0.684	1.45	5mm				148.8	2.61	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant4	Back	0.833	1.60	5mm	5.00	69.70	-203.00	157.2	2.76	0.03	Not required
Case 60	WLAN		0.770		5mm							
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant4	Back	0.833	1.60	5mm				148.8	2.76	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant5	Back	0.750	1.52	5mm	-65.00	35.00	-203.00	111.1	2.67	0.04	Not required
Case 61	WLAN		0.770		5mm							
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant5	Back	0.750	1.52	5mm				148.8	2.67	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant9	Back	0.876	1.65	5mm	-25.00	76.70	-203.00	155.2	2.80	0.03	Not required
Case 62	WLAN		0.770		5mm							
	AG0-Ant2		1.152	1.15	5mm	-55.00	-75.60	-203.00				
	AG1-Ant9	Back	0.876	1.65	5mm				148.8	2.80	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant1	Back	0.894	1.66	5mm	-10.00	73.80	-203.00	127.7	2.23	0.03	Not required
Case 63	WLAN		0.770		5mm							
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant1	Back	0.894	1.66	5mm				115.1	2.23	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant3	Back	0.684	1.45	5mm	-55.00	79.90	-203.00	121.8	2.02	0.02	Not required
Case 64	WLAN		0.770		5mm							
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant3	Back	0.684	1.45	5mm				115.1	2.02	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant4	Back	0.833	1.60	5mm	5.00	69.70	-203.00	131.4	2.17	0.02	Not required
Case 65	WLAN		0.770		5mm							
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant4	Back	0.833	1.60	5mm				115.1	2.17	0.03	Not required
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
	AG0-Ant6		0.570	0.57	5mm	-65.00	-41.50	-203.00				
	AG1-Ant5	Back	0.750	1.52	5mm	-65.00	35.00	-203.00	76.5	2.09	0.04	Not required
Case 66	WLAN		0.770		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	2.09	0.03	Not required

	AG1-Ant5		0.750	1.52	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				
Case 67	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	124.8	2.22	0.03	Not required
	AG1-Ant9		0.876	1.65	5mm	-25.00	76.70	-203.00				
	WLAN		0.770		5mm							
	AG0-Ant6	Back	0.570	0.57	5mm	-65.00	-41.50	-203.00	115.1	2.22	0.03	Not required
	AG1-Ant9		0.876	1.65	5mm							
	WLAN		0.770		5mm	-55.00	73.20	-203.00				

<Extremity>

Front

Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 32	AG0-Ant0	Front	2.781	2.78	0mm	-70.00	-68.60	-203.00	151.7	5.85	0.09	Not required
	AG1-Ant1		2.195	3.07	0mm	-45.00	81.00	-203.00				
	WLAN		0.877		0mm							
	AG0-Ant0	Front	2.781	2.78	0mm	-70.00	-68.60	-203.00	163.7	5.85	0.09	Not required
	AG1-Ant1		2.195	3.07	0mm							
	WLAN		0.877		0mm	-15.00	85.60	-203.00				
Case 33	AG0-Ant0	Front	2.781	2.78	0mm	-70.00	-68.60	-203.00	115.8	4.60	0.09	Not required
	AG1-Ant4		0.940	1.82	0mm	-65.00	47.10	-203.00				
	WLAN		0.877		0mm							
	AG0-Ant0	Front	2.781	2.78	0mm	-70.00	-68.60	-203.00	163.7	4.60	0.06	Not required
	AG1-Ant4		0.940	1.82	0mm							
	WLAN		0.877		0mm	-15.00	85.60	-203.00				
Case 34	AG0-Ant2	Front	2.338	2.34	0mm	-15.00	-76.40	-203.00	160.2	5.41	0.08	Not required
	AG1-Ant1		2.195	3.07	0mm	-45.00	81.00	-203.00				
	WLAN		0.877		0mm							
	AG0-Ant2	Front	2.338	2.34	0mm	-15.00	-76.40	-203.00	162.0	5.41	0.08	Not required
	AG1-Ant1		2.195	3.07	0mm							
	WLAN		0.877		0mm	-15.00	85.60	-203.00				
Case 35	AG0-Ant2	Front	2.338	2.34	0mm	-15.00	-76.40	-203.00	133.2	4.16	0.06	Not required
	AG1-Ant4		0.940	1.82	0mm	-65.00	47.10	-203.00				
	WLAN		0.877		0mm							
	AG0-Ant2	Front	2.338	2.34	0mm	-15.00	-76.40	-203.00	162.0	4.16	0.05	Not required
	AG1-Ant4		0.940	1.82	0mm							
	WLAN		0.877		0mm	-15.00	85.60	-203.00				

Back

Case No	Band	Position	SAR (W/kg)	SAR (W/kg)	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					(mm)	X	Y	Z				
Case 36	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	147.0	5.79	0.09	Not required
	AG1-Ant1		2.474	3.15	0mm	-10.00	75.60	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	152.3	5.79	0.09	Not required
	AG1-Ant1		2.474	3.15	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 37	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	163.1	4.08	0.05	Not required
	AG1-Ant3		0.773	1.45	0mm	-55.00	81.10	-203.00				
	WLAN		0.674		0mm							

	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	152.3	4.08	0.05	Not required
	AG1-Ant3		0.773	1.45	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 38	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	124.6	5.29	0.10	Not required
	AG1-Ant4		1.979	2.65	0mm	15.00	53.60	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	152.3	5.29	0.08	Not required
	AG1-Ant4		1.979	2.65	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 39	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	152.8	4.95	0.07	Not required
	AG1-Ant9		1.643	2.32	0mm	-35.00	76.90	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant0	Back	2.637	2.64	0mm	5.00	-70.60	-203.00	152.3	4.95	0.07	Not required
	AG1-Ant9		1.643	2.32	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 40	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	154.1	5.54	0.08	Not required
	AG1-Ant1		2.474	3.15	0mm	-10.00	75.60	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	145.8	5.54	0.09	Not required
	AG1-Ant1		2.474	3.15	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 41	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	140.4	5.05	0.08	Not required
	AG1-Ant4		1.979	2.65	0mm	15.00	53.60	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	145.8	5.05	0.08	Not required
	AG1-Ant4		1.979	2.65	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				
Case 42	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	152.6	4.71	0.07	Not required
	AG1-Ant9		1.643	2.32	0mm	-35.00	76.90	-203.00				
	WLAN		0.674		0mm							
	AG0-Ant2	Back	2.395	2.40	0mm	-40.00	-75.60	-203.00	145.8	4.71	0.07	Not required
	AG1-Ant9		1.643	2.32	0mm							
	WLAN		0.674		0mm	-55.00	69.40	-203.00				

18.7 SAR Peak Locations of Maximum Report SAR

General Note:

1. The SAR Peak Locations of maximum report SAR corresponding to each position of each frequency band of each antenna in the below tables are as follows.
2. The unit of SAR evaluation is W/kg. The unit of x, y, z with Axis evaluation is mm.
3. WWAN/WLAN antenna always chose the worst Axis among each frequency range (750MHz/835MHz/1750MHz /1900MHz /2450MHz /2600MHz/3500MHz/3700MHz/3900MHz /5GHz/6GHz) within the selected antenna for each exposure position.

<Head>

Right Cheek												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band, 12/13/17	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:22.6 Y:-333.8 Z:-170.2						X:63.1 Y:-275.5 Z:-170.4			
835MHz	GSM850,3TX WCDMA,V LTE,Band, 5/26 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:22.7 Y:-333.7 Z:-170.3						X:62.1 Y:-276.1 Z:-170.6			
1750MHz	WCDMA,IV LTE,Band, 4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:17.5 Y:-336.8 Z:-169.8						X:57 Y:-244.8 Z:-168.7	X:65.5 Y:-308.1 Z:-169		
1900MHz	GSM1900,3TX WCDMA,II LTE,Band, 2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:9.1 Y:-324.6 Z:-169.6						X:53.6 Y:-247.1 Z:-169.1	X:62 Y:-293.3 Z:-170.7		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:6.2 Y:-309.4 Z:-168.9	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:-2.4 Y:-280.8 Z:-163.7
2600MHz	LTE,Band, 7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:26.2 Y:-331.7 Z:-170.5			X:33.4 Y:-248.6 Z:-167.7			X:59.8 Y:-300.3 Z:-171	X:53.7 Y:-258.4 Z:-171.1		
3500/3700/3900MHz	LTE,Band, 42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-5.4 Y:-293.6 Z:-165.2	X:55.8 Y:-325.3 Z:-169.4		X:46.8 Y:-251.2 Z:-170.1	X:8 Y:-319.6 Z:-169.5				
5250/5600/5750MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-7.3 Y:-294.7 Z:-165	

Left Cheek												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band, 12/13/17	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:0.7 Y:295.8 Z:-166.9						X:57.4 Y:261.9 Z:-170.7			
835MHz	GSM850,3TX WCDMA,V LTE,Band, 5/26 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-2.4 Y:297.6 Z:-166.5						X:53.9 Y:264.0 Z:-171.4			
1750MHz	WCDMA,IV LTE,Band, 4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:5.3 Y:310 Z:-168.9						X:60.2 Y:243.1 Z:-167.8	X:58.3 Y:244.2 Z:-168.4		
1900MHz	GSM1900,3TX WCDMA,II LTE,Band, 2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:6.9 Y:309.1 Z:-169						X:56.9 Y:296.2 Z:-171.6	X:55.8 Y:262.9 Z:-171		
2450MHz	2.4GWLAN	Max,SAR									NA	

		Axis(X,Y,Z)									X:6.6 Y:320.5 Z:-169.4	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:32.4 Y:339.1 Z:-169.9
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-3 Y:314.9 Z:-167.9			X:60.3 Y:322.4 Z:-168.9			X:50.4 Y:249.1 Z:-170.4	X:62.9 Y:298.3 Z:-170.4		
3500/3700/3900MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:17.9 Y:336.5 Z:-169.9	X:4.8 Y:287.7 Z:-166.8		X:54.1 Y:303.6 Z:-171.8	X:20.1 Y:323.8 Z:-170.6				
5250/5600/5750MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:17.3 Y:336.8 Z:-169.8	

<Hotspot>

Front

Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:83.1 Z:-203						X:-55 Y:-75.6 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:84.6 Z:-203						X:-70 Y:-81.8 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-55 Y:87 Z:-203						X:-55 Y:-69.9 Z:-203	X:-10 Y:-79.2 Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-40 Y:89.2 Z:-203						X:-55 Y:-72.9 Z:-203	X:-10 Y:-78.3 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:91.1 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:5 Y:76.5 Z:-203
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-55 Y:75.1 Z:-203			X:15 Y:38.2 Z:-203			X:-45 Y:-80.7 Z:-203	X:-5 Y:-72 Z:-203		
3500/3700/3900MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-5 Y:86.1 Z:-203	X:-65 Y:47.6 Z:-203		X:-5 Y:-66.2 Z:-203	X:-5 Y:83.8 Z:-203				
5250/5600/5750MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:5 Y:78.1 Z:-203	

Back

Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:5 Y:75.1 Z:-203						X:-10 Y:-81.3 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-10 Y:73.8 Z:-203						X:5 Y:-76.4 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:79 Z:-203						X:5 Y:-67.9 Z:-203	X:-55 Y:-75.6: Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:76.6 Z:-203						X:5 Y:-68.2 Z:-203	X:-55 Y:-76.5 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,									X:-25 Y:83.2	

		Y,Z)									Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:-55 Y:71.8 Z:-203
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-5 Y:76 Z:-203			X:-65 Y:35 Z:-203			X:-5 Y:-80.3 Z:-203	X:-45 Y:-78 Z:-203		
3500/3700/3900 MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-55 Y:79.9 Z:-203	X:5 Y:69.7 Z:-203		X:-65 Y:-41.5 Z:-203	X:-25 Y:76.7 Z:-203				
5250/5600/5750 MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-55 Y:73.2 Z:-203	

Right Side

Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR										
		Axis(X,Y,Z)										
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR										
		Axis(X,Y,Z)										
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR								NA		
		Axis(X,Y,Z)								X:-25 Y:61.5 Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR								NA		
		Axis(X,Y,Z)								X:-25 Y:63 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:-75.6 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:-25 Y:-69.9 Z:-203
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR				NA				NA		
		Axis(X,Y,Z)				X:-33 Y:-41.9 Z:-203				X:-25 Y:57 Z:-203		
3500/3700/3900 MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA			NA	NA				
		Axis(X,Y,Z)		X:-25 Y:-81.7 Z:-203			X:-25 Y:38.1 Z:-203	X:-41 Y:-78.7 Z:-203				
5250/5600/5750 MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:-57 Z:-203	

<Body-worn>

Front												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:83.1 Z:-203						X:-55 Y:-75.6 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:84.6 Z:-203						X:-70 Y:-81.8 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-55 Y:87 Z:-203						X:-55 Y:-69.9 Z:-203	X:-10 Y:-79.2 Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-40 Y:89.2 Z:-203						X:-55 Y:-72.9 Z:-203	X:-10 Y:-78.3 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:91.1 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:5 Y:76.5 Z:-203
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-55 Y:75.1 Z:-203			X:15 Y:38.2 Z:-203			X:-45 Y:-80.7 Z:-203	X:-5 Y:-72 Z:-203		
3500/3700/3900 MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-5 Y:86.1 Z:-203	X:-65 Y:47.6 Z:-203		X:-5 Y:-66.2 Z:-203	X:-5 Y:83.8 Z:-203				
5250/5600/5750 MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:5 Y:78.1 Z:-203	

Back												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:5 Y:75.1 Z:-203						X:-10 Y:-81.3 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-10 Y:73.8 Z:-203						X:5 Y:-76.4 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:79 Z:-203						X:5 Y:-67.9 Z:-203	X:-55 Y:-75.6: Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:76.6 Z:-203						X:5 Y:-68.2 Z:-203	X:-55 Y:-76.5 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:83.2 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X:-55 Y:71.8 Z:-203
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-5 Y:76 Z:-203			X:-65 Y:35 Z:-203			X:-5 Y:-80.3 Z:-203	X:-45 Y:-78 Z:-203		
3500/3700/3900 MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-55 Y:79.9 Z:-203	X:5 Y:69.7 Z:-203		X:-65 Y:-41.5 Z:-203	X:-25 Y:76.7 Z:-203				
5250/5600/5750 MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-55 Y:73.2 Z:-203	

<Extremity>

Front												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:83.1 Z:-203						X:-70 Y:-70.4 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-55 Y:81.9 Z:-203						X:-70 Y:-68.6 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-55 Y:86 Z:-203						X:-55 Y:-72.6 Z:-203	X:-10 Y:-80.4 Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-40 Y:84.6 Z:-203						X:-55 Y:-72 Z:-203	X:-10 Y:-78.3 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-15 Y:85.6 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X: Y: Z:
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-45 Y:81 Z:-203			X: Y: Z:			X:-45 Y:-80.1 Z:-203	X:-15 Y:-76.4 Z:-203		
3500/3700/3900MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:5 Y:84.7 Z:-203	X:-65 Y:47.1 Z:-203		X: Y: Z:	X: Y: Z:				
5250/5600/5750MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-5 Y:85.6 Z:-203	

Back												
Freq.	Support,Band		Ant 1	Ant 3	Ant 4	Ant 5	Ant 6	Ant 9	Ant 0	Ant 2	Ant 8+7	Ant 8
750MHz	LTE,Band,12/13	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-10 Y:76.2 Z:-203						X:5 Y:-73.3 Z:-203			
835MHz	GSM850,4TX WCDMA,V LTE,Band,5 FR1,n5	Max,SAR	NA						NA			
		Axis(X,Y,Z)	X:-10 Y:75.6 Z:-203						X:5 Y:-70.6 Z:-203			
1750MHz	WCDMA,IV LTE,Band,4/66 FR1,n66	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:76.9 Z:-203						X:5 Y:-73.1 Z:-203	X:-40 Y:-75.6 Z:-203		
1900MHz	GSM1900,4TX WCDMA,II LTE,Band,2/25 FR1,n2	Max,SAR	NA						NA	NA		
		Axis(X,Y,Z)	X:-10 Y:76.8 Z:-203						X:5 Y:-70.9 Z:-203	X:-40 Y:-75.9 Z:-203		
2450MHz	2.4GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-25 Y:81.8 Z:-203	
2450MHz	Bluetooth	Max,SAR										NA
		Axis(X,Y,Z)										X: Y: Z:
2600MHz	LTE,Band,7/38/41 FR1,n7/38/41	Max,SAR	NA			NA			NA	NA		
		Axis(X,Y,Z)	X:-5 Y:75.9 Z:-203			X: Y: Z:			X:-5 Y:-80.3 Z:-203	X:-35 Y:-78.8 Z:-203		
3500/3700/3900MHz	LTE,Band,42 FR1,n77/n78	Max,SAR		NA	NA		NA	NA				
		Axis(X,Y,Z)		X:-55 Y:81.1 Z:-203	X:15 Y:53.6 Z:-203		X: Y: Z:	X:-35 Y:76.9 Z:-203				
5250/5600/5750MHz/6G	5G/6GWLAN	Max,SAR									NA	
		Axis(X,Y,Z)									X:-55 Y:69.4 Z:-203	
NFC		Max,SAR	NA									
		Axis(X,Y,Z)	X:8 Y:69.8 Z:-184									

19. Supplemental Tuner Tests Results

General Note:

1. This device implements impedance tuner (250 states) antenna tuning techniques in the WCDMA V, LTE Band 2/4/5/7/12/13/17/66/38/41, and 5GNR n5/7/26/38/41 for ANT0.
2. LTE B17 / B4 / B38 SAR test was covered by LTE B12 / B66 / B41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced.
3. 5GNR n38 SAR test was covered by 5GNR n41; according to April 2015 TCB workshop, SAR test for overlapping NR bands can be reduced.
4. Per 2019, April TCBC Workshop titled “RF Exposure Procedures”, the following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions.
    1) SAR is measured according to required procedures with dynamic tuner active allowing device to automatically tune. Auto-tune state determined by device during normal SAR measurement verified and listed alongside the reported SAR results.
    2) Total number tuner states divided evenly among each supported band / air interface and exposure condition combination.
    3) The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions).
    4) Single point measurements performed at the peak SAR location of the highest measured SAR configuration for each combination. SAR probe remains stationary throughout the entire series of single point measurements for each combination.
    5) If any single point SAR measurement result is > 1.2 W/kg for 1gSAR (or > 3.0 W/kg for 10gSAR) for a band/exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination.
5. The above test procedures were followed to demonstrate that the SAR results in Section 17 represented 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.
6. To evaluate all of the tuner states, the 250 tuner states for ANT0 is divided evenly among band, 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. When the single point SAR or 1g SAR was > 1.2 W/kg or 10g SAR was > 3.0 W/kg for a particular band / mode / exposure condition, point SAR measurements were made for all tuner states.
7. According to KDB 648474 D04 v01r03, in order to reduce the number of SAR tests required to demonstrate compliance for the numerous tuning states, certain SAR screening procedures were considered to identify the higher SAR between body-worn and hotspot scenarios that need normally required SAR measurements and allow SAR test reduction for the lower SAR conditions.
8. According to KDB 648474 D04 v01r03, this design will provide the highest power at different user scenarios and would not influence to the antenna characteristics other than impedance matching. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
9. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

19.1 Supplemental Tuner Head & Body SAR Results

Please refer to Appendix G.

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20. 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.

Declaration of Conformity:
The test results with all measurement uncertainty excluded is 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.

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[a]	1/k[b]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 4 MHz - 10 GHz range)							
Error Description	**Uncert. Value (±%)**	**Prob. Dist.**	**Div.**	**(Ci) 1g**	**(Ci) 10g**	**Standard Uncertainty (1g) (±%)**	**Standard Uncertainty (10g) (±%)**
Measurement System errors							
Probe calibration	18.6	N	2	1	1	9.3	9.3
Probe calibration drift	1.7	R	1.732	1	1	1.0	1.0
Probe linearity and detection Limit	4.7	R	1.732	1	1	2.7	2.7
Broadband signal	2.8	R	1.732	1	1	1.6	1.6
Probe isotropy	7.6	R	1.732	1	1	4.4	4.4
Other probe and data acquisition errors	2.4	N	1	1	1	2.4	2.4
RF ambient and noise	1.8	N	1	1	1	1.8	1.8
Probe positioning errors	0.006	N	1	0.5	0.5	0.0	0.0
Data processing errors	4.0	N	1	1	1	4.0	4.0
Phantom and Device Errors							
Measurement of phantom conductivity (σ)	2.5	N	1	0.78	0.71	2.0	1.8
Temperature effects (medium)	5.4	R	1.732	0.78	0.71	2.4	2.2
Shell permittivity	14.0	R	1.732	0.5	0.5	4.0	4.0
Distance between the radiating element of the DUT and the phantom medium	2.0	N	1	2	2	4.0	4.0
Repeatability of positioning the DUT or source against the phantom	1.0	N	1	1	1	1.0	1.0
Device holder effects	3.6	N	1	1	1	3.6	3.6
Effect of operating mode on probe sensitivity	2.4	R	1.732	1	1	1.4	1.4
Time-average SAR	1.7	R	1.732	1	1	1.0	1.0
Variation in SAR due to drift in output of DUT	2.5	N	1	1	1	2.5	2.5
Validation antenna uncertainty (validation measurement only)	0.0	N	1	1	1	0.0	0.0
Uncertainty in accepted power (validation measurement only)	0.0	N	1	1	1	0.0	0.0
Correction to the SAR results							
Phantom deviation from target (ε´,σ)	1.9	N	1	1	0.84	1.9	1.6
SAR scaling	0.0	R	1.732	1	1	0.0	0.0
Combined Std. Uncertainty						**14.5%**	**14.4%**
Coverage Factor for 95 %						**K=2**	**K=2**
Expanded STD Uncertainty						**29.0%**	**28.8%**

21. 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] IEC/IEEE 62209-1528:2020, “Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)”, Oct. 2020

[5] SPEAG DASY System Handbook

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

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

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

[16] FCC KDB 484596 D01 v02r03, “Test Reductions Via Data Referencing”, Mar. 2024

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